UNIBOARD®

ENVIRONMENTAL DATA SHEET

MEDIUM DENSITY FIBERBOARD (MDF)

Our MDF is a medium density fiberboard that meets California Air Resource Board (CARB) requirements as well as those of the US EPA TSCA Title VI. This product is FSC® (Forest Stewardchip Council®) certified for its chain of custody by Preferred by Nature and ECC™ certified (Eco-Certified Composite) by the Composite Panel Association (CPA). It is made using 100% pre-consumer recycled and recovered wood fiber. Uniboard's MDF is available in a wide array of melamine colors.

VALIDATED ECO-DECLARATION

PRODUCT SPECIFICATIONS

References
Medium Density Fiberboard (MDF) laminated or not laminated

Final manufacturing location
Mont-Laurier, Quebec J9L 3W3
Sayabec, Quebec G0J 3K0
Val-d'Or, Quebec J9P 5G6
CANADA

Composition
Wood fibers, MUF resin, water, wax, scavenger and melamine-cellulose.

ATTRIBUTES

Recycled content
Pre-consumer: 81.4% - 83.7%
Post-consumer: 0%

Sourcing of raw materials
Data collection from suppliers has been conducted for the products components aligned with each specific environmental analysis.

Certified Wood NC-COC-002726

Rapidly renewable materials -

ENVIRONMENTAL IMPACTS

Life Cycle Assessment -

Reference service life -

Product's carbon footprint -

Environmental Product Declaration
Industry-wide (generic) EPD,
Type III, ISO 14025:2006 December 2018 to November 2023
The EPD excludes the laminated product.

INGREDIENTS AND EMISSIONS

Declaration of chemical ingredients 100 ppm

Type of declaration HPD® version 2.3
Health Product Declaration®
October 2022 to October 2025

Emissions test -

VOC -

Formaldehyde ≤ 0.11 ppm

Others TSCA Title VI compliant

TECHNICAL PERFORMANCES

Performance tests
ANSI A208.2-2022/ASTM E84

MANUFACTURER'S ENVIRONMENTAL MANAGEMENT

ISO 14001 Certification -

Extended Product Responsibility -
(Take Back Program)

Corporate Sustainability Report -
(CSR: GRI, ISO 26000, BNQ 21000 or others)

CERTIFICATION(S) & CONFORMITIES

FSC www.fsc.org FSC® C002807
The mark of responsible forestry

TSCA TITLE VI COMPLIANT

SUSTAINABLE USE OF WOOD FIBER Meets Composite Panel Association ECO-CERTIFIED ECC Standard 4-19

Uniboard Canada Inc. is a leading North American manufacturer of engineered wood products, with installed capacity of over 660 million square feet of raw particleboard, high-density and medium-density fiberboard, of wich over 50% is converted into value-added TFL.

5555, Ernest Cormier Street – Suite 100, Laval, H7C 2S9, QC, Canada
www.uniboard.com

Master Format : **06 42 00**
Validated Eco-Declaration : **VED16-1068-04**
Original issue date : **05/2016**
Period of validity : **2022/08** to **2023/08**

VERTIMA VALIDATED ECO-DECLARATION

ENVIRONMENTAL DATA SHEET

MEDIUM DENSITY FIBERBOARD (MDF)

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for Building Design + Construction (BD+C)

New Construction, Core and Shell, Schools, Retail, Data Centers, Warehouse and Distribution Centers, Hospitality and Healthcare.

LEED® v4 requirements for Interior Design + Construction (ID+C)

Commercial Interiors, Retail and Hospitality.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR	**Building Product Disclosure and Optimization — Environmental Product Declaration (EPD)** **Option 1: Environmental Product Declaration (1 point)** The product contributes to this credit due to the availability of an industry-wide (generic) EPD (Type III) and is valued as one half (1/2) of a product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**ENVIRONMENTAL IMPACTS** Industry-wide (generic) Type III EPD compliant to ISO 14025:2006 The EPD excludes the laminated product.
MR	**Building Product Disclosure and Optimization — Sourcing of Raw Materials** **Option 2: Leadership extraction practices (1 point)** Requirements - Use products that meet at least one of the responsible extraction criteria: Recycled content, Wood products Certification, Bio-based materials, Extended producer responsibility.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 81.4% - 83.7% FSC®- Certified (When specified)
MR	**Building Product Disclosure and Optimization — Material Ingredients** **Option 1: Material ingredients reporting (1 point)** The product contributes to this credit due to the availability of Health Product Declarations®.They are valued as 1 whole product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**INGREDIENTS AND EMISSIONS** HPD® version 2.3 Health Product Declaration®

INDOOR ENVIRONMENTAL QUALITY		PRODUCT CONTRIBUTIONS	
EQ	**Low-Emitting Materials** **Option 1: Product category calculation (1-3 points)** Number of points is dependent on the LEED® rating system and the number of compliant categories. For the Composite Wood category, 100% of composite wood not covered by other categories must meet the Composite Wood Evaluation.	**Does not contribute**	**INGREDIENTS AND EMISSIONS** While the wood composite product meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements, it is not NAF or ULEF compliant.

Validated Eco-Declaration:
VED16-1068-04
Period of validity:
2022/08 to **2023/08**

ENVIRONMENTAL DATA SHEET

MEDIUM DENSITY FIBERBOARD (MDF)

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for homes

Applies to single family homes, multi-family (one to three stories), or multi-family (four to six stories). Includes homes and multifamily low-rise and multi-family mid-rise.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR Prere-quisite	**Certified Tropical Wood** All wood in the building must be nontropical, reused or reclaimed, or certified by the Forest Stewardship Council, or USGBC-approved equivalent. For the purposes of this prerequisite, a tree species is considered tropical if it is grown in a location that lies between the Tropic of Cancer and the Tropic of Capricorn.	**Contribute**	**ATTRIBUTES** The product does not contain any tropical wood.
MR	**Environmentally preferable products** **Option 2 : Environmentally preferable products (1 point)** The product contains at least 25% postconsumer or 50% preconsumer content. Wood products must be Forest Stewardship Council (FSC) Certified, or USGBC-approved equivalent.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 81.4% - 83.7% FSC®- Certified (100%) (When specified)
INDOOR ENVIRONMENTAL QUALITY		**PRODUCT CONTRIBUTIONS**	
EQ	**Low-Emitting Materials (0.5-3 points)** At least 90% of all materials in each category must comply with the California Department of Public Health Standard Method V1.1–2010, using CA Section 01350, Appendix B, New Single-Family Residence Scenario. Composite wood products must be constructed from materials documented to have low formaldehyde emissions that meet the California Air Resources Board requirements for ultra-low-emitting formaldehyde (ULEF) resins or no-added formaldehyde based resins (NAF).	**Does not contribute**	**INGREDIENTS AND EMISSIONS** The product was not tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method (CDPH) v1.1-2010. Also, while the wood composite product meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements, it is not NAF or ULEF compliant.

Validated Eco-Declaration:
VED16-1068-04
Period of validity:
2022/08 to **2023/08**

UNIBOARD®

ENVIRONMENTAL DATA SHEET

NU GREEN 2® PARTICLEBOARD

NU Green 2® Particleboard is a ULEF (Ultra-Low Emission Formaldehyde) raw particleboard. This new product is FSC® certified (Forest Steward Council®) for is chain of custody by Preferred by Nature and ECC™ certified (Eco-Certifies Composite) by the Composite Panel Association (CPA). It is made using 100% pre-consumer recycled or recovered wook fiber. Uniboard's NU Green 2® Particleboard is available in a wide array of melamine colors.

VALIDATED ECO-DECLARATION

PRODUCT SPECIFICATIONS

References
NU Green 2® Particleboard laminated or not laminated

Final manufacturing location
Sayabec, Quebec G0J 3K0
CANADA

Composition
Wood particles, MUF resin, water, scavenger, catalyst and melamine-cellulose.

ATTRIBUTES

Recycled content
Pre-consumer: 82.9% - 85.6%
Post-consumer: 0 %

Sourcing of raw materials
Data collection from suppliers has been conducted for the products components aligned with each specific environmental analysis.

Certified Wood NC-COC-002726

Rapidly renewable materials -

Biobased materials -

ENVIRONMENTAL IMPACTS

Life Cycle Assessment -

Reference service life -

Product's carbon footprint -

Environmental Product Declaration
Industry-wide (generic) EPD,
Type III, ISO 14025:2006 December 2018 to November 2023
The EPD excludes the laminated product.

INGREDIENTS AND EMISSIONS

Declaration of chemical ingredients 100 ppm

Type of declaration HPD® version 2.3
Health Product Declaration®
October 2022 to October 2025

Emissions test -

VOC -

Formaldehyde ≤ 0.04 ppm

Others TSCA Title VI compliant
Ultra-Low Emission Formaldehgyde (ULEF) Certified

TECHNICAL PERFORMANCES

Performance tests
ANSI A208.1-2022/ASTM E84

MANUFACTURER'S ENVIRONMENTAL MANAGEMENT

ISO 14001 Certification -

Extended Product Responsibility -
(Take Back Program)

Corporate Sustainability Report -
(CSR: GRI, ISO 26000, BNQ 21000 or others)

CERTIFICATION(S) & CONFORMITIES

FSC www.fsc.org FSC® C002807
The mark of responsible forestry

TSCA TITLE VI COMPLIANT

SUSTAINABLE USE OF WOOD FIBER Meets Composite Panel Association ECO-CERTIFIED ECC Standard 4-19

Uniboard Canada Inc. is a leading North American manufacturer of engineered wood products, with installed capacity of over 660 million square feet of raw particleboard, high-density and medium-density fiberboard, of wich over 50% is converted into value-added TFL.

5555, Ernest Cormier Street – Suite 100, Laval, H7C 2S9, QC, Canada
www.uniboard.com

Master Format : **06 42 00**
Validated Eco-Declaration : **VED16-1068-02**
Original issue date : **05/2016**
Period of validity : **2022/08** to **2023/08**

VERTIMA VALIDATED ECO-DECLARATION

ENVIRONMENTAL DATA SHEET

NU GREEN 2® PARTICLEBOARD

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for Building Design + Construction (BD+C)

New Construction, Core and Shell, Schools, Retail, Data Centers, Warehouse and Distribution Centers, Hospitality and Healthcare.

LEED® v4 requirements for Interior Design + Construction (ID+C)

Commercial Interiors, Retail and Hospitality.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR	**Building Product Disclosure and Optimization — Environmental Product Declaration (EPD)** **Option 1: Environmental Product Declaration (1 point)** The product contributes to this credit due to the availability of an industry-wide (generic) EPD (Type III) and is valued as one half (1/2) of a product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**ENVIRONMENTAL IMPACTS** Industry-wide (generic) Type III EPD compliant to ISO 14025:2006 The EPD excludes the laminated product.
MR	**Building Product Disclosure and Optimization — Sourcing of Raw Materials** **Option 2: Leadership extraction practices (1 point)** Requirements - Use products that meet at least one of the responsible extraction criteria: Recycled content, Wood products Certification, Bio-based materials, Extended producer responsibility.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 83.7% - 86.5% FSC®- Certified (When specified)
MR	**Building Product Disclosure and Optimization — Material Ingredients** **Option 1: Material ingredients reporting (1 point)** The product contributes to this credit due to the availability of Health Product Declarations®.They are valued as 1 whole product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**INGREDIENTS AND EMISSIONS** HPD® version 2.3 Health Product Declaration®

INDOOR ENVIRONMENTAL QUALITY		PRODUCT CONTRIBUTIONS	
EQ	**Low-Emitting Materials** **Option 1: Product category calculation (1-3 points)** Number of points is dependent on the LEED® rating system and the number of compliant categories. For the Composite Wood category, 100% of composite wood not covered by other categories must meet the Composite Wood Evaluation.	**Contribute**	**INGREDIENTS AND EMISSIONS** The wood composite product is ULEF certified and meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements.

Validated Eco-Declaration:
VED16-1068-02
Period of validity:
2022/08 to **2023/08**

ENVIRONMENTAL DATA SHEET

NU GREEN 2® PARTICLEBOARD

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for homes

Applies to single family homes, multi-family (one to three stories), or multi-family (four to six stories). Includes homes and multifamily low-rise and multi-family mid-rise.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR Prere-quisite	**Certified Tropical Wood** All wood in the building must be nontropical, reused or reclaimed, or certified by the Forest Stewardship Council, or USGBC-approved equivalent. For the purposes of this prerequisite, a tree species is considered tropical if it is grown in a location that lies between the Tropic of Cancer and the Tropic of Capricorn.	**Contribute**	**ATTRIBUTES** The product does not contain any tropical wood.
MR	**Environmentally preferable products** **Option 2 : Environmentally preferable products (1 point)** The product contains at least 25% postconsumer or 50% preconsumer content. Wood products must be Forest Stewardship Council (FSC) Certified, or USGBC-approved equivalent.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 81.4% - 83.7% FSC®- Certified (100%) (When specified)
INDOOR ENVIRONMENTAL QUALITY		**PRODUCT CONTRIBUTIONS**	
EQ	**Low-Emitting Materials (0.5-3 points)** At least 90% of all materials in each category must comply with the California Department of Public Health Standard Method V1.1–2010, using CA Section 01350, Appendix B, New Single-Family Residence Scenario. Composite wood products must be constructed from materials documented to have low formaldehyde emissions that meet the California Air Resources Board requirements for ultra-low-emitting formaldehyde (ULEF) resins or no-added formaldehyde based resins (NAF).	**Does not contribute**	**INGREDIENTS AND EMISSIONS** The product was not tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method (CDPH) v1.1-2010. However, the wood composite product meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements, and is ULEF compliant.

Validated Eco-Declaration:
VED16-1068-02
Period of validity:
2022/08 to **2023/08**

ENVIRONMENTAL DATA SHEET

PARTICLEBOARD

Uniboard's particleboard stands out from the competition, thanks to its specially bonded, top-quality wood fibers, its smooth surface and exceptional machining ease, making it the ideal choice for commercial and residential applications. Manufactured at our state-of-the-art facilities across North America, Uniboard's particleboard is the perfect choice for designers, architects and manufacturers.

VALIDATED ECO-DECLARATION

PRODUCT SPECIFICATIONS

References
Particleboard laminated or not laminated

Final manufacturing location
Sayabec, Quebec G0J 3K0
Val-d'Or, Quebec J9P 5G6
CANADA

Composition
Wood particles, resin, water, scavenger, catalyst, wax and melamine-cellulose.

ATTRIBUTES

Recycled content
Pre-consumer: 83.7% - 86.5%
Post-consumer: 0%

Sourcing of raw materials
Data collection from suppliers has been conducted for the products components aligned with each specific environmental analysis.

Certified Wood	NC-COC-002726
Rapidly renewable materials	-
Biobased materials	-

ENVIRONMENTAL IMPACTS

Life Cycle Assessment	-
Reference service life	-
Product's carbon footprint	-

Environmental Product Declaration
Industry-wide (generic) EPD,
Type III, ISO 14025:2006 — December 2018 to November 2023
The EPD excludes the laminated product.

INGREDIENTS AND EMISSIONS

Declaration of chemical ingredients	100 ppm
Type of declaration	HPD® version 2.3 Health Product Declaration® October 2022 to October 2025
Emissions test	-
VOC	-
Formaldehyde	≤ 0.09 ppm
Others	TSCA Title VI compliant

TECHNICAL PERFORMANCES

Performance tests
ANSI A208.1-2022/ASTM E84

MANUFACTURER'S ENVIRONMENTAL MANAGEMENT

ISO 14001 Certification	-
Extended Product Responsibility (Take Back Program)	-
Corporate Sustainability Report (CSR: GRI, ISO 26000, BNQ 21000 or others)	-

CERTIFICATION(S) & CONFORMITIES

FSC www.fsc.org FSC® C002807 — The mark of responsible forestry

TSCA TITLE VI COMPLIANT

SUSTAINABLE USE OF WOOD FIBER — Meets Composite Panel Association — ECO-CERTIFIED — ECC Standard 4-19

Uniboard Canada Inc. is a leading North American manufacturer of engineered wood products, with installed capacity of over 660 million square feet of raw particleboard, high-density and medium-density fiberboard, of wich over 50% is converted into value-added TFL.

5555, Ernest Cormier Street – Suite 100, Laval, H7C 2S9, QC, Canada
www.uniboard.com

Master Format : **06 42 00**
Validated Eco-Declaration : **VED16-1068-04**
Original issue date : **05/2016**
Period of validity : **2022/08** to **2023/08**

VERTIMA — VALIDATED ECO-DECLARATION

ENVIRONMENTAL DATA SHEET

PARTICULBOARD

UNIBOARD®

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for Building Design + Construction (BD+C)

New Construction, Core and Shell, Schools, Retail, Data Centers, Warehouse and Distribution Centers, Hospitality and Healthcare.

LEED® v4 requirements for Interior Design + Construction (ID+C)

Commercial Interiors, Retail and Hospitality.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR	**Building Product Disclosure and Optimization — Environmental Product Declaration (EPD)** **Option 1: Environmental Product Declaration (1 point)** The product contributes to this credit due to the availability of an industry-wide (generic) EPD (Type III) and is valued as one half (1/2) of a product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**ENVIRONMENTAL IMPACTS** Industry-wide (generic) Type III EPD compliant to ISO 14025:2006 The EPD excludes the laminated product.
MR	**Building Product Disclosure and Optimization — Sourcing of Raw Materials** **Option 2: Leadership extraction practices (1 point)** Requirements - Use products that meet at least one of the responsible extraction criteria: Recycled content, Wood products Certification, Bio-based materials, Extended producer responsibility.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 83.7% - 86.5% FSC®- Certified (When specified)
MR	**Building Product Disclosure and Optimization — Material Ingredients** **Option 1: Material ingredients reporting (1 point)** The product contributes to this credit due to the availability of Health Product Declarations®.They are valued as 1 whole product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**INGREDIENTS AND EMISSIONS** HPD® version 2.3 Health Product Declaration®

INDOOR ENVIRONMENTAL QUALITY		PRODUCT CONTRIBUTIONS	
EQ	**Low-Emitting Materials** **Option 1: Product category calculation (1-3 points)** Number of points is dependent on the LEED® rating system and the number of compliant categories. For the Composite Wood category, 100% of composite wood not covered by other categories must meet the Composite Wood Evaluation.	**Does not contribute**	**INGREDIENTS AND EMISSIONS** While the wood composite product meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements, it is not NAF or ULEF compliant.

Validated Eco-Declaration:
VED16-1068-04
Period of validity:
2022/08 to **2023/08**

ENVIRONMENTAL DATA SHEET

PARTICULBOARD

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for homes

Applies to single family homes, multi-family (one to three stories), or multi-family (four to six stories). Includes homes and multifamily low-rise and multi-family mid-rise.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR Prerequisite	**Certified Tropical Wood** All wood in the building must be nontropical, reused or reclaimed, or certified by the Forest Stewardship Council, or USGBC-approved equivalent. For the purposes of this prerequisite, a tree species is considered tropical if it is grown in a location that lies between the Tropic of Cancer and the Tropic of Capricorn.	**Contribute**	**ATTRIBUTES** The product does not contain any tropical wood.
MR	**Environmentally preferable products** **Option 2 : Environmentally preferable products (1 point)** The product contains at least 25% postconsumer or 50% preconsumer content. Wood products must be Forest Stewardship Council (FSC) Certified, or USGBC-approved equivalent.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 83.7% - 86.5% FSC®- Certified (100%) (When specified)

INDOOR ENVIRONMENTAL QUALITY		PRODUCT CONTRIBUTIONS	
EQ	**Low-Emitting Materials (0.5-3 points)** At least 90% of all materials in each category must comply with the California Department of Public Health Standard Method V1.1–2010, using CA Section 01350, Appendix B, New Single-Family Residence Scenario. Composite wood products must be constructed from materials documented to have low formaldehyde emissions that meet the California Air Resources Board requirements for ultra-low-emitting formaldehyde (ULEF) resins or no-added formaldehyde based resins (NAF).	**Does not contribute**	**INGREDIENTS AND EMISSIONS** The product was not tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method (CDPH) v1.1-2010. Also, while the wood composite product meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements, it is not NAF or ULEF compliant.

Validated Eco-Declaration:
VED16-1068-04
Period of validity:
2022/08 to **2023/08**

UNIBOARD®

ENVIRONMENTAL DATA SHEET

NU GREEN MR50® MDF

NU Green MR50® MDF No Added Formaldehyde (NAF) medium density fiberboards is the most ecofriendly moisture resistant solution. This green, high-quality, versatile MDF is FSC® (Forest Stewardchip Council®) certified for its chain of custody by Preferred by Nature and an Eco-Certified Composite™ (ECC) by the composite Panel Association (CPA). It contains 100% of recycled and recovered wood fiber (pre-consumer). NU Green MR50® MDF is available in a wide array of melamine colours.

VALIDATED ECO-DECLARATION

PRODUCT SPECIFICATIONS

References
NU Green MR50® Medium Density Fiberboard (MDF) laminated or not laminated

Final manufacturing location
Mont-Laurier, Quebec J9L 3W3
Sayabec, Quebec G0J 3K0
Val-d'Or, Quebec J9P 5G6
CANADA

Composition
Wood fibers, diisocyanate resin, water, wax and melamine-cellulose.

ATTRIBUTES

Recycled content
Pre-consumer: 89.0% - 91.5%
Post-consumer: 0%

Sourcing of raw materials
Data collection from suppliers has been conducted for the products components aligned with each specific environmental analysis.

Certified Wood NC-COC-002726

Rapidly renewable materials -

ENVIRONMENTAL IMPACTS

Life Cycle Assessment -

Reference service life -

Product's carbon footprint -

Environmental Product Declaration
Industry-wide (generic) EPD,
Type III, ISO 14025:2006 December 2018 to November 2023
The EPD excludes the laminated product.

INGREDIENTS AND EMISSIONS

Declaration of chemical ingredients 100 ppm

Type of declaration HPD® version 2.3 Health Product Declaration® October 2022 to October 2025

Emissions test -

VOC -

Formaldehyde ≤ 0.04 ppm

Others TSCA Title VI compliant
No-added Formaldehyde (NAF) Certified

TECHNICAL PERFORMANCES

Performance tests
ANSI A208.2-2022/ASTM E84

MANUFACTURER'S ENVIRONMENTAL MANAGEMENT

ISO 14001 Certification -

Extended Product Responsibility -
(Take Back Program)

Corporate Sustainability Report -
(CSR: GRI, ISO 26000, BNQ 21000 or others)

CERTIFICATION(S) & CONFORMITIES

FSC www.fsc.org FSC® C002807
The mark of responsible forestry

TSCA TITLE VI COMPLIANT

SUSTAINABLE USE OF WOOD FIBER Meets Composite Panel Association ECO-CERTIFIED ECC Standard 4-19

Uniboard Canada Inc. is a leading North American manufacturer of engineered wood products, with installed capacity of over 660 million square feet of raw particleboard, high-density and medium-density fiberboard, of wich over 50% is converted into value-added TFL.

5555, Ernest Cormier Street – Suite 100, Laval, H7C 2S9, QC, Canada
www.uniboard.com

Master Format : **06 42 00**
Validated Eco-Declaration : **VED16-1068-05**
Original issue date : **05/2016**
Period of validity : **2022/08** to **2023/08**

VERTIMA VALIDATED ECO-DECLARATION

ENVIRONMENTAL DATA SHEET

NU GREEN MR50® MDF

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for Building Design + Construction (BD+C)

New Construction, Core and Shell, Schools, Retail, Data Centers, Warehouse and Distribution Centers, Hospitality and Healthcare.

LEED® v4 requirements for Interior Design + Construction (ID+C)

Commercial Interiors, Retail and Hospitality.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR	**Building Product Disclosure and Optimization — Environmental Product Declaration (EPD)** **Option 1: Environmental Product Declaration (1 point)** The product contributes to this credit due to the availability of an industry-wide (generic) EPD (Type III) and is valued as one half (1/2) of a product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**ENVIRONMENTAL IMPACTS** Industry-wide (generic) Type III EPD compliant to ISO 14025:2006 The EPD excludes the laminated product.
MR	**Building Product Disclosure and Optimization — Sourcing of Raw Materials** **Option 2: Leadership extraction practices (1 point)** Requirements - Use products that meet at least one of the responsible extraction criteria: Recycled content, Wood products Certification, Bio-based materials, Extended producer responsibility.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 89.0% - 91.5% FSC®- Certified (When specified)
MR	**Building Product Disclosure and Optimization — Material Ingredients** **Option 1: Material ingredients reporting (1 point)** The product contributes to this credit due to the availability of Health Product Declarations®.They are valued as 1 whole product out of the 20 needed for the purposes of credit achievement.	**Contribute**	**INGREDIENTS AND EMISSIONS** HPD® version 2.3 Health Product Declaration®

INDOOR ENVIRONMENTAL QUALITY		PRODUCT CONTRIBUTIONS	
EQ	**Low-Emitting Materials** **Option 1: Product category calculation (1-3 points)** Number of points is dependent on the LEED® rating system and the number of compliant categories. For the Composite Wood category, 100% of composite wood not covered by other categories must meet the Composite Wood Evaluation.	**Contribute**	**INGREDIENTS AND EMISSIONS** The wood composite product is NAF certifi ed and meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements.

Validated Eco-Declaration:
VED16-1068-05
Period of validity:
2022/08 to **2023/08**

ENVIRONMENTAL DATA SHEET

NU GREEN MR50® MDF

PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for homes

Applies to single family homes, multi-family (one to three stories), or multi-family (four to six stories). Includes homes and multifamily low-rise and multi-family mid-rise.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR Prere-quisite	**Certified Tropical Wood** All wood in the building must be nontropical, reused or reclaimed, or certified by the Forest Stewardship Council, or USGBC-approved equivalent. For the purposes of this prerequisite, a tree species is considered tropical if it is grown in a location that lies between the Tropic of Cancer and the Tropic of Capricorn.	**Contribute**	**ATTRIBUTES** The product does not contain any tropical wood.
MR	**Environmentally preferable products** **Option 2 : Environmentally preferable products (1 point)** The product contains at least 25% postconsumer or 50% preconsumer content. Wood products must be Forest Stewardship Council (FSC) Certified, or USGBC-approved equivalent.	**Contribute**	**ATTRIBUTES** Recycled Content: Pre-consumer: 89.0% - 91.5% FSC®- Certified (100%) (When specified)
INDOOR ENVIRONMENTAL QUALITY		**PRODUCT CONTRIBUTIONS**	
EQ	**Low-Emitting Materials (0.5-3 points)** At least 90% of all materials in each category must comply with the California Department of Public Health Standard Method V1.1–2010, using CA Section 01350, Appendix B, New Single-Family Residence Scenario. Composite wood products must be constructed from materials documented to have low formaldehyde emissions that meet the California Air Resources Board requirements for ultra-low-emitting formaldehyde (ULEF) resins or no-added formaldehyde based resins (NAF).	**Ne contribute pas**	**INGREDIENTS AND EMISSIONS** The product was not tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method (CDPH) v1.1-2010. However, the wood composite product meets the TSCA Title VI and/or CARB Phase 2 formaldehyde emissions requirements, and is NAF compliant.

Validated Eco-Declaration:
VED16-1068-05
Period of validity:
2022/08 to **2023/08**

Medium Density Fiberboard (MDF) by Uniboard Canada Inc.

Health Product Declaration v2.3
created via: HPDC Online Builder

HPD UNIQUE IDENTIFIER: 31114
CLASSIFICATION: 06 42 00 Wood Paneling
PRODUCT DESCRIPTION: This HPD covers all available dimensions, thicknesses and laminate options for MDF by Uniboard®. Medium density fiberboard (MDF) is a composite panel product composed primarily of cellulosic fibers and a bonding system cured under heat and pressure.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format
- (•) Nested Materials Method
- ( ) Basic Method

Threshold Disclosed Per
- ( ) Material
- (•) Product

Threshold Level
- (•) 100 ppm
- ( ) 1,000 ppm
- ( ) Per GHS SDS
- ( ) Other

Residuals/Impurities Evaluation
Completed in 6 of 6 Materials

Explanation(s) provided for Residuals/Impurities?
(•) Yes ( ) No

For all contents above the threshold, the manufacturer has:

Characterized (•) Yes ( ) No
Provided weight and role.

Screened (•) Yes ( ) No
Provided screening results using HPDC-approved methods.

Identified ( ) Yes (•) No
Provided name and CAS RN or other identifier.

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | *RESIDUAL OR IMPURITY*
GREENSCREEN SCORE | HAZARD TYPE

WOOD [WOOD FIBER] MELAMINE UREA FORMALDEHYDE RESIN [UNDISCLOSED LT-UNK | UNDISCLOSED BM-4 *UNDISCLOSED* BM-1 | CAN | END | SKI | MUL | MAM | GEN | AQU | EYE | PHY] WATER [WATER BM-4] MELAMINE CELLULOSE [UNDISCLOSED NoGS UNDISCLOSED LT-UNK | UNDISCLOSED NoGS UNDISCLOSED LT-P1 | SKI UNDISCLOSED LT-UNK UNDISCLOSED LT-1 | CAN | END | MAM UNDISCLOSED BM-4 UNDISCLOSED LT-P1 | END | EYE | MAM UNDISCLOSED LT-1 | END | DEV | EYE | MAM | SKI UNDISCLOSED LT-UNK UNDISCLOSED BM-4] SCAVENGER [UREA LT-UNK | EYE] WAX [SLACK WAX (PETROLEUM) LT-1 | CAN | MUL | DEV]

Number of Greenscreen BM-4/BM3 contents ... 4

Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-1, LT-P1, BM-1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Special Conditions applied: [BiologicalMaterial]

HPD prepared using a Nested Materials Inventory with a product threshold at 100 ppm. The content inventory includes ranges to encompass both MDF with and without melamine lamiates. MDF contain materials with Special Conditions (biological material and polymers) as per the HPDC. Reporting of Biological materials was done according to HPDC Guidelines. Guidelines for reporting polymers are still under development by HPDC and the manufacturers will update the HPD accordingly once these guidelines get published. Substances present in MDF, as well as known residuals and impurities, have been disclosed at 100 ppm. More details about how residuals and impurities were considered available in the appropriate sections.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE *See Section 3 for additional listings.*

VOC emissions: CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable
Sustainable forestry: FSC Certification - Chain of Custody (COC)
Formaldehyde emissions: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Phase 2
Multi-attribute: CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Option 1.
Pre-checked for LEED v4.1 Option 1.

Third Party Verified?
( ) Yes
(•) No

PREPARER: Vertima
VERIFIER:
VERIFICATION #:

SCREENING DATE: 2023-01-24
PUBLISHED DATE: 2023-01-24
EXPIRY DATE: 2026-01-24

Section 2: Content in Descending Order of Quantity

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- *Basic Inventory method with Product-level threshold.*
- *Nested Material Inventory method with Product-level threshold*
- *Nested Material Inventory method with individual Material-level thresholds*

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-3-standard

WOOD %: 81.4000 - 83.7000

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Wood Dust, Fiber or Chips

RESIDUALS AND IMPURITIES NOTES: No residuals or impurities suspected to be present in wood fiber.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate.

WOOD FIBER ID: Biological Material

HAZARD DATA SOURCE: HPDC Special Conditions Policy

%: 100.0000 | GreenScreen: Not Required | RC: PreC | NANO: No | MATERIAL ROLE: Structure component

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
Hazard Screening is not applicable to this Special Condition		

BIOLOGICAL MATERIALS CATEGORY: Tree-based materials

INGREDIENT DESCRIPTION: 9004-34-6

MATERIAL CONTENT NOTES: Pre-Consumer Recycled includes fiber, such as scrap, trimmings and cuttings, generated as a by-product from manufacturing and converting processes of primary wood products. Examples of this category include planer shavings, plytrim, sawdust, fines, chips and bagasse.

This disclosure does not provide information on allergens, hyper-accumulation of metals, production of any toxic substances during normal metabolic activities, pesticides, and other potential hazards or sources of hazards which may be found in certain biological materials.

MELAMINE UREA FORMALDEHYDE RESIN %: 8.3000 - 8.5000

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Supplier declared residuals listed in substance list, and, backed by technical/scientific knowledge, no impurities were present in their products. According to Pharos, known or potential residual for MUF, Urea formaldehyde based, are formaldehyde (50-00-0), melamine (108-78-1) and urea (57-13-6).

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, this material has multiple recipies. The composition of this product is confidential.

UNDISCLOSED ID: Undisclosed

HAZARD DATA SOURCE: Pharos Chemical and Materials Library | HAZARD SCREENING DATE: 2023-01-24 9:05:15

%: 64.0000 - 69.0000 | GreenScreen: LT-UNK | RC: None | NANO: No | SUBSTANCE ROLE: Binder

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of different MUF resin and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:15**

%: **31.0000 - 36.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Diluent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of different MUF resin and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:16**

%: **Impurity/Residual** GreenScreen: **BM-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Impurity/Residual**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
SKI	MAK	Sensitizing Substance Sh - Danger of skin sensitization

MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	US EPA - IRIS Carcinogens	(1986) Group B1 - Probable human Carcinogen
CAN	IARC	Group 1 - Agent is Carcinogenic to humans
CAN	CA EPA - Prop 65	Carcinogen
CAN	US NIH - Report on Carcinogens	Known to be a human Carcinogen
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
MAM	US EPA - EPCRA Extremely Hazardous Substances	Extremely Hazardous Substances
CAN	GHS - Japan	H350 - May cause cancer [Carcinogenicity - Category 1A]
CAN	GHS - Australia	H350i - May cause cancer by inhalation [Carcinogenicity - Category 1A or 1B]
CAN	GHS - Korea	H350 - May cause cancer [Carcinogenicity - Category 1]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
GEN	EU - GHS (H-Statements) Annex 6 Table 3-1	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
GEN	GHS - Japan	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Australia	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
SKI	GHS - Korea	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1]
AQU	GHS - Japan	H401 - Toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 2]

MAM	GHS - Korea	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Korea	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
GEN	EU - Annex VI CMRs	Mutagen - Category 2
MAM	GHS - Japan	H311 - Toxic in contact with skin [Acute Toxicity (dermal) - Category 3]
MAM	GHS - Malaysia	H300 - Fatal if swallowed [Acute toxicity (oral) - Category 1 or 2]
MAM	GHS - Malaysia	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Malaysia	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
SKI	GHS - Malaysia	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
EYE	GHS - Malaysia	H318 - Causes serious eye damage [Serious eye damage/eye irritation - Category 1]
MAM	GHS - Australia	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	GHS - Australia	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Korea	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 2]
PHY	GHS - Korea	H220 - Extremely flammable gas [Flammable gases - Category 1]
PHY	Québec CSST - WHMIS 1988	Class B1 - Flammable gases
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: gas) - Category 2]
PHY	GHS - Japan	H220 - Extremely flammable gas [Flammable gases - Category 1]
CAN	GHS - Malaysia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
AQU	GHS - Australia	H401 - Aquatic Acute 2 - Toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 2]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Footwear, Apparel & Jewelry Products
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary.

WATER **%: 4.9000 - 5.0000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: No MATERIAL TYPE: Other: Natural resource

RESIDUALS AND IMPURITIES NOTES: No data collected regarding this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate. Standard water is used (municipal).

WATER ID: **7732-18-5**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:16**

%: **100.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Humectant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: See materials notes for details.

MELAMINE CELLULOSE **%: 0.0000 - 2.8000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Residuals and impurities are below the reporting threshold.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material comes from multiple suppliers. The composition of this material is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:15**

%: **0.0000 - 65.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:17**

%: **0.0000 - 65.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:15**

%: **21.0000 - 55.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Carrier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:16**

%: **0.0000 - 35.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - New Zealand	Skin sensitisation category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:16**

%: **0.0000 - 35.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:17**

%: **0.0000 - 25.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Opacifier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	CA EPA - Prop 65	Carcinogen - specific to chemical form or exposure route
CAN	IARC	Group 2B - Possibly carcinogenic to humans - inhaled from occupational sources
CAN	MAK	Carcinogen Group 3A - Evidence of carcinogenic effects but not sufficient to establish MAK/BAT value
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE Safer Chemicals Ingredients list (SCIL) Colorants - Green Circle (Verified Low Concern)

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:18**

%: **0.0000 - 15.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Solvent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:18**

%: **0.0000 - 3.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Acute inhalation toxicity category 3

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Bisphenols and Phthalates
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:19**

%: **0.0000 - 2.5000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
DEV	CA EPA - Prop 65	Developmental toxicity
DEV	US NIH - Reproductive & Developmental Monographs	Clear Evidence of Adverse Effects - Developmental Toxicity
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:19**

%: **0.0000 - 2.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This material is a polymer in the product and is proprietary.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:20**

%: **0.0000 - 2.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This material is part of the polymer and is proprietary.

SCAVENGER %: 2.2000 - 2.3000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Animal-Based Material

RESIDUALS AND IMPURITIES NOTES: Residuals are below the reporting threshold, while there are no impurities present in this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material has multiple suppliers. This product is on the US FDA's GRAS (GENERALLY REGARDED AS SAFE) list.

UREA ID: 57-13-6

HAZARD DATA SOURCE: Pharos Chemical and Materials Library HAZARD SCREENING DATE: 2023-01-24 9:05:18

%: 98.5000 - 100.0000 GreenScreen: LT-UNK RC: None NANO: No SUBSTANCE ROLE: Scavenger

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
EYE	GHS - New Zealand	Eye irritation category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: See materials notes for details.

WAX %: 0.4000 - 0.5000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Suppliers declared, backed by technical/scientific knowledge, that no residuals or impurities were present in their product; however, no such tests are performed on their product. According to Pharos, known or potential residuals for slack wax (64742-61-6) is paraffin (8002-74-2) and paraffin oil (8012-95-1).

OTHER MATERIAL NOTES: Slack wax is used as water repellant. Data Source for TSCA Definition 2018: A complex combination of hydrocarbons obtained from a petroleum fraction by solvent crystallization (solvent dewaxing) or as a distillation fraction from a very waxy crude. It consists predominantly of saturated straight and branched chain hydrocarbons having carbon numbers predominantly greater than C20.

SLACK WAX (PETROLEUM) ID: **64742-61-6**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:05:18**

%: **100.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Water resistance**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	GHS - Australia	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
DEV	GHS - Australia	H361d - Suspected of damaging the unborn child [Reproductive toxicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: See materials notes for details.

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS — **CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable**

CERTIFYING PARTY: Self-declared
APPLICABLE FACILITIES: All facilities
CERTIFICATE URL:

ISSUE DATE: 2022-09-27
EXPIRY DATE:

CERTIFIER OR LAB: n/a

CERTIFICATION AND COMPLIANCE NOTES: According to LEED v4, emissions and content requirements for Composite Wood are to follow the Composite Wood Evaluation which states: "Composite wood, as defined by the California Air Resources Board, Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation, must be documented to have low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins. "

SUSTAINABLE FORESTRY — **FSC Certification - Chain of Custody (COC)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Uniboard Canada INc. - Multi-Site
CERTIFICATE URL: https://info.fsc.org

ISSUE DATE: 2007-11-06
EXPIRY DATE: 2027-12-01

CERTIFIER OR LAB: Preferred by Nature

CERTIFICATION AND COMPLIANCE NOTES: Certificate registration code NC-COC-002726, NC-CW-002726

FORMALDEHYDE EMISSIONS — **EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Phase 2**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Mont-Laurier, Quebec, Canada, J9L 3W3
CERTIFICATE URL:

ISSUE DATE: 2019-03-25
EXPIRY DATE:

CERTIFIER OR LAB: https://www.compositepanel.org/testing-certification/certification-programs/

CERTIFICATION AND COMPLIANCE NOTES: Fulfills The Requirements of: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.2 and California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) 93120.

MULTI-ATTRIBUTE — **CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification**

CERTIFYING PARTY: Second Party
APPLICABLE FACILITIES: Mont-Laurier, Quebec, Canada, J9L 3W3
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-01-22
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Carbon Footprint; Locally Sourced Fiber; Recycled, Recovered or Post-Consumer Fiber Content; Sustainable Use of Wood Fiber; Responsible Wood Sourcing.

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

All of Uniboard's product documentation and certificats are available on line at https://www.uniboard.com/en/documentation-center.

Section 6: References

MANUFACTURER INFORMATION

MANUFACTURER: **Uniboard Canada Inc.**
ADDRESS: **5555, Ernest Cormier Street**
Laval Quebec H7C 2S9, Canada
WEBSITE: **www.uniboard.com**

CONTACT NAME: **Pierre Martin**
TITLE: **Technology and Innovation Director**
PHONE: **450.664.6000**
EMAIL: **pierre.martin@uniboard.com**

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types

AQU Aquatic toxicity
CAN Cancer
DEV Developmental toxicity
END Endocrine activity
EYE Eye irritation/corrosivity
GEN Gene mutation
GLO Global warming
LAN Land toxicity
MAM Mammalian/systemic/organ toxicity
MUL Multiple
NEU Neurotoxicity
NF Not found on Priority Hazard Lists
OZO Ozone depletion
PBT Persistent, bioaccumulative, and toxic
PHY Physical hazard (flammable or reactive)
REP Reproductive
RES Respiratory sensitization
SKI Skin sensitization/irritation/corrosivity
UNK Unknown

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (due to insufficient data)
LT-P1 List Translator Possible 1 (Possible Benchmark-1)
LT-1 List Translator 1 (Likely Benchmark-1)
LT-UNK List Translator Benchmark Unknown
NoGS No GreenScreen.

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, www.greenscreenchemicals.org, and Best Practices for Hazard Screening on the HPDC website (hpd-collaborative.org).

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology
Third Party Verified Verification by independent certifier approved by HPDC
Preparer Third party preparer, if not self-prepared by manufacturer
Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this HPD and for compliance with the HPD standard noted.

NU Green 2® Particleboard by Uniboard Canada Inc.

Health Product Declaration v2.3

created via: HPDC Online Builder

HPD UNIQUE IDENTIFIER: 31112
CLASSIFICATION: 06 42 00 Wood Paneling
PRODUCT DESCRIPTION: This HPD covers all available dimensions, thicknesses and laminate options for NU Green 2® Particleboard by Uniboard®. Uniboard's NU Green 2® Particleboard is primarily composed of cellulosic materials (usually wood), generally in the form of discrete pieces of particles, as distinguished from fibers, bonded together with a bonding system cured under heat and pressure, and contains additives. Ultra-Low Emission Formaldehyde (ULEF) panels.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format
- (•) Nested Materials Method
- ( ) Basic Method

Threshold Disclosed Per
- ( ) Material
- (•) Product

Threshold Level
- (•) 100 ppm
- ( ) 1,000 ppm
- ( ) Per GHS SDS
- ( ) Other

Residuals/Impurities Evaluation
Completed in 7 of 7 Materials

Explanation(s) provided for Residuals/Impurities?
(•) Yes ( ) No

For all contents above the threshold, the manufacturer has:

Characterized (•) Yes ( ) No
Provided weight and role.

Screened (•) Yes ( ) No
Provided screening results using HPDC-approved methods.

Identified ( ) Yes (•) No
Provided name and CAS RN or other identifier.

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | *RESIDUAL OR IMPURITY*
GREENSCREEN SCORE | HAZARD TYPE

WOOD [WOOD FIBER] MELAMINE-UREA-FORMALDEHYDE (MUF) [UNDISCLOSED LT-UNK | UNDISCLOSED BM-4 *UNDISCLOSED* BM-1 | CAN | END | SKI | MUL | MAM | GEN | AQU | EYE | PHY] WATER [WATER BM-4] MELAMINE-CELLULOSE [UNDISCLOSED NoGS UNDISCLOSED LT-UNK | UNDISCLOSED NoGS UNDISCLOSED LT-P1 | SKI UNDISCLOSED LT-UNK UNDISCLOSED LT-1 | CAN | END | MAM UNDISCLOSED BM-4 UNDISCLOSED LT-P1 | END | EYE | MAM UNDISCLOSED LT-1 | END | DEV | EYE | MAM | SKI UNDISCLOSED LT-UNK UNDISCLOSED BM-4] SCAVENGER [UREA LT-UNK | EYE] WAX [SLACK WAX (PETROLEUM) LT-1 | CAN | MUL | DEV] CATALYST [AMMONIUM SULFATE LT-P1 | END]

Number of Greenscreen BM-4/BM3 contents ... 4

Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-1, LT-P1, BM-1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Special Conditions applied: [BiologicalMaterial]

HPD prepared using a Nested Materials Inventory with a product threshold at 100 ppm. The content inventory includes ranges to encompass both NU Green 2® Particleboard with and without melamine lamiates. NU Green 2® Particleboard contain materials with Special Conditions (biological material and polymers) as per the HPDC. Reporting of Biological materials was done according to HPDC Guidelines. Guidelines for reporting polymers are still under development by HPDC and the manufacturers will update the HPD accordingly once these guidelines get published. Substances present in NU Green 2® Particleboard, as well as known residuals and impurities, have been disclosed at 100 ppm. More details about how residuals and impurities were considered available in the appropriate sections.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE *See Section 3 for additional listings.*

VOC emissions: CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable
Sustainable forestry: FSC Certification - Chain of Custody (COC)
Formaldehyde emissions: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Ultra Low-Emitting Formaldehyde (ULEF)
Multi-attribute: CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Option 1.
Pre-checked for LEED v4.1 Option 1.

Third Party Verified?

- ○ Yes
- ◉ No

PREPARER: Vertima
VERIFIER:
VERIFICATION #:

SCREENING DATE: 2023-01-24
PUBLISHED DATE: 2023-01-24
EXPIRY DATE: 2026-01-24

Section 2: Content in Descending Order of Quantity

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- *Basic Inventory method with Product-level threshold.*
- *Nested Material Inventory method with Product-level threshold*
- *Nested Material Inventory method with individual Material-level thresholds*

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-3-standard

WOOD **%: 82.9000 - 85.9000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Wood Dust, Fiber or Chips

RESIDUALS AND IMPURITIES NOTES: No residuals or impurities suspected to be present in wood fiber.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate.

WOOD FIBER ID: **Biological Material**

HAZARD DATA SOURCE: **HPDC Special Conditions Policy**

%: **100.0000** | GreenScreen: **Not Required** | RC: **PreC** | NANO: **No** | MATERIAL ROLE: **Structure component**

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
Hazard Screening is not applicable to this Special Condition		

BIOLOGICAL MATERIALS CATEGORY: Tree-based materials

INGREDIENT DESCRIPTION: 9004-34-6

MATERIAL CONTENT NOTES: Pre-Consumer Recycled includes fiber, such as scrap, trimmings and cuttings, generated as a by-product from manufacturing and converting processes of primary wood products. Examples of this category include planer shavings, plytrim, sawdust, fines, chips and bagasse.

This disclosure does not provide information on allergens, hyper-accumulation of metals, production of any toxic substances during normal metabolic activities, pesticides, and other potential hazards or sources of hazards which may be found in certain biological materials.

MELAMINE-UREA-FORMALDEHYDE (MUF) **%: 7.3000 - 7.6000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Supplier declared residuals listed in substance list, and, backed by technical/scientific knowledge, no impurities present in their products. According to Pharos, known or potential residual for MUF, Urea formaldehyde based, are formaldehyde (50-00-0), melamine (108-78-1) and urea (57-13-6).

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, this material has multiple receipies. The composition of this product is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** | HAZARD SCREENING DATE: **2023-01-24 9:03:31**

%: **64.0000 - 69.0000** | GreenScreen: **LT-UNK** | RC: **None** | NANO: **No** | SUBSTANCE ROLE: **Binder**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of different MUF resin and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:32**

%: **31.0000 - 36.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Diluent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of different MUF resin and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:33**

%: **Impurity/Residual** GreenScreen: **BM-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Impurity/Residual**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
SKI	MAK	Sensitizing Substance Sh - Danger of skin sensitization

MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	US EPA - IRIS Carcinogens	(1986) Group B1 - Probable human Carcinogen
CAN	IARC	Group 1 - Agent is Carcinogenic to humans
CAN	CA EPA - Prop 65	Carcinogen
CAN	US NIH - Report on Carcinogens	Known to be a human Carcinogen
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
MAM	US EPA - EPCRA Extremely Hazardous Substances	Extremely Hazardous Substances
CAN	GHS - Japan	H350 - May cause cancer [Carcinogenicity - Category 1A]
CAN	GHS - Australia	H350i - May cause cancer by inhalation [Carcinogenicity - Category 1A or 1B]
CAN	GHS - Korea	H350 - May cause cancer [Carcinogenicity - Category 1]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
GEN	EU - GHS (H-Statements) Annex 6 Table 3-1	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
GEN	GHS - Japan	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Australia	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
SKI	GHS - Korea	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1]
AQU	GHS - Japan	H401 - Toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 2]

MAM	GHS - Korea	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Korea	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
GEN	EU - Annex VI CMRs	Mutagen - Category 2
MAM	GHS - Japan	H311 - Toxic in contact with skin [Acute Toxicity (dermal) - Category 3]
MAM	GHS - Malaysia	H300 - Fatal if swallowed [Acute toxicity (oral) - Category 1 or 2]
MAM	GHS - Malaysia	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Malaysia	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
SKI	GHS - Malaysia	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
EYE	GHS - Malaysia	H318 - Causes serious eye damage [Serious eye damage/eye irritation - Category 1]
MAM	GHS - Australia	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	GHS - Australia	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Korea	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 2]
PHY	GHS - Korea	H220 - Extremely flammable gas [Flammable gases - Category 1]
PHY	Québec CSST - WHMIS 1988	Class B1 - Flammable gases
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: gas) - Category 2]
PHY	GHS - Japan	H220 - Extremely flammable gas [Flammable gases - Category 1]
CAN	GHS - Malaysia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
AQU	GHS - Australia	H401 - Aquatic Acute 2 - Toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 2]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Footwear, Apparel & Jewelry Products
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary.

WATER **%: 5.4000 - 5.6000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: No MATERIAL TYPE: Other: Natural resource

RESIDUALS AND IMPURITIES NOTES: No data collected regarding this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate. Standard water is used (municipal).

WATER ID: **7732-18-5**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:33**

%: **100.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Humectant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: See materials notes for details.

MELAMINE-CELLULOSE **%: 0.0000 - 3.2000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Residuals and impurities are below the reporting threshold.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material comes from multiple suppliers. The composition of this material is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:32**

%: **0.0000 - 65.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:34**

%: **0.0000 - 65.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:33**

%: **21.0000 - 55.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Carrier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:34**

%: **0.0000 - 35.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - New Zealand	Skin sensitisation category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:34**

%: **0.0000 - 35.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:35**

%: **0.0000 - 25.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Opacifier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	CA EPA - Prop 65	Carcinogen - specific to chemical form or exposure route
CAN	IARC	Group 2B - Possibly carcinogenic to humans - inhaled from occupational sources
CAN	MAK	Carcinogen Group 3A - Evidence of carcinogenic effects but not sufficient to establish MAK/BAT value
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE Safer Chemicals Ingredients list (SCIL) Colorants - Green Circle (Verified Low Concern)

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:35**

%: **0.0000 - 15.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Solvent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:35**

%: **0.0000 - 3.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Acute inhalation toxicity category 3

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Bisphenols and Phthalates
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:36**

%: **0.0000 - 2.5000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
DEV	CA EPA - Prop 65	Developmental toxicity
DEV	US NIH - Reproductive & Developmental Monographs	Clear Evidence of Adverse Effects - Developmental Toxicity
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:36**

%: **0.0000 - 2.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This material is a polymer in the product and is proprietary.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:37**

%: **0.0000 - 2.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This material is part of the polymer and is proprietary.

SCAVENGER %: 0.7000 - 0.8000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Animal-Based Material

RESIDUALS AND IMPURITIES NOTES: Residuals are below the reporting threshold, while there are no impurities present in this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material has multiple suppliers. This product is on the US FDA's GRAS (GENERALLY REGARDED AS SAFE) list.

UREA ID: 57-13-6

HAZARD DATA SOURCE: Pharos Chemical and Materials Library HAZARD SCREENING DATE: 2023-01-24 9:03:36

%: 98.5000 - 100.0000 GreenScreen: LT-UNK RC: None NANO: No SUBSTANCE ROLE: Scavenger

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
EYE	GHS - New Zealand	Eye irritation category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: See materials notes for details.

WAX %: 0.3000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Suppliers declared, backed by technical/scientific knowledge, that no residuals or impurities were present in their product; however, no such tests were performed on their product. According to Pharos, known or potential residuals for slack wax (64742-61-6) is paraffin (8002-74-2) and paraffin oil (8012-95-1).

OTHER MATERIAL NOTES: Slack wax is used as water repellant. Data Source for TSCA Definition 2018: A complex combination of hydrocarbons obtained from a petroleum fraction by solvent crystallization (solvent dewaxing) or as a distillation fraction from a very waxy crude. It consists predominantly of saturated straight and branched chain hydrocarbons having carbon numbers predominantly greater than C20.

SLACK WAX (PETROLEUM)

ID: 64742-61-6

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:36**

%: **100.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Water resistance**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	GHS - Australia	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
DEV	GHS - Australia	H361d - Suspected of damaging the unborn child [Reproductive toxicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: See materials notes for details.

CATALYST

%: **0.1000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Other: Inorganic sulfate salt

RESIDUALS AND IMPURITIES NOTES: The supplier declared, backed by technical/scientific knowledge, that no impurities or residuals were present in their product.

OTHER MATERIAL NOTES: Some substances fall below the reportable thershold, and are not reported in the content inventory.

AMMONIUM SULFATE ID: **7783-20-2**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:03:37**

%: **98.0000 - 99.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Catalyst**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: See materials notes for details.

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS — **CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable**

CERTIFYING PARTY: Self-declared
APPLICABLE FACILITIES: All facilities
CERTIFICATE URL:

ISSUE DATE: 2022-09-27
EXPIRY DATE:

CERTIFIER OR LAB: n/a

CERTIFICATION AND COMPLIANCE NOTES: According to LEED v4, emissions and content requirements for Composite Wood are to follow the Composite Wood Evaluation which states: "Composite wood, as defined by the California Air Resources Board, Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation, must be documented to have low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins. "

SUSTAINABLE FORESTRY — **FSC Certification - Chain of Custody (COC)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Uniboard Canada Inc. - Multi-Site
CERTIFICATE URL: https://info.fsc.org

ISSUE DATE: 2007-11-06
EXPIRY DATE: 2027-12-01

CERTIFIER OR LAB: Preferred by Nature

CERTIFICATION AND COMPLIANCE NOTES: Certificate resgistration code NC-COC-002726 NC-CW-002726

FORMALDEHYDE EMISSIONS — **EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Ultra Low-Emitting Formaldehyde (ULEF)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Sayabec, Quebec, Canada, G0J 3K0
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-03-21
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Fulfills The Requirements Of: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160- 16, ANSI A208.1 and California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) 93120. State of California Air Resources Board Executive Order N-18-035 (https://www.arb.ca.gov/toxics/compwood/naf_ulef/listofnaf_ulef.htm).

MULTI-ATTRIBUTE — **CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification**

CERTIFYING PARTY: Second Party
APPLICABLE FACILITIES: Sayabec, Quebec, Canada, G0J 3K0
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-03-05
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Carbon Footprint; Locally Sourced Fiber; Recycled, Recovered or Post-Consumer Fiber Content; Sustainable Use of Wood Fiber; Responsible Wood Sourcing.

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

Section 6: References

MANUFACTURER INFORMATION

MANUFACTURER: **Uniboard Canada Inc.**
ADDRESS: **5555, Ernest Cormier Street**
Laval Quebec H7C 2S9, Canada
WEBSITE: **www.uniboard.com**

CONTACT NAME: **Pierre Martin**
TITLE: **Technology and Innovation Director**
PHONE: **450.664.6000**
EMAIL: **pierre.martin@uniboard.com**

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types

AQU Aquatic toxicity
CAN Cancer
DEV Developmental toxicity
END Endocrine activity
EYE Eye irritation/corrosivity
GEN Gene mutation
GLO Global warming
LAN Land toxicity
MAM Mammalian/systemic/organ toxicity
MUL Multiple
NEU Neurotoxicity
NF Not found on Priority Hazard Lists
OZO Ozone depletion
PBT Persistent, bioaccumulative, and toxic
PHY Physical hazard (flammable or reactive)
REP Reproductive
RES Respiratory sensitization
SKI Skin sensitization/irritation/corrosivity
UNK Unknown

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (due to insufficient data)
LT-P1 List Translator Possible 1 (Possible Benchmark-1)
LT-1 List Translator 1 (Likely Benchmark-1)
LT-UNK List Translator Benchmark Unknown
NoGS No GreenScreen.

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, www.greenscreenchemicals.org, and Best Practices for Hazard Screening on the HPDC website (hpd-collaborative.org).

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology
Third Party Verified Verification by independent certifier approved by HPDC
Preparer Third party preparer, if not self-prepared by manufacturer
Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this HPD and for compliance with the HPD standard noted.

NU Green® FR MDF
by Uniboard Canada Inc.

Health Product Declaration v2.3
created via: HPDC Online Builder

HPD UNIQUE IDENTIFIER: 31116
CLASSIFICATION: 06 42 00 Wood Paneling
PRODUCT DESCRIPTION: This HPD covers all available dimensions, thicknesses and laminate options for NU Green® FR MDF by Uniboard®. NU Green® FR MDF is a Fire-Resistant Medium Density Fiberboard. NU Green® FR MDF is primarily composed of cellulosic materials (usually wood), generally in the form of discrete pieces of particles , as distinguished from fibers, bonded together with a bonding system cured under heat and pressure, and contains additives. No-Added Formaldehyde (NAF) panels.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format
- (•) Nested Materials Method
- ( ) Basic Method

Threshold Disclosed Per
- ( ) Material
- (•) Product

Threshold Level
- (•) 100 ppm
- ( ) 1,000 ppm
- ( ) Per GHS SDS
- ( ) Other

Residuals/Impurities Evaluation
Completed in 6 of 6 Materials

Explanation(s) provided for Residuals/Impurities?
(•) Yes ( ) No

For all contents above the threshold, the manufacturer has:

Characterized (•) Yes ( ) No
Provided weight and role.

Screened (•) Yes ( ) No
Provided screening results using HPDC-approved methods.

Identified ( ) Yes (•) No
Provided name and CAS RN or other identifier.

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | *RESIDUAL OR IMPURITY*
GREENSCREEN SCORE | HAZARD TYPE

WOOD [WOOD FIBER] FLAME RETARDANT [WATER NoGS UNDISCLOSED LT-UNK | EYE UNDISCLOSED LT-UNK UNDISCLOSED LT-UNK UNDISCLOSED LT-UNK] WATER [WATER BM-4] DIISOCYANATE RESIN [POLYMERIC MDI (PMDI) LT-UNK | CAN | RES | EYE | SKI | MAM METHYLENE BISPHENYL DIISOCYANATE (PURE MDI) LT-UNK | CAN | RES | SKI | EYE | MAM DIPHENYLMETHANE DIISOCYANATE (MDI) - NON ISOMER SPECIFIC LT-UNK | SKI | EYE | CAN | MAM *4,4'-MDI DIMER* LT-UNK | SKI | EYE | MAM | CAN *ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE ESTER, POLYMER WITH _-HYDRO-_-HYDROXYPOLY(OXY-1,2-ETHANEDIYL)* LT-P1 | SKI | MAM] MELAMINE CELLULOSE [UNDISCLOSED NoGS UNDISCLOSED LT-UNK | UNDISCLOSED NoGS UNDISCLOSED LT-P1 | SKI UNDISCLOSED LT-UNK UNDISCLOSED LT-1 | CAN | END | MAM UNDISCLOSED BM-4 UNDISCLOSED LT-P1 | END | EYE | MAM UNDISCLOSED LT-1 | END | DEV | EYE | MAM | SKI UNDISCLOSED LT-UNK UNDISCLOSED BM-4] WAX [SLACK WAX (PETROLEUM) LT-1 | CAN | MUL | DEV]

Number of Greenscreen BM-4/BM3 contents ... 3

Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-1, LT-P1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Special Conditions applied: [BiologicalMaterial]

HPD prepared using a Nested Materials Inventory with a product threshold at 100 ppm. The content inventory includes ranges to encompass both NU Green® FR MDF with and without melamine lamiates. Nu Green® FR MDF contain materials with Special Conditions (biological material and polymers) as per the HPDC. Reporting of Biological materials was done according to HPDC Guidelines. Guidelines for reporting polymers are still under development by HPDC and the manufacturers will update the HPD accordingly once these guidelines get published. Substances present in NU Green® FR MDF panels, as well as known residuals and impurities, have been disclosed at 100 ppm. More details about how residuals and impurities were considered available in the appropriate sections.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE *See Section 3 for additional listings.*

VOC emissions: CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable
Sustainable forestry: FSC Certification - Chain of Custody (COC)
Formaldehyde emissions: EPA TSCA Title VI (40 CRF 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 No-Added Formaldehyde (NAF)
Multi-attribute: CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Option 1.
Pre-checked for LEED v4.1 Option 1.

Third Party Verified?

- ○ Yes
- ◉ No

PREPARER: Vertima
VERIFIER:
VERIFICATION #:

SCREENING DATE: 2023-01-24
PUBLISHED DATE: 2023-01-24
EXPIRY DATE: 2026-01-24

Section 2: Content in Descending Order of Quantity

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- *Basic Inventory method with Product-level threshold.*
- *Nested Material Inventory method with Product-level threshold*
- *Nested Material Inventory method with individual Material-level thresholds*

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-3-standard

WOOD %: **74.7000 - 76.8000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Wood Dust, Fiber or Chips

RESIDUALS AND IMPURITIES NOTES: No residuals or impurities suspected to be present in wood fiber.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate.

WOOD FIBER ID: **Biological Material**

HAZARD DATA SOURCE: **HPDC Special Conditions Policy**

%: **100.0000** | GreenScreen: **Not Required** | RC: **PreC** | NANO: **No** | MATERIAL ROLE: **Structure component**

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
Hazard Screening is not applicable to this Special Condition		

BIOLOGICAL MATERIALS CATEGORY: Tree-based materials

INGREDIENT DESCRIPTION: 9004-34-6

MATERIAL CONTENT NOTES: Pre-Consumer Recycled includes fiber, such as scrap, trimmings and cuttings, generated as a by-product from manufacturing and converting processes of primary wood products. Examples of this category include planer shavings, plytrim, sawdust, fines, chips and bagasse.

This disclosure does not provide information on allergens, hyper-accumulation of metals, production of any toxic substances during normal metabolic activities, pesticides, and other potential hazards or sources of hazards which may be found in certain biological materials.

FLAME RETARDANT %: **14.1000 - 14.5000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Other: Inorganic

RESIDUALS AND IMPURITIES NOTES: The supplier declared that no residuals or impurities are known or expected to be present at or above the Inventory Threshold

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate.

WATER ID: **7782-18-5**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** | HAZARD SCREENING DATE: **2023-01-24 9:17:15**

%: **45.0000 - 55.0000** | GreenScreen: **NoGS** | RC: **PreC** | NANO: **No** | SUBSTANCE ROLE: **Solvent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: The water comes from re-used rainwater.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:16**

%: **30.0000 - 30.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Flame retardant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
EYE	GHS - New Zealand	Eye irritation category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials

SUBSTANCE NOTES: This substance is undisclosed as it is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:17**

%: **10.0000 - 15.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Flame retardant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This substance is undisclosed as it is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:17**

%: **10.0000 - 15.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Flame retardant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This substance is undisclosed as it is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:18**

%: **5.0000 - 10.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Flame retardant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This substance is undisclosed as it is confidential.

WATER %: 4.0000 - 4.1000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: No MATERIAL TYPE: Other: Natural resource

RESIDUALS AND IMPURITIES NOTES: No data collected regarding this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products. Standard water is used (municipal)

WATER ID: **7732-18-5**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:16**

%: **100.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Humectant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: See materials notes for details.

DIISOCYANATE RESIN %: 3.7000 - 3.8000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Supplier A has reported impurities and they are listed in the material composition. Supplier B declared, backed by technical/scientific knowledge, that no residuals or impurities were present in their product.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products and this material has multiple suppliers.

POLYMERIC MDI (PMDI)

ID: 9016-87-9

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:16**

%: **30.0000 - 70.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Binder**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
RES	MAK	Sensitizing Substance Sah - Danger of airway & skin sensitization
EYE	GHS - New Zealand	Eye irritation category 2
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: Weight interval is used to cover recipe from multiple suppliers and keep exact recipe confidential.

METHYLENE BISPHENYL DIISOCYANATE (PURE MDI)

ID: 101-68-8

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:17**

%: **30.0000 - 45.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Monomer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
RES	MAK	Sensitizing Substance Sah - Danger of airway & skin sensitization
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]

EYE	EU - GHS (H-Statements) Annex 6 Table 3-1	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
SKI	GHS - New Zealand	Skin irritation category 2
EYE	GHS - New Zealand	Eye irritation category 2
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
CAN	GHS - New Zealand	Carcinogenicity category 2
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
EYE	GHS - Korea	H319 - Causes serious eye irritation [Serious eye damage/irritation - Category 2]
SKI	GHS - Korea	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: gas) - Category 2]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: dust, mist) - Category 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Korea	H335 - May cause respiratory irritation [Specific target organ toxicity - Single exposure - Category 3]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Formulated Consumer Products
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: **Weight interval is used to cover recipe from multiple suppliers and keep exact recipe confidential.**

DIPHENYLMETHANE DIISOCYANATE (MDI) - NON ISOMER SPECIFIC ID: **26447-40-5**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:18**

%: **0.0000 - 7.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Monomer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	EU - GHS (H-Statements) Annex 6 Table 3-1	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
SKI	GHS - New Zealand	Skin irritation category 2
EYE	GHS - New Zealand	Eye irritation category 2
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
CAN	GHS - New Zealand	Carcinogenicity category 2
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: dust, mist) - Category 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: **Weight interval is used to cover recipe from multiple suppliers and keep exact recipe confidential.**

4,4'-MDI DIMER ID: **17589-24-1**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:18**

%: **Impurity/Residual** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Impurity/Residual**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: See materials notes for details.

ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE ESTER, POLYMER WITH _-HYDRO-_-HYDROXYPOLY(OXY-1,2-ETHANEDIYL) ID: **57636-09-6**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:18**

%: **Impurity/Residual** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Impurity/Residual**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: See materials notes for details.

MELAMINE CELLULOSE **%: 0.0000 - 2.8000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Residuals and impurities are below the reporting threshold.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material comes from multiple suppliers. The composition of this material is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:20**

%: **0.0000 - 65.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:19**

%: **0.0000 - 65.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:20**

%: **21.0000 - 55.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Carrier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:21**

%: **0.0000 - 35.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - New Zealand	Skin sensitisation category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:19**

%: **0.0000 - 35.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:20**

%: **0.0000 - 25.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Opacifier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	CA EPA - Prop 65	Carcinogen - specific to chemical form or exposure route
CAN	IARC	Group 2B - Possibly carcinogenic to humans - inhaled from occupational sources
CAN	MAK	Carcinogen Group 3A - Evidence of carcinogenic effects but not sufficient to establish MAK/BAT value
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE Safer Chemicals Ingredients list (SCIL) Colorants - Green Circle (Verified Low Concern)

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:20**

%: **0.0000 - 15.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Solvent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:21**

%: **0.0000 - 3.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Acute inhalation toxicity category 3

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Bisphenols and Phthalates
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:21**

%: **0.0000 - 2.5000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
DEV	CA EPA - Prop 65	Developmental toxicity
DEV	US NIH - Reproductive & Developmental Monographs	Clear Evidence of Adverse Effects - Developmental Toxicity
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:19**

%: **0.0000 - 2.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This material is a polymer in the product and is proprietary.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:20**

%: **0.0000 - 2.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: this material is part of the polymer and is proprietary.

WAX %: 0.7000 - 0.8000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Suppliers declared, backed by technical/scientific knowledge, that no residuals or impurities were present in their product; however, no such tests are performed on their product. According to Pharos, known or potential residuals for slack wax (64742-61-6) is paraffin (8002-74-2) and paraffin oil (8012-95-1).

OTHER MATERIAL NOTES: Slack wax is used as water repellant. Data Source for TSCA Definition 2018: A complex combination of hydrocarbons obtained from a petroleum fraction by solvent crystallization (solvent dewaxing) or as a distillation fraction from a very waxy crude. It consists predominantly of saturated straight and branched chain hydrocarbons having carbon numbers predominantly greater than C20.

SLACK WAX (PETROLEUM) ID: 64742-61-6

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:17:21**

%: **100.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Water resistance**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	GHS - Australia	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
DEV	GHS - Australia	H361d - Suspected of damaging the unborn child [Reproductive toxicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: See material notes for details.

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS — **CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable**

CERTIFYING PARTY: Self-declared
APPLICABLE FACILITIES: All facilities
CERTIFICATE URL:

ISSUE DATE: 2022-09-27
EXPIRY DATE:

CERTIFIER OR LAB: n/a

CERTIFICATION AND COMPLIANCE NOTES: According to LEED v4, emissions and content requirements for Composite Wood are to follow the Composite Wood Evaluation which states: "Composite wood, as defined by the California Air Resources Board, Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation, must be documented to have low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins. "

SUSTAINABLE FORESTRY — **FSC Certification - Chain of Custody (COC)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Uiboard Canada INc. - Multi-Site
CERTIFICATE URL: https://info.fsc.org

ISSUE DATE: 2007-11-06
EXPIRY DATE: 2027-12-01

CERTIFIER OR LAB: Preferred by Nature

CERTIFICATION AND COMPLIANCE NOTES: Certificate registration code NC-COC-002726, NC-CW-002726

FORMALDEHYDE EMISSIONS — **EPA TSCA Title VI (40 CRF 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 No-Added Formaldehyde (NAF)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Mont-Laurier, Quebec, Canada J9L 2W3
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-03-25
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Fulfills The Requirements Of: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160- 16, ANSI A208.2 and California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) 93120. State of California Air Resources Board Executive Order N-18-118 (https://www.arb.ca.gov/toxics/compwood/naf_ulef/listofnaf_ulef.htm).

MULTI-ATTRIBUTE — **CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification**

CERTIFYING PARTY: Second Party
APPLICABLE FACILITIES: Mont-Laurier, Quebec, Canada, J9L 3W3
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-05-30
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Carbon Footprint; Locally Sourced Fiber; Recycled, Recovered or Post-Consumer Fiber Content; Sustainable Use of Wood Fiber; Responsible Wood Sourcing.

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

Section 6: References

MANUFACTURER INFORMATION

MANUFACTURER: **Uniboard Canada Inc.**
ADDRESS: **5555, Ernest Cormier Street**
Laval Quebec H7C 2S9, Canada
WEBSITE: **www.uniboard.com**

CONTACT NAME: **Pierre Martin**
TITLE: **Technology and Innovation Director**
PHONE: **450.664.6000**
EMAIL: **pierre.martin@uniboard.com**

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types

AQU Aquatic toxicity
CAN Cancer
DEV Developmental toxicity
END Endocrine activity
EYE Eye irritation/corrosivity
GEN Gene mutation
GLO Global warming
LAN Land toxicity
MAM Mammalian/systemic/organ toxicity
MUL Multiple
NEU Neurotoxicity
NF Not found on Priority Hazard Lists
OZO Ozone depletion
PBT Persistent, bioaccumulative, and toxic
PHY Physical hazard (flammable or reactive)
REP Reproductive
RES Respiratory sensitization
SKI Skin sensitization/irritation/corrosivity
UNK Unknown

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (due to insufficient data)
LT-P1 List Translator Possible 1 (Possible Benchmark-1)
LT-1 List Translator 1 (Likely Benchmark-1)
LT-UNK List Translator Benchmark Unknown
NoGS No GreenScreen.

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, www.greenscreenchemicals.org, and Best Practices for Hazard Screening on the HPDC website (hpd-collaborative.org).

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology
Third Party Verified Verification by independent certifier approved by HPDC
Preparer Third party preparer, if not self-prepared by manufacturer
Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this HPD and for compliance with the HPD standard noted.

NU Green MR50® MDF
by Uniboard Canada Inc.

Health Product Declaration v2.3
created via: HPDC Online Builder

HPD UNIQUE IDENTIFIER: 31113
CLASSIFICATION: 06 42 00 Wood Paneling
PRODUCT DESCRIPTION: This HPD covers all available dimensions, thicknesses and laminate options for NU Green MR50® MDF by Uniboard®. NU Green MR50® medium density fiberboard (MDF) is a composite panel product composed primarily of cellulosic fibers and a bonding system cured under heat and pressure. No-Added Formaldehyde (NAF) panels.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format
- (•) Nested Materials Method
- ( ) Basic Method

Threshold Disclosed Per
- ( ) Material
- (•) Product

Threshold Level
- (•) 100 ppm
- ( ) 1,000 ppm
- ( ) Per GHS SDS
- ( ) Other

Residuals/Impurities Evaluation
Completed in 5 of 5 Materials

Explanation(s) provided for Residuals/Impurities?
(•) Yes ( ) No

For all contents above the threshold, the manufacturer has:

Characterized (•) Yes ( ) No
Provided weight and role.

Screened (•) Yes ( ) No
Provided screening results using HPDC-approved methods.

Identified ( ) Yes (•) No
Provided name and CAS RN or other identifier.

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | *RESIDUAL OR IMPURITY*
GREENSCREEN SCORE | HAZARD TYPE

WOOD [WOOD FIBER] WATER [WATER BM-4] DIISOCYANATE RESIN [POLYMERIC MDI (PMDI) LT-UNK | CAN | RES | EYE | SKI | MAM METHYLENE BISPHENYL DIISOCYANATE (PURE MDI) LT-UNK | CAN | RES | SKI | EYE | MAM DIPHENYLMETHANE DIISOCYANATE (MDI) - NON ISOMER SPECIFIC LT-UNK | SKI | EYE | CAN | MAM *ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE ESTER, POLYMER WITH _-HYDRO-_-HYDROXYPOLY(OXY-1,2-ETHANEDIYL)* LT-P1 | SKI | MAM *4,4'-MDI DIMER* LT-UNK | SKI | EYE | MAM | CAN] MELAMINE-CELLULOSE [UNDISCLOSED NoGS UNDISCLOSED LT-UNK | UNDISCLOSED NoGS UNDISCLOSED LT-P1 | SKI UNDISCLOSED LT-UNK UNDISCLOSED LT-1 | CAN | END | MAM UNDISCLOSED BM-4 UNDISCLOSED LT-P1 | END | EYE | MAM UNDISCLOSED LT-1 | END | DEV | EYE | MAM | SKI UNDISCLOSED LT-UNK UNDISCLOSED BM-4] WAX [SLACK WAX (PETROLEUM) LT-1 | CAN | MUL | DEV]

Number of Greenscreen BM-4/BM3 contents ... 3

Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-1, LT-P1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Special Conditions applied: [BiologicalMaterial]

HPD prepared using a Nested Materials Inventory with a product threshold at 100 ppm. The content inventory includes ranges to encompass both NU Green MR50® MDF with and without melamine lamiates. NU Green MR50® MDF contain materials with Special Conditions (biological material and polymers) as per the HPDC. Reporting of Biological materials was done according to HPDC Guidelines. Guidelines for reporting polymers are still under development by HPDC and the manufacturers will update the HPD accordingly once these guidelines get published. Substances present in NU Green MR50® MDF, as well as known residuals and impurities, have been disclosed at 100 ppm. More details about how residuals and impurities were considered available in the appropriate sections.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE *See Section 3 for additional listings.*

VOC emissions: CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable
Sustainable forestry: FSC Certification - Chain of Custody (COC)
Formaldehyde emissions: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 No-Added Formaldehyde (NAF)
Multi-attribute: CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Option 1.

Pre-checked for LEED v4.1 Option 1.

Third Party Verified?

- ○ Yes
- ◉ No

PREPARER: Vertima
VERIFIER:
VERIFICATION #:

SCREENING DATE: 2023-01-24
PUBLISHED DATE: 2023-01-24
EXPIRY DATE: 2026-01-24

Section 2: Content in Descending Order of Quantity

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- *Basic Inventory method with Product-level threshold.*
- *Nested Material Inventory method with Product-level threshold*
- *Nested Material Inventory method with individual Material-level thresholds*

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-3-standard

WOOD %: **89.0000 - 91.5000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Wood Dust, Fiber or Chips

RESIDUALS AND IMPURITIES NOTES: No residuals or impurities suspected to be present in wood fiber.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate.

WOOD FIBER ID: **Biological Material**

HAZARD DATA SOURCE: **HPDC Special Conditions Policy**

%: **100.0000** | GreenScreen: **Not Required** | RC: **PreC** | NANO: **No** | MATERIAL ROLE: **Structure component**

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
Hazard Screening is not applicable to this Special Condition		

BIOLOGICAL MATERIALS CATEGORY: Tree-based materials

INGREDIENT DESCRIPTION: 9004-34-6

MATERIAL CONTENT NOTES: Pre-Consumer Recycled includes fiber, such as scrap, trimmings and cuttings, generated as a by-product from manufacturing and converting processes of primary wood products. Examples of this category include planer shavings, plytrim, sawdust, fines, chips and bagasse.

This disclosure does not provide information on allergens, hyper-accumulation of metals, production of any toxic substances during normal metabolic activities, pesticides, and other potential hazards or sources of hazards which may be found in certain biological materials.

WATER %: **4.7000 - 4.8000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: No | MATERIAL TYPE: Other: Natural resource

RESIDUALS AND IMPURITIES NOTES: No data collected regarding this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate. Standard water is used (municipal).

WATER

ID: 7732-18-5

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:22**

%: **100.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Humectant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: See materials notes for details.

DIISOCYANATE RESIN

%: **3.1000 - 3.2000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Supplier A has reported impurities and they are listed in the material composition. Supplier B declared, backed by technical/scientific knowledge, that no residuals or impurities were present in their product.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material comes from multiple suppliers.

POLYMERIC MDI (PMDI)

ID: 9016-87-9

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:23**

%: **30.0000 - 70.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Binder**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
RES	MAK	Sensitizing Substance Sah - Danger of airway & skin sensitization
EYE	GHS - New Zealand	Eye irritation category 2
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: Weight interval is used to cover recipe from multiple suppliers and keep exact recipe confidential.

METHYLENE BISPHENYL DIISOCYANATE (PURE MDI) ID: **101-68-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:24**

%: **30.0000 - 45.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Monomer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
RES	MAK	Sensitizing Substance Sah - Danger of airway & skin sensitization
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	EU - GHS (H-Statements) Annex 6 Table 3-1	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]

CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
SKI	GHS - New Zealand	Skin irritation category 2
EYE	GHS - New Zealand	Eye irritation category 2
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
CAN	GHS - New Zealand	Carcinogenicity category 2
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
EYE	GHS - Korea	H319 - Causes serious eye irritation [Serious eye damage/irritation - Category 2]
SKI	GHS - Korea	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: gas) - Category 2]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: dust, mist) - Category 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Korea	H335 - May cause respiratory irritation [Specific target organ toxicity - Single exposure - Category 3]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Formulated Consumer Products
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: Weight interval is used to cover recipe from multiple suppliers and keep exact recipe confidential.

DIPHENYLMETHANE DIISOCYANATE (MDI) - NON ISOMER SPECIFIC ID: **26447-40-5**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:24**

%: **0.0000 - 7.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Monomer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	EU - GHS (H-Statements) Annex 6 Table 3-1	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
SKI	GHS - New Zealand	Skin irritation category 2
EYE	GHS - New Zealand	Eye irritation category 2
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
CAN	GHS - New Zealand	Carcinogenicity category 2
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: dust, mist) - Category 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: Weight interval is used to cover recipe from multiple suppliers and keep exact recipe confidential.

ISOCYANIC ACID, POLYMETHYLENEPOLYPHENYLENE ESTER, POLYMER WITH _-HYDRO-_-HYDROXYPOLY(OXY-1,2-ETHANEDIYL) ID: **57636-09-6**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:24**

%: **Impurity/Residual** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Impurity/Residual**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: See material notes for details.

4,4'-MDI DIMER

ID: **17589-24-1**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:25**

%: **Impurity/Residual** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Impurity/Residual**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
EYE	GHS - Australia	H319 - Causes serious eye irritation [Serious eye damage/eye irritation - Category 2A]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance

SUBSTANCE NOTES: See material notes for details.

MELAMINE-CELLULOSE

%: **0.0000 - 2.8000**

PRODUCT THRESHOLD: **100 ppm** RESIDUALS AND IMPURITIES EVALUATION COMPLETED: **Yes** MATERIAL TYPE: **Polymeric Material**

RESIDUALS AND IMPURITIES NOTES: **Residuals and impurities are below the reporting threshold.**

OTHER MATERIAL NOTES: **Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material comes from multiple suppliers. The composition of this material is confidential.**

UNDISCLOSED

ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:25**

%: **0.0000 - 65.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:24**

%: **0.0000 - 65.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:25**

%: **21.0000 - 55.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Carrier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:26**

%: **0.0000 - 35.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - New Zealand	Skin sensitisation category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:26**

%: **0.0000 - 35.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:26**

%: **0.0000 - 25.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Opacifier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	CA EPA - Prop 65	Carcinogen - specific to chemical form or exposure route
CAN	IARC	Group 2B - Possibly carcinogenic to humans - inhaled from occupational sources
CAN	MAK	Carcinogen Group 3A - Evidence of carcinogenic effects but not sufficient to establish MAK/BAT value
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE Safer Chemicals Ingredients list (SCIL) Colorants - Green Circle (Verified Low Concern)

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:27**

%: **0.0000 - 15.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Solvent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:27**

%: **0.0000 - 3.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Acute inhalation toxicity category 3

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Bisphenols and Phthalates
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:28**

%: **0.0000 - 2.5000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
DEV	CA EPA - Prop 65	Developmental toxicity
DEV	US NIH - Reproductive & Developmental Monographs	Clear Evidence of Adverse Effects - Developmental Toxicity
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:26**

%: **0.0000 - 2.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This material is a polymer in the product and is proprietary.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:04:27**

%: **0.0000 - 2.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This material is part of the polymer and is proprietary.

WAX

%: 0.5000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Suppliers declared, backed by technicla/scientific knowledge, that no residuals or impurities were present in their product; however, no such tests were performed on their product. According to Pharos, known or potential residuals for slack wax (64742-61-6) is paraffin (8002-74-2) and paraffin oil (8012-95-1).

OTHER MATERIAL NOTES: Slack wax is used as water repellant. Data Source for TSCA Definition 2018: A complex combination of hydrocarbons obtained from a petroleum fraction by solvent crystallization (solvent dewaxing) or as a distillation fraction from a very waxy crude. It consists predominantly of saturated straight and branched chain hydrocarbons having carbon numbers predominantly greater than C20.

SLACK WAX (PETROLEUM)

ID: 64742-61-6

HAZARD DATA SOURCE: Pharos Chemical and Materials Library HAZARD SCREENING DATE: 2023-01-24 9:04:28

%: 100.0000 GreenScreen: LT-1 RC: PreC NANO: No SUBSTANCE ROLE: Water resistance

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	GHS - Australia	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
DEV	GHS - Australia	H361d - Suspected of damaging the unborn child [Reproductive toxicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: See materials notes for details.

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS — **CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable**

CERTIFYING PARTY: Self-declared
APPLICABLE FACILITIES: All facilities
CERTIFICATE URL:

ISSUE DATE: 2022-09-27
EXPIRY DATE:

CERTIFIER OR LAB: n/a

CERTIFICATION AND COMPLIANCE NOTES: According to LEED v4, emissions and content requirements for Composite Wood are to follow the Composite Wood Evaluation which states: "Composite wood, as defined by the California Air Resources Board, Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation, must be documented to have low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins. "

SUSTAINABLE FORESTRY — **FSC Certification - Chain of Custody (COC)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Uniboard Canada Inc. - Multi-Site
CERTIFICATE URL: https://info.fsc.org

ISSUE DATE: 2007-11-06
EXPIRY DATE: 2027-12-01

CERTIFIER OR LAB: Preferred by Nature

CERTIFICATION AND COMPLIANCE NOTES: Certificate registration code NC-COC-002726, NC-CE-002726

FORMALDEHYDE EMISSIONS — **EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 No-Added Formaldehyde (NAF)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Mont-Laurier, Quebec, Canada, J9L 3W3
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-03-25
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Fulfills The Requirements Of: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160- 16, ANSI A208.2 and California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) 93120. State of California Air Resources Board Executive Order N-18-118 (https://www.arb.ca.gov/toxics/compwood/naf_ulef/listofnaf_ulef.htm).

MULTI-ATTRIBUTE — **CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification**

CERTIFYING PARTY: Second Party
APPLICABLE FACILITIES: Mont-Laurier, Quebec, Canada, J9L 3W3
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-01-22
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Carbon Footprint; Locally Sourced Fiber; Recycled, Recovered or Post-Consumer Fiber Content; Sustainable Use of Wood Fiber; Responsible Wood Sourcing.

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

Section 6: References

MANUFACTURER INFORMATION

MANUFACTURER: **Uniboard Canada Inc.**
ADDRESS: **5555, Ernest Cormier Street**
Laval Quebec H7C 2S9, Canada
WEBSITE: **www.uniboard.com**

CONTACT NAME: **Pierre Martin**
TITLE: **Technology and Innovation Director**
PHONE: **450.664.6000**
EMAIL: **pierre.martin@uniboard.com**

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types

AQU Aquatic toxicity
CAN Cancer
DEV Developmental toxicity
END Endocrine activity
EYE Eye irritation/corrosivity
GEN Gene mutation
GLO Global warming
LAN Land toxicity
MAM Mammalian/systemic/organ toxicity
MUL Multiple
NEU Neurotoxicity
NF Not found on Priority Hazard Lists
OZO Ozone depletion
PBT Persistent, bioaccumulative, and toxic
PHY Physical hazard (flammable or reactive)
REP Reproductive
RES Respiratory sensitization
SKI Skin sensitization/irritation/corrosivity
UNK Unknown

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (due to insufficient data)
LT-P1 List Translator Possible 1 (Possible Benchmark-1)
LT-1 List Translator 1 (Likely Benchmark-1)
LT-UNK List Translator Benchmark Unknown
NoGS No GreenScreen.

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, www.greenscreenchemicals.org, and Best Practices for Hazard Screening on the HPDC website (hpd-collaborative.org).

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology
Third Party Verified Verification by independent certifier approved by HPDC
Preparer Third party preparer, if not self-prepared by manufacturer
Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this HPD and for compliance with the HPD standard noted.

Particleboard
by Uniboard Canada Inc.

Health Product Declaration v2.3
created via: HPDC Online Builder

HPD UNIQUE IDENTIFIER: 31115
CLASSIFICATION: 06 42 00 Wood Paneling
PRODUCT DESCRIPTION: This HPD covers all available dimensions, thicknesses and laminate options for Particleboard by Uniboard®. Particleboard is primarily composed of cellulosic materials (usually wood), generally in the form of discrete pieces of particles, as distinguished from fibers, bonded together with a bonding system cured under heat and pressure, and contains additives.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format
- (•) Nested Materials Method
- ( ) Basic Method

Threshold Disclosed Per
- ( ) Material
- (•) Product

Threshold Level
- (•) 100 ppm
- ( ) 1,000 ppm
- ( ) Per GHS SDS
- ( ) Other

Residuals/Impurities Evaluation
Completed in 7 of 7 Materials

Explanation(s) provided for Residuals/Impurities?
(•) Yes ( ) No

For all contents above the threshold, the manufacturer has:

Characterized (•) Yes ( ) No
Provided weight and role.

Screened (•) Yes ( ) No
Provided screening results using HPDC-approved methods.

Identified ( ) Yes (•) No
Provided name and CAS RN or other identifier.

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | *RESIDUAL OR IMPURITY*
GREENSCREEN SCORE | HAZARD TYPE

WOOD [WOOD FIBER] UREA FORMALDEHYDE RESIN [UNDISCLOSED LT-P1 | SKI UNDISCLOSED LT-UNK | EYE UNDISCLOSED LT-UNK | UNDISCLOSED BM-4 *UNDISCLOSED* BM-1 | CAN | END | SKI | MUL | MAM | GEN | AQU | EYE | PHY] WATER [WATER BM-4] MELAMINE CELLULOSE [UNDISCLOSED NoGS UNDISCLOSED LT-UNK | UNDISCLOSED NoGS UNDISCLOSED LT-P1 | SKI UNDISCLOSED LT-UNK UNDISCLOSED LT-1 | CAN | END | MAM UNDISCLOSED BM-4 UNDISCLOSED LT-P1 | END | EYE | MAM UNDISCLOSED LT-1 | END | DEV | EYE | MAM | SKI UNDISCLOSED LT-UNK UNDISCLOSED BM-4] SCAVENGER [UREA LT-UNK | EYE] WAX [SLACK WAX (PETROLEUM) LT-1 | CAN | MUL | DEV] CATALYST [AMMONIUM SULFATE LT-P1 | END]

Number of Greenscreen BM-4/BM3 contents ... 4

Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-1, LT-P1, BM-1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Special Conditions applied: [BiologicalMaterial]

HPD prepared using a Nested Materials Inventory with a product threshold at 100 ppm. The content inventory includes ranges to encompass both Particleboard with and without melamine lamiates. Particleboard contain materials with Special Conditions (biological material and polymers) as per the HPDC. Reporting of Biological materials was done according to HPDC Guidelines. Guidelines for reporting polymers are still under development by HPDC and the manufacturers will update the HPD accordingly once these guidelines get published. Substances present in Particleboard panels, as well as known residuals and impurities, have been disclosed at 100 ppm. More details about how residuals and impurities were considered available in the appropriate sections.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE *See Section 3 for additional listings.*

VOC emissions: CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable
Sustainable forestry: FSC Certification - Chain of Custody (COC)
Formaldehyde emissions: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Phase 2
Formaldehyde emissions: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Phase 2

CONSISTENCY WITH OTHER PROGRAMS

Pre-checked for LEED v4 Option 1.
Pre-checked for LEED v4.1 Option 1.

Third Party Verified?

- ○ Yes
- ◉ No

PREPARER: Vertima
VERIFIER:
VERIFICATION #:

SCREENING DATE: 2023-01-24
PUBLISHED DATE: 2023-01-24
EXPIRY DATE: 2026-01-24

Section 2: Content in Descending Order of Quantity

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- *Basic Inventory method with Product-level threshold.*
- *Nested Material Inventory method with Product-level threshold*
- *Nested Material Inventory method with individual Material-level thresholds*

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-3-standard

WOOD %: **83.7000 - 86.5000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Wood Dust, Fiber or Chips

RESIDUALS AND IMPURITIES NOTES: No residuals or impurities suspected to be present in wood fiber.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate.

WOOD FIBER ID: **Biological Material**

HAZARD DATA SOURCE: **HPDC Special Conditions Policy**

%: **100.0000** | GreenScreen: **Not Required** | RC: **PreC** | NANO: **No** | MATERIAL ROLE: **Structure component**

HAZARD TYPE	AGENCY AND LIST TITLES	WARNINGS
Hazard Screening is not applicable to this Special Condition		

BIOLOGICAL MATERIALS CATEGORY: Tree-based materials

INGREDIENT DESCRIPTION: 9004-34-6

MATERIAL CONTENT NOTES: Pre-Consumer Recycled includes fiber, such as scrap, trimmings and cuttings, generated as a by-product from manufacturing and converting processes of primary wood products. Examples of this category include planer shavings, plytrim, sawdust, fines, chips and bagasse.

This disclosure does not provide information on allergens, hyper-accumulation of metals, production of any toxic substances during normal metabolic activities, pesticides, and other potential hazards or sources of hazards which may be found in certain biological materials.

UREA FORMALDEHYDE RESIN %: **7.6000 - 7.9000**

PRODUCT THRESHOLD: 100 ppm | RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes | MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: According to Pharos, known or potential residual for Formaldehyde compounds, Urea formaldehyde based, is formaldehyde (50-00-0). According to the supplier and based on their technical/scientific knowledge as well as information from their supplier, no impurities are anticipated to be present in the material; however, they do not test.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate. The composition of this product is confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** | HAZARD SCREENING DATE: **2023-01-24 9:06:27**

%: **0.0000 - 50.0000** | GreenScreen: **LT-P1** | RC: **None** | NANO: **No** | SUBSTANCE ROLE: **Binder**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - New Zealand	Skin sensitisation category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of interchangeable resin in the product and to keep exact product recipe confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:28**

%: **15.0000 - 40.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Stabilizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
EYE	GHS - New Zealand	Eye irritation category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of interchangeable resin in the product and to keep exact product recipe confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:27**

%: **0.0000 - 40.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Binder**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of interchangeable resin in the product and to keep exact product recipe confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:29**

%: **25.0000 - 35.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Diluent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of interchangeable resin in the product and to keep exact product recipe confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:29**

%: **Impurity/Residual** GreenScreen: **BM-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Impurity/Residual**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
SKI	MAK	Sensitizing Substance Sh - Danger of skin sensitization

MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	US EPA - IRIS Carcinogens	(1986) Group B1 - Probable human Carcinogen
CAN	IARC	Group 1 - Agent is Carcinogenic to humans
CAN	CA EPA - Prop 65	Carcinogen
CAN	US NIH - Report on Carcinogens	Known to be a human Carcinogen
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
MAM	US EPA - EPCRA Extremely Hazardous Substances	Extremely Hazardous Substances
CAN	GHS - Japan	H350 - May cause cancer [Carcinogenicity - Category 1A]
CAN	GHS - Australia	H350i - May cause cancer by inhalation [Carcinogenicity - Category 1A or 1B]
CAN	GHS - Korea	H350 - May cause cancer [Carcinogenicity - Category 1]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
GEN	EU - GHS (H-Statements) Annex 6 Table 3-1	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
GEN	GHS - Japan	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Australia	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]
SKI	GHS - Korea	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1]
AQU	GHS - Japan	H401 - Toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 2]

MAM	GHS - Korea	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Korea	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
GEN	EU - Annex VI CMRs	Mutagen - Category 2
MAM	GHS - Japan	H311 - Toxic in contact with skin [Acute Toxicity (dermal) - Category 3]
MAM	GHS - Malaysia	H300 - Fatal if swallowed [Acute toxicity (oral) - Category 1 or 2]
MAM	GHS - Malaysia	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Malaysia	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
SKI	GHS - Malaysia	H314 - Causes severe skin burns and eye damage [Skin corrosion/irritation - Category 1A or 1B or 1C]
EYE	GHS - Malaysia	H318 - Causes serious eye damage [Serious eye damage/eye irritation - Category 1]
MAM	GHS - Australia	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	GHS - Australia	H311 - Toxic in contact with skin [Acute toxicity (dermal) - Category 3]
MAM	GHS - Korea	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 2]
PHY	GHS - Korea	H220 - Extremely flammable gas [Flammable gases - Category 1]
PHY	Québec CSST - WHMIS 1988	Class B1 - Flammable gases
MAM	GHS - Japan	H330 - Fatal if inhaled [Acute toxicity (inhalation: gas) - Category 2]
PHY	GHS - Japan	H220 - Extremely flammable gas [Flammable gases - Category 1]
CAN	GHS - Malaysia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
AQU	GHS - Australia	H401 - Aquatic Acute 2 - Toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 2]
MAM	GHS - Australia	H330 - Fatal if inhaled [Acute toxicity (inhalation) - Category 1 or 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Footwear, Apparel & Jewelry Products
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary.

WATER **%: 4.5000 - 4.6000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: No MATERIAL TYPE: Other: Natural resource

RESIDUALS AND IMPURITIES NOTES: No data collected regarding this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate. Standard water is used (municipal).

WATER

ID: 7732-18-5

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:27**

%: **100.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Humectant**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: See materials notes for details.

MELAMINE CELLULOSE %: 0.0000 - 3.2000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Residuals and impurities are below the reporting threshold.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material comes from multiple suppliers. The composition of this material is confidential.

UNDISCLOSED

ID: Undisclosed

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:29**

%: **0.0000 - 65.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED

ID: Undisclosed

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:28**

%: **0.0000 - 65.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
	EC - CEPA DSL	Persistent

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:29**

%: **21.0000 - 55.0000** GreenScreen: **NoGS** RC: **None** NANO: **No** SUBSTANCE ROLE: **Carrier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:30**

%: **0.0000 - 35.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	GHS - New Zealand	Skin sensitisation category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:30**

%: **0.0000 - 35.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:30**

%: **0.0000 - 25.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Opacifier**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	CA EPA - Prop 65	Carcinogen - specific to chemical form or exposure route
CAN	IARC	Group 2B - Possibly carcinogenic to humans - inhaled from occupational sources
CAN	MAK	Carcinogen Group 3A - Evidence of carcinogenic effects but not sufficient to establish MAK/BAT value
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	MAK	Carcinogen Group 4 - Non-genotoxic carcinogen with low risk under MAK/BAT levels
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
POSITIVE LIST	US Environmental Protection Agency (US EPA)	US EPA - DfE Safer Chemicals Ingredients list (SCIL) Colorants - Green Circle (Verified Low Concern)

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:31**

%: **0.0000 - 15.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Solvent**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:32**

%: **0.0000 - 3.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Acute inhalation toxicity category 3

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Bisphenols and Phthalates
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:32**

%: **0.0000 - 2.5000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Plasticizer**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
DEV	CA EPA - Prop 65	Developmental toxicity
DEV	US NIH - Reproductive & Developmental Monographs	Clear Evidence of Adverse Effects - Developmental Toxicity
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - Japan	H315 - Causes skin irritation [Skin corrosion / irritation - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Some Solvents

SUBSTANCE NOTES: This substance is undisclosed as it is proprietary. Weight interval is used to account for the use of melamine cellulose from multiple suppliers and to keep exact product recipes confidential.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:30**

%: **0.0000 - 2.0000** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This material is a polymer in the product and is proprietary.

UNDISCLOSED ID: **Undisclosed**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:31**

%: **0.0000 - 2.0000** GreenScreen: **BM-4** RC: **None** NANO: **No** SUBSTANCE ROLE: **Polymer species**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
None found		No warnings found on HPD Priority Hazard Lists

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex IV listing due to intrinsic safety

SUBSTANCE NOTES: This material is part of the polymer and is proprietary.

SCAVENGER

%: 0.5000 - 0.6000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Animal-Based Material

RESIDUALS AND IMPURITIES NOTES: Residuals are below the reporting threshold, while there are no impurities present in this material.

OTHER MATERIAL NOTES: Weight percentage may vary as this HPD covers multiple products, i.e. with or without laminate, and this material has multiple suppliers. This product is on the US FDA's GRAS (GENERALLY REGARDED AS SAFE) list.

UREA

ID: 57-13-6

HAZARD DATA SOURCE: Pharos Chemical and Materials Library HAZARD SCREENING DATE: 2023-01-24 9:06:31

%: 98.5000 - 100.0000 GreenScreen: LT-UNK RC: None NANO: No SUBSTANCE ROLE: Scavenger

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
EYE	GHS - New Zealand	Eye irritation category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: See materials notes for details.

WAX

%: 0.3000

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Polymeric Material

RESIDUALS AND IMPURITIES NOTES: Suppliers declared, backed by technical/scientific knowledge, that no residuals or impurities were present in their product; however, no such tests were performed on their product. According to Pharos, known or potential residuals for slack wax (64742-61-6) is paraffin (8002-74-2) and paraffin oil (8012-95-1).

OTHER MATERIAL NOTES: Slack wax is used as water repellant. Data Source for TSCA Definition 2018: A complex combination of hydrocarbons obtained from a petroleum fraction by solvent crystallization (solvent dewaxing) or as a distillation fraction from a very waxy crude. It consists predominantly of saturated straight and branched chain hydrocarbons having carbon numbers predominantly greater than C20.

SLACK WAX (PETROLEUM)

ID: 64742-61-6

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:32**

%: **100.0000** GreenScreen: **LT-1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Water resistance**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	EU - REACH Annex XVII CMRs	Carcinogen Category 2 - Substances which should be regarded as if they are Carcinogenic to man
CAN	EU - Annex VI CMRs	Carcinogen Category 1B - Presumed Carcinogen based on animal evidence
MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	GHS - Australia	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
DEV	GHS - Australia	H361d - Suspected of damaging the unborn child [Reproductive toxicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: See materials notes for details.

CATALYST

%: **0.1000**

PRODUCT THRESHOLD: 100 ppm RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Other: Inorganic sulfate salt

RESIDUALS AND IMPURITIES NOTES: The supplier declared, backed by technical/scientific knowledge, that no impurities or residuals were present in their product.

OTHER MATERIAL NOTES: Some substances fall below the reportable thershold, and are not reported in the content inventory.

AMMONIUM SULFATE ID: **7783-20-2**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-01-24 9:06:33**

%: **98.0000 - 99.0000** GreenScreen: **LT-P1** RC: **None** NANO: **No** SUBSTANCE ROLE: **Catalyst**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: See materials notes for details.

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS — **CDPH Standard Method V1.2 (Section 01350/CHPS) - Not applicable**

CERTIFYING PARTY: Self-declared
APPLICABLE FACILITIES: All facilities
CERTIFICATE URL:
ISSUE DATE: 2022-09-27
EXPIRY DATE:
CERTIFIER OR LAB: n/a

CERTIFICATION AND COMPLIANCE NOTES: According to LEED v4, emissions and content requirements for Composite Wood are to follow the Composite Wood Evaluation which states: "Composite wood, as defined by the California Air Resources Board, Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation, must be documented to have low formaldehyde emissions that meet the California Air Resources Board ATCM for formaldehyde requirements for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins. "

SUSTAINABLE FORESTRY — **FSC Certification - Chain of Custody (COC)**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Uniboard Candada Inc. - Multi-Site
CERTIFICATE URL: https://info.fsc.org/
ISSUE DATE: 2007-11-06
EXPIRY DATE: 2027-12-01
CERTIFIER OR LAB: Preferred by Nature

CERTIFICATION AND COMPLIANCE NOTES: Certificate registration code NC-COC-002726 NC-CW-002726

FORMALDEHYDE EMISSIONS — **EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Phase 2**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Sayabec, Quebec, Canada, G0J 3K0
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/
ISSUE DATE: 2019-03-21
EXPIRY DATE:
CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Fulfills The Requirements Of: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160- 16, ANSI A208.1 and California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) 93120.

FORMALDEHYDE EMISSIONS — **EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160-16, ANSI A208.1 and CARB Composite Wood ATCM CA 93120 Phase 2**

CERTIFYING PARTY: Third Party
APPLICABLE FACILITIES: Val d'Or, Quebec, Canada, J9P 5G6
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/
ISSUE DATE: 2019-04-30
EXPIRY DATE:
CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Fulfills The Requirements Of: EPA TSCA Title VI (40 CFR 770), CAN/CSA-0160- 16, ANSI A208.1 and California Air Resources Board (CARB) Airborne Toxic Control Measures (ATCM) 93120.

MULTI-ATTRIBUTE — **CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification**

CERTIFYING PARTY: Second Party
APPLICABLE FACILITIES: Val d'Or, Quebec, Canada, J9P 5G6
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/
ISSUE DATE: 2019-01-22
EXPIRY DATE:
CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Carbon Footprint; Locally Sourced Fiber; Recycled, Recovered or ost-Consumer Fiber Content; Sutainable Use of Wood Fiber; Responsible Wood Sourcing.

MULTI-ATTRIBUTE — **CPA 4-19 Eco-Certified Composite (ECC) - Value Added Certification**

CERTIFYING PARTY: Second Party
APPLICABLE FACILITIES: Sayabec, Quebec, Canada, G0J 3K0
CERTIFICATE URL: https://www.compositepanel.org/testing-certification/certification-programs/

ISSUE DATE: 2019-03-05
EXPIRY DATE:

CERTIFIER OR LAB: Composite Panel Association

CERTIFICATION AND COMPLIANCE NOTES: Carbon Footprint; Locally Sourced Fiber; Recycled, Recovered or Post-Consumer Fiber Content; Sustainable Use of Wood Fiber; Responsible Wood Sourcing.

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

All of Uniboard's product documentation and certificats are available on line at https://www.uniboard.com/en/documentation-center

Section 6: References

MANUFACTURER INFORMATION

MANUFACTURER: **Uniboard Canada Inc.**
ADDRESS: **5555, Ernest Cormier Street**
Laval Quebec H7C 2S9, Canada
WEBSITE: **www.uniboard.com**

CONTACT NAME: **Pierre Martin**
TITLE: **Technology and Innovation Director**
PHONE: **450.664.6000**
EMAIL: **pierre.martin@uniboard.com**

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types

AQU Aquatic toxicity
CAN Cancer
DEV Developmental toxicity
END Endocrine activity
EYE Eye irritation/corrosivity
GEN Gene mutation
GLO Global warming
LAN Land toxicity
MAM Mammalian/systemic/organ toxicity
MUL Multiple
NEU Neurotoxicity
NF Not found on Priority Hazard Lists
OZO Ozone depletion
PBT Persistent, bioaccumulative, and toxic
PHY Physical hazard (flammable or reactive)
REP Reproductive
RES Respiratory sensitization
SKI Skin sensitization/irritation/corrosivity
UNK Unknown

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (due to insufficient data)
LT-P1 List Translator Possible 1 (Possible Benchmark-1)
LT-1 List Translator 1 (Likely Benchmark-1)
LT-UNK List Translator Benchmark Unknown
NoGS No GreenScreen.

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, www.greenscreenchemicals.org, and Best Practices for Hazard Screening on the HPDC website (hpd-collaborative.org).

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology
Third Party Verified Verification by independent certifier approved by HPDC
Preparer Third party preparer, if not self-prepared by manufacturer
Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this HPD and for compliance with the HPD standard noted.

Environmental Product Declaration

Medium Density Fiberboard

COMPOSITE PANEL ASSOCIATION

Medium Density Fiberboard (MDF) is a composite panel product used for composite furniture, kitchen cabinets, molding, and laminate floors.

Composite Panel Association

The Composite Panel Association is pleased to present this Environmental Product Declaration (EPD) for Medium Density Fiberboard (MDF). This EPD was developed in compliance with ISO 14025 and ISO 21930 and has been verified under UL Environment's EPD program.

The EPD includes Life Cycle Assessment (LCA) results for all processes up to the point that MDF is packaged and ready for shipment at the manufacturing gate. The life cycle of MDF includes the production of wood residues that are a coproduct of lumber milling. The cradle-to-gate product system thus includes forest management, logging, transportation of logs to lumber mills, sawing, transportation of wood residues to MDF plants, and MDF production.

Please follow our sustainability initiatives at:
www.compositepanel.org/cpa-green/

UL CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION
UL.COM/EPD

North American Medium Density Fiberboard (MDF)

North American Structural and Architectural Wood Products

According to ISO 14025 and ISO 21930:2007

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	Composite Panel Association
DECLARATION NUMBER	4788663642.101.1
DECLARED PRODUCT	North American Medium Density Fiberboard
REFERENCE PCR	FPInnovations PCR for North American Structural and Architectural Wood Products, v.2.0 2015
REFERENCE PCR STANDARD	☐ EN 15804 (2012) ☒ ISO 21930 (2007) ☐ ISO 21930 (2017)
DATE OF ISSUE	December 31, 2018
PERIOD OF VALIDITY	5 Years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications
The PCR review was conducted by:	FPInnovations PCR Peer Review Panel Chair: Thomas P. Gloria,
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	Grant R. Martin Grant R. Martin, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	James Mellentine James Mellentine, Ramboll

Description of Industry and Product

Description of North American MDF Industry

The North American composite panel industry is a major contributor to both the United States and Canada economies. MDF is a composite panel that is valued for its homogeneity that allows precision millwork and finishing. These properties have caused MDF to be widely used to manufacture furniture, kitchen cabinets, doors, and moulding. MDF is also widely regarded as a sustainable material because it utilizes wood residues from other manufacturing processes that might otherwise be wasted. In 2016, total North American production of MDF was over four million m^3, with three million m^3 from United States facilities and Canada producing an additional one million m^3.

Manufacturers of MDF in North American are members of the Composite Panel Association, Leesburg, Virginia. Nine MDF facilities contributed production data from the United States and Canada (Table 1) for this EPD with a combined production of 1.8 million m^3, or 45% of total industry production.

Table 1: Participating Facilities

Manufacturer	City, State/Province	Country
Arauco North America	Eugene, Oregon	United States
Arauco North America	Malvern, Alaska	United States
Arauco North America	Moncure, North Carolina	United States
Arauco North America	Sault Ste. Marie, Ontario	Canada
Arauco North America	St. Stephen, New Brunswick	Canada
Uniboard Inc.	Mont-Laurier, Quebec	Canada
West Fraser/ Ranger Board	Blue Ridge, Alberta	Canada
West Fraser/WestPine	Quesnel, British Columbia	Canada
Weyerhaeuser NR	Columbia Falls, Montana	United States

Composite Panel Association

North American Medium Density Fiberboard (MDF)

North American Structural and Architectural Wood Products

According to ISO 14025 and ISO 21930:2007

Description of MDF Product

The product profile presented in this EPD is for a declared unit of 1 cubic meter of MDF. MDF is manufactured from wood residues that are generated as a coproduct of lumber milling. The cradle-to-gate product system thus includes forest management, logging, transportation of logs to lumber mills, sawing, transportation of wood residues to MDF plants, MDF production, and packaging for shipment .

One cubic meter of average North American MDF weighs 782.41 kg, excluding the variable moisture content. The product composition is presented below and represents the weighted average of the various resin types that are used by different manufacturers:

- Wood residues: 702.31 oven dry kg (89.77%)
- Urea formaldehyde (UF) resin: 58.13 kg (7.43%)
- Melamine urea formaldehyde (MUF) resin: 8.59 kg (1.10%)
- Urea: 5.46 kg (0.70%)
- Polymeric diphenyl methane diisocyanate (PMDI) Resin: 2.88 kg (0.37%)
- Ammonium Sulfate: 0.10 kg (0.01%)
- Ammonium Chloride: 0.18 kg (0.02%)
- Slack wax: 4.75 kg (0.61%)

This EPD is based on LCA studies that considered the entire range of MDF product sizes and functions. The results are presented for the metric unit of measure, 1 cubic meter, which is equal to 565 square feet (3/4” thickness).

Business-to-Business Industry Average EPDs

Business-to-business EPD's are those that focus on the life cycle up to the point that the product has been manufactured and is ready for shipment, the portion of the life cycle referred to as cradle-to-gate. This EPD includes the cradle-to-gate processes as shown in Figure 1 and in more detail in Figure 2.

Type III environmental product declarations intended for business-toconsumer communication shall be available to the consumer at the point of purchase. This Type III environmental declaration is developed according to ISO 21930 and 14025 for particleboard. This EPD reports environmental impacts based on established life cycle impact assessment methods. The reported environmental impacts are estimates, and their level of accuracy may differ for a particular product line and reported impact. LCAs do not generally address site-specific environmental issues of related to resource extraction or toxic effects of products on human health. Unreported environmental impacts include (but are not limited to) factors attributable to human health, land use change and habitat destruction. Forest certification systems and government regulations address some of these issues. EPDs do not report product environmental performance against any benchmark.

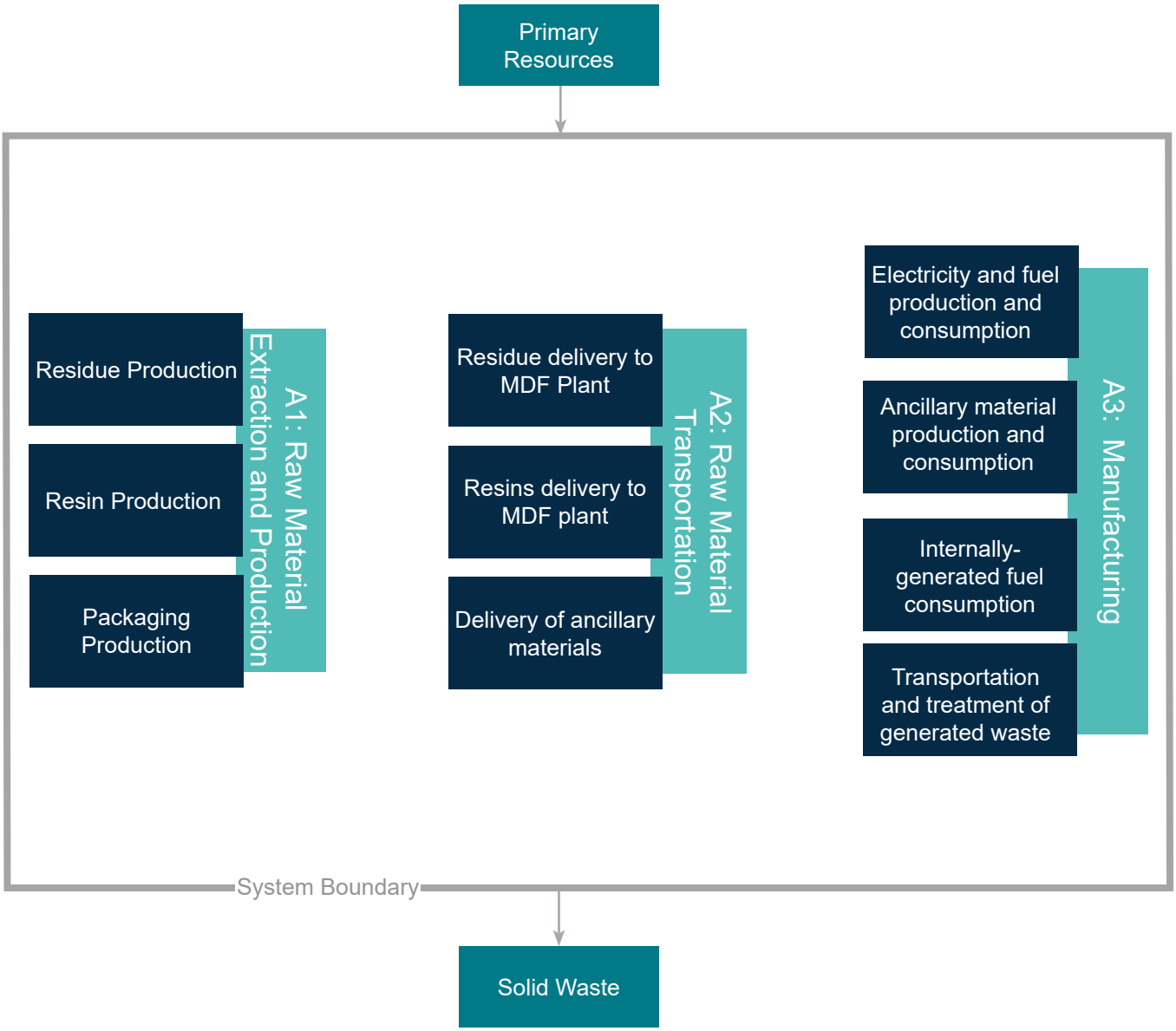
EPDs from different programs may not be comparable. This EPD represents an average performance, in such cases where an EPD declares an average performance for a number of products (i.e., a weighted average based on volume of production that represents the technology, process and energy sources used).

Figure 1: Description of the System Boundary

Description of the System Boundary (x : included in LCA; mnd: module not declared)																		
Product			Construction Installation		Use							End-of-life				Benefits Beyond the System		
Raw Material supply	Transport	Manufacturing	Transport	Construction/Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	De-Construction/ Demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd

Cradle-to-Gate Life Cycle of MDF

Figure 2: Cradle-to-gate product system for MDF



Methodology of Underlying LCA

Declared Unit

The declared unit in this EPD is 1 cubic meter (m^3) of MDF. This is equivalent to 565 square feet (3/4" thickness). The average density of North American MDF including resins and excluding moisture content is 782.41 oven dry kg/m^3. MDF produced in North America is understood to have some moisture in the product, while the oven dry unit of measure contains neither free moisture (moisture in cell cavities) nor bound moisture (moisture in cell walls).

System Boundaries

The system boundary begins with regeneration in the forest and ends with the MDF product (Figure 1 and Figure 2). The system boundary includes forest operations (A1), which may include site preparation and planting seedlings, fertilization and thinning, final harvest, residue production, and resin production. Transportation of all resources and materials (A2) to the MDF facility and MDF production (A3) are also included in the product system. The MDF production complex was modeled as a single unit process. The study recognized twelve steps (A3) necessary to make MDF. Excluded from the system boundaries are fixed capital equipment and facilities, transportation of employees, land use, delivery of MDF to construction site, construction, maintenance, use, and final disposal.

Cut-off Rules

The cut-off criteria for flows to be considered within the system boundary are as follows:

- Mass – if a flow is less than 1% of the cumulative mass of the model flows it may be excluded, provided its environmental relevance is minor.
- Energy – if a flow is less than 1% of the cumulative energy of the system model it may be excluded, provided its environmental relevance is minor.
- Environmental relevance – if a flow meets the above two criteria, but is determined (via secondary data analysis) to contribute 2% or more to the selected impact categories of the products underlying the EPD, based on a sensitivity analysis, it is included within the system boundary.

Data Quality

Precision and Completeness

Three cradle-to-gate life cycle stages (A1: Raw material extraction and production, A2: Transportation, and A3: MDF manufacturing) were checked for data completeness including all input elements such as raw and ancillary materials input, energy input, transportation scenarios, water consumption, and outputs such as products and coproducts, emissions to air, water, land, and final waste disposals. All input and output data were found to be complete and no significant data gaps were identified.

Consistency and Reproducibility

To ensure consistency, only primary data provided by the mill participants were used to model gate-to-gate processes (A3). All other secondary upstream data were consistently applied across MDF system boundary. At various points in the study (data collection and modeling) a quality and consistency check were performed. The quality check process included a review of the precision and completeness of the collected primary data (e.g. mass and energy balance were performed), applicability of LCI datasets used, general model structure, and results plausibility. The data was found to be within acceptable ranges compared to internally and publicly available information.

Temporal Coverage

Primary data collected from the manufacturing facilities for their operational activities related to the product processes of interest are representative for the year 2016 (reference year). Additional data necessary to model base material production and energy use, etc. was adapted from various secondary databases (CORRIM datasets, USLCI-TS, and ecoinvent)

Geographical Coverage

The geographical coverage for this study is based on United States and Canada system boundaries for all processes and products. Whenever North American background data was not readily available, European data (adjusted for North American system boundaries) was used as a proxy.

Allocation

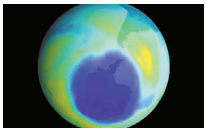
Allocation is the method used to partition the environmental load of a process when several products or functions share the same process. MDF is the only valuable output from the manufacturing facility and thus no allocation was applied to A3-product manufacturing.

The wood fiber raw material input is a product of multiple output processes, namely the milling of lumber in the different source regions. In these cases, mass allocation data for fibers was conservatively chosen. Wood fibers are a lower value coproduct than the primary product, lumber, and thus the impacts are higher for fibers in a mass allocation profile. Further, mass allocation data was available for all of the regions participating in this study.

Life Cycle Assessment Results

The life cycle impact assessment (LCIA) establishes links between the life cycle inventory results and potential environmental impacts. In the LCIA, results are calculated for impact category indicators such as global warming potential and smog potential. These impact category indicator results provide general, but quantifiable, indications of potential environmental impacts. The various impact category indicators and means of characterizing the impacts are summarized in Table 2 below. Environmental impacts are determined using the TRACI 2.1 method. These five impact categories are reported consistently with the requirements of the PCR.

Table 2: Impact Assessment Categories

Impact Category Indicators	Characterization Model
Global Warming Potential 	Calculates global warming potential of all greenhouse gasses that are recognized by the IPCC. The characterization model scales substances that include methane and nitrous oxide to the common unit of kg CO_2 equivalents.
Ozone Depletion Potential 	Calculates potential impact of all substances that contribute to stratospheric ozone depletion. The characterization model scales substances that include CFC's, HCFC's, chlorine, and bromine to the common unit of kg CFC-11 equivalents.
Acidification Potential 	Calculates potential impacts of all substances that contribute to terrestrial acidification potential. The characterization model scales substances that include sulfur oxides, nitrogen oxides, and ammonia to the common unit of kg SO_2 equivalents.
Smog Potential 	Calculates potential impacts of all substances that contribute to photochemical smog potential. The characterization model scales substances that include nitrogen oxides and volatile organic compounds to the common unit of kg O_3 equivalents.
Eutrophication Potential 	Calculates potential impacts of all substances that contribute to eutrophication potential. The characterization model scales substances that include nitrates and phosphates to the common unit of kg N equivalents.

Cradle-to-Gate Impact Assessment Results

The impact assessment results are shown in Table 3 on the following page. This LCIA does not make value judgments about the impact indicators, meaning that no single indicator is given more or less value than any of the others. All are presented as equals. Additionally, each impact indicator value is stated in units that are not comparable to others. Some variation exists between the two underlying data sets and is a result of differences in regional energy mixes, particularly the sources of electricity, as well as differences in production practices and efficiencies.

The results presented in Table 3 on the following page indicate the potential impacts caused by the cradle-to-gate production of MDF. The LCA includes all water withdrawals without netting out non-consumptive use. As a result, the weighted average overstates total water consumption and is therefore conservative.

Table 3: Cradle-to-Gate Impact Assessment Results - 1m^3 North American MDF					
Impact category indicator	**Unit**	**Total**	**A1**	**A2**	**A3**
Global warming potential	kg CO_2 eq.	759.15	319.69	9.44	430.02
Acidification potential	kg SO_2 eq.	5.52	2.66	0.11	2.74
Eutrophication potential	kg N eq.	3.42	0.54	0.01	2.87
Ozone depletion potential	kg CFC-11 eq.	5.81E-05	3.76E-05	4.00E-10	2.04E-05
Smog potential	kg O_3 eq.	69.63	33.22	2.80	33.61
Total primary energy consumption	**Unit**	**Total**	**A1**	**A2**	**A3**
Total primary energy	MJ	17,546.73	7,696.97	134.81	9,714.95
Non-renewable fossil	MJ	10,578.48	5,249.66	133.58	5,195.24
Non-renewable nuclear	MJ	1,370.91	170.83	1.23	1,198.85
Renewable, biomass	MJ	5,046.25	2,173.94	0.00	2,872.31
Renewable, other	MJ	551.10	102.54	0.00	448.56
Material resources consumption	**Unit**	**Total**	**A1**	**A2**	**A3**
Non-renewable materials	kg	49.45	33.82	0.00	15.63
Renewable materials	kg	1,049.94	1,031.79	0.01	18.15
Fresh water	L	3,017.45	1,241.23	0.00	1,776.22
Waste generation	**Unit**	**Total**	**A1**	**A2**	**A3**
Hazardous waste generated	kg	0.00	0.00	0.00	0.00
Non-hazardous waste generated	kg	12.36	0.00	0.00	12.36

Impact Assessment Results by Life Stage

The two graphs below show that particleboard manufacturing itself is the primary driver of impacts in the cumulative cradle-to-gate product system. Figure 2 shows that particleboard manufacturing, A3, consumes 54% of non-renewable fuels which drive the impacts in every category. Figure 3 shows the breakdown of impacts caused by the upstream production of raw material inputs and the fact that resin production accounts for 59% of non-renewable energy use that drives impacts in every category.

Figure 2: Cradle-to-Gate Impact Assessment Results

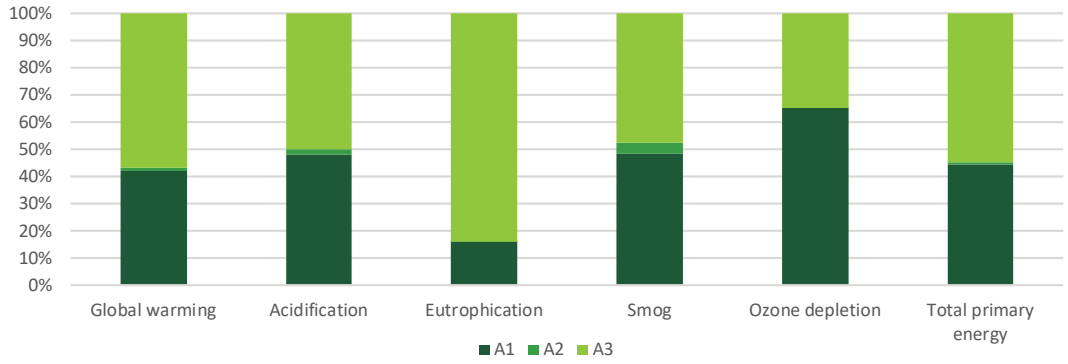


Figure 3: A1 - Raw Materials Production Contribution Analysis

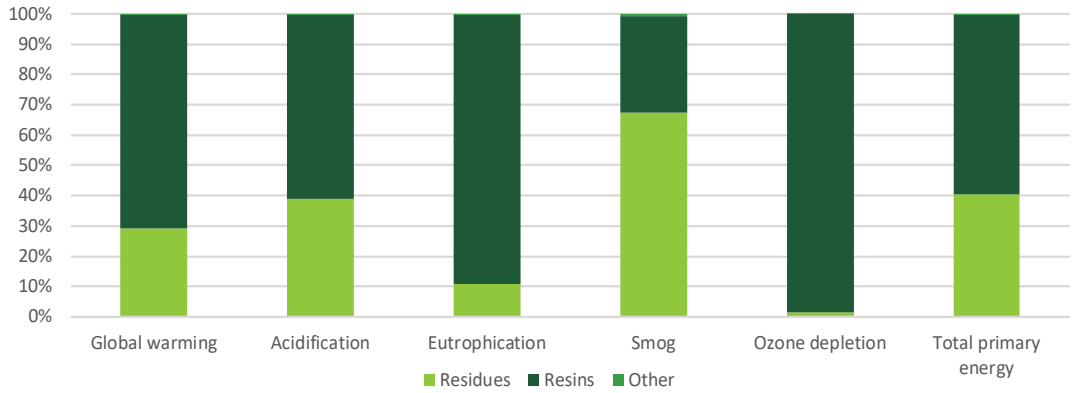


Figure 4: Cradle-to-Gate Energy Use

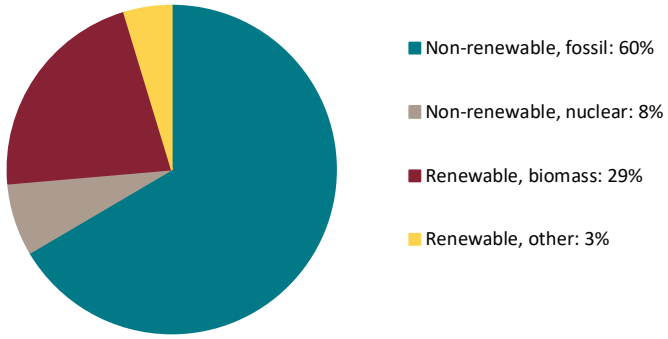


Figure 5: A1 - Raw Materials Production Energy Use

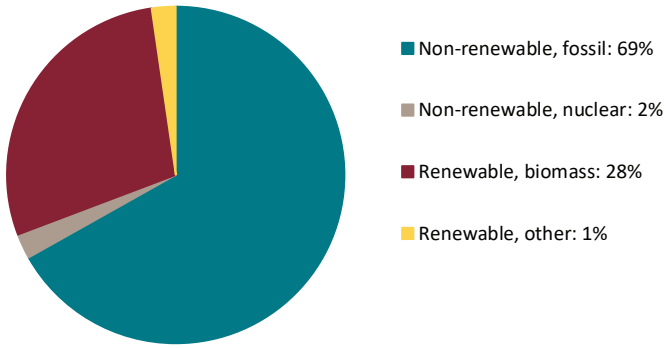
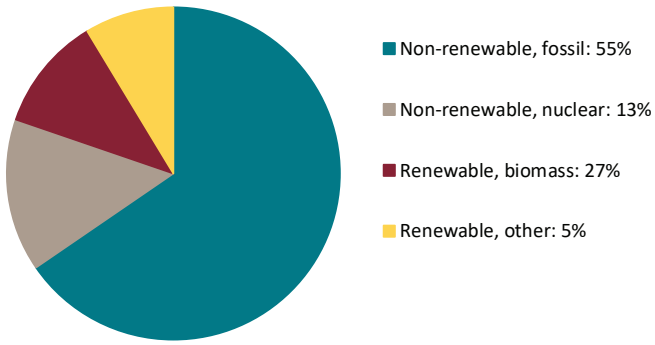


Figure 6: A3 - Manufacturing Energy Use



Primary Energy Consumption by Resource

The three pie charts show the consumption of various energy resources in the cradle-to-gate portion of the life cycle. The cradle-to-gate and MDF production charts show similar results as manufacturing consumes the bulk of cradle-to-gate energy.

The cradle-to-gate life cycle relies heavily on oil-based energy as consumed in the form of diesel by heavy machinery used in logging, and transportation of materials as well as natural gas used to heat the production facilities. Non-renewable energy accounts for 60% of energy resources consumed in the cradle-to-gate life cycle.

A significant portion of the energy requirement in manufacturing is met by renewable energy sources, 27% from biomass and 5% from hydro power. This translates to 29% of cradle-to-gate energy use for renewable sources. Biomass is also used in the upstream residue production as a readily available coproduct of lumber milling. Besides biomass and hydroelectricity, coal, natural gas, oil, and nuclear power comprise the remaining energy use.

The prevalence of renewable energy use in the life cycle of MDF means that MDF has a particularly low carbon footprint relative to the energy required for manufacturing.

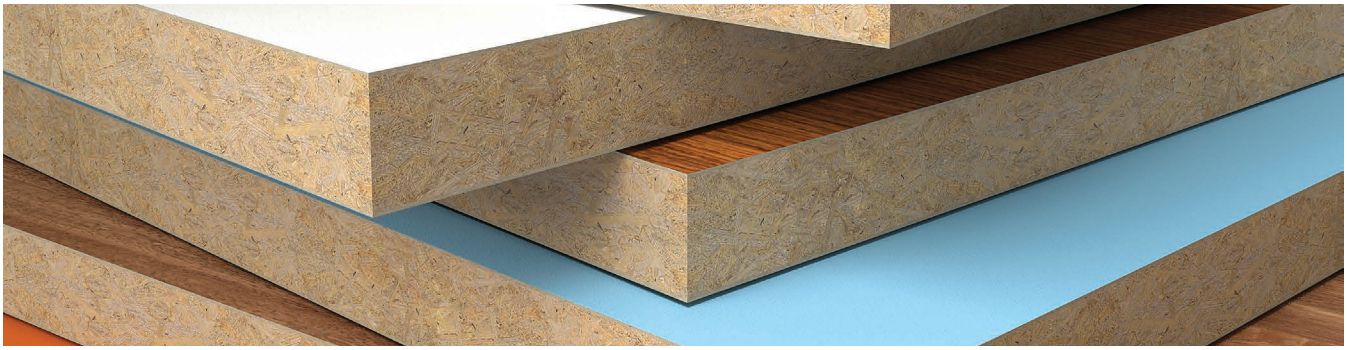
Additional Information

Range of Applications

Medium Density Fiberboard (MDF) is a composite panel product used for non-structural applications such as composite furniture, kitchen cabinets, molding, and laminate floors. The breakdown of uses for MDF is as follows:

- Millwork and moulding: 22%
- Flooring: 18%
- Residential and office furniture: 12%
- Cabinets, vanities, and countertops: 11%
- Other uses: 37%

Source: 2016 North American Shipments and Downstream Market Report. Summarizing shipment data of particlboard, medium density fiberboard, hardboard and engineered wood siding and trim. 2016. Composite Panel Association.



Carbon Sequestration

The PCR requires that carbon sequestration may only be credited to the product if the end-of-life fate of that carbon is considered in the LCA study. FPInnovations (FPI) has recently published a carbon sequestration calculation tool that estimates the emissions from typical end-of-life treatment of wood products that includes recycling, combustion, and landfilling. The carbon sequestered in the product at the manufacturing gate serves as the basis for such an analysis and is as follows (all conversion factors and assumptions are documented in carbon tool):

1m^3 MDF = 705.17 oven dry kg = 352.59 kg Carbon = 1292.82 kg CO_2 eq.

This initial carbon sequestration may then be considered against its emission as the MDF product reaches the end of its service life in various applications. The FPI carbon tool is used to estimate the biogenic carbon balance at year 100, including service life estimations for various applications and the average landfill decay rate. The carbon tool gives the following results:

Carbon sequestered in product at manufacturing gate:
1292.82 kg CO_2 eq. = - 1292.82 kg CO_2 eq emission

Methane emitted from fugitive landfill gas:
9.58 kg CH_4 = 239.44 kg CO_2 eq. emission

Carbon dioxide emitted from fugitive landfill gas and the combustion of waste and captured landfill gas:
559.05 kg CO_2 eq. emission

Carbon sequestration at year 100, net of biogenic carbon emissions:
494.32 kg CO_2 eq. = - 494.32 kg CO_2 eq. emission

References

Composite Panel Association (CPA). 2017. 2016 North American Shipments Report – Particleboard, Medium Density Fiberboard, and Hardboard. 32pp.

FPInnovations: 2015. Product Category Rules (PCR) For preparing an Environmental Product Declaration (EPD) For North American Structural and Architectural Wood Products: UN CPC 31, NAICS 321 - June 18, 2015; Version 2.

FPInnovations and Athena Institute: 2015. Business-to-Business (B2B) Carbon Sequestration Tool for Wood EPD's as per PCR for North American Structural and Architectural Wood Products, Version 2.

ISO 14040:2006. Environmental Management – Life Cycle Assessment – Principles and Framework.

ISO 14044:2006. Environmental Management – Life Cycle Assessment – Requirements and guidelines.

ISO 21930:2007 – Building and Construction Assets – Sustainability in building construction – Environmental declaration of building products.

Puettmann, M. and J. Salazar. 2018. Cradle to Gate Life Cycle Assessment of North American MDF Production. 44pp.

TRACI: Tool for the Reduction and Assessment of Chemical and other environmental Impacts: https://www.epa.gov/chemical-research/tool-reduction-and-assessment-chemicals-and-other-environmental-impacts-traci

USLCI-TS (Full US) Database. 2017. USLCI Database (US National Renewable Energy Laboratory) supplemented with Thinkstep data for missing data.

Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B., 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230. Available at: <http://link.springer.com/10.1007/s11367-016-1087-8> [Accessed 01 12 2017].

Environmental Product Declaration

Particleboard

COMPOSITE PANEL ASSOCIATION

Particleboard panels are composite panel product used for kitchen countertops, kitchen cabinets, and composite furniture.

Composite Panel Association

The Composite Panel Association is pleased to present this Environmental Product Declaration (EPD) for particleboard. This EPD was developed in compliance with ISO 14025 and ISO 21930 and has been verified under UL Environment's EPD program.

The EPD includes Life Cycle Assessment (LCA) results for all processes up to the point that particleboard is packaged and ready for shipment at the manufacturing gate. The life cycle of particleboard includes the production of wood residues that are a coproduct of lumber milling. The cradle-to-gate product system thus includes forest management, logging, transportation of logs to lumber mills, sawing, transportation of wood residues to particleboard plants, and particleboard production.

Please follow our sustainability initiatives at:
www.compositepanel.org/cpa-green/

UL CERTIFIED
ENVIRONMENTAL PRODUCT DECLARATION
UL.COM/EPD

Composite Panel Association

North American Particleboard

North American Structural and Architectural Wood Products

According to ISO 14025 and ISO 21930:2007

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.

PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	Composite Panel Association
DECLARATION NUMBER	4788663642.102.1
DECLARED PRODUCT	North American Particleboard
REFERENCE PCR	FPInnovations PCR for North American Structural and Architectural Wood Products, v.2.0 2015
REFERENCE PCR STANDARD	☐ EN 15804 (2012) ☒ ISO 21930 (2007) ☐ ISO 21930 (2017)
DATE OF ISSUE	December 31, 2018
PERIOD OF VALIDITY	5 Years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications
The PCR review was conducted by:	FPInnovations PCR Peer Review Panel Chair: Thomas P. Gloria,
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories ☐ INTERNAL ☒ EXTERNAL	Grant R. Martin Grant R. Martin, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	James Mellentine James Mellentine, Ramboll

North American Particleboard
North American Structural and Architectural Wood Products

According to ISO 14025 and ISO 21930:2007

Description of Industry and Product

Description of North American Particleboard Industry

The North American composite panel industry is a major contributor to both the United States and Canada economies. Particleboard is a composite panel that is valued for its consistency and ability to be engineered for specific applications. These properties have caused particleboard to be widely used to manufacture countertops, door cores, floor underlayment, and furniture. Particleboard is also widely regarded as a sustainable material because it utilizes wood residues from other manufacturing processes that might otherwise be wasted. In 2016, total North American production of particleboard was over 5.9 million m^3, with 4.1 million m^3 from United States facilities and Canada producing an additional 1.8 m^3.

Manufacturers of particleboard in North American are members of the Composite Panel Association, Leesburg, Virginia. Fifteen particleboard facilities contributed production data from the United States and Canada (Table 1) for this EPD with a combined production of 3.8 million m^3, or 63% of total industry production.

Table 1: Participating Facilities

Manufacturer	City, State/Province	Country
Arauco North America	Albany, Oregon	United States
Arauco North America	Bennettsville, South Carolina	United States
Arauco North America	Moncure, North Carolina	United States
Arauco North America	St. Stephen, New Brunswick	Canada
Georgia Pacific	Diboll, Texas	United States
Georgia Pacific	Hope, Arkansas	United States
Georgia Pacific	Monroeville, Alabama	United States
Georgia Pacific	Thomson, Georgia	United States
Marshfield DoorSystems, Inc	Marshfield, Wisconsin	United States
Panolam Industries	Huntsville, Ontario	Canada
Plummer Forest Products	Post Falls, Idaho	United States
Roseburg Forest Products	Missoula, Montana	United States
Roseburg Forest Products	Taylorsville, Mississippi	United States
Uniboard Canada Inc	Sayabec Mill, Quebec	Canada
Uniboard Canada Inc	Val-d`Or, Quebec	Canada

North American Particleboard
North American Structural and Architectural Wood Products

According to ISO 14025 and ISO 21930:2007

Description of Particleboard Product

The product profile presented in this EPD is for a declared unit of 1 cubic meter of particleboard. Particleboard is manufactured from wood residues that are generated as a coproduct of lumber milling. The cradle-to-gate product system thus includes forest management, logging, transportation of logs to lumber mills, sawing, transportation of wood residues to particleboard plants, particleboard production, and packaging for shipment .

One cubic meter of average North American particleboard weighs 691.61 kg, excluding the variable moisture content. The product composition is presented below and represents the weighted average of the various resin types that are used by different manufacturers:

- Wood residues: 639.37 oven dry kg (92.44%)
- Urea formaldehyde (UF) resin: 37.17 kg (5.37%)
- Melamine urea formaldehyde (MUF) resin: 6.14 kg (0.89%)
- Polymeric diphenyl methane diisocyanate (PMDI) Resin: 1.89 kg (0.27%)
- Phenol formaldehyde (PF) Resin: 2.26 kg (0.33%)
- Urea: 2.90 kg (0.42%)
- Ammonium sulphate: 0.53 kg (0.08%)
- Wax: 1.35 kg (0.20%)

This EPD is based on LCA studies that considered the entire range of particleboard product sizes and functions. The results are presented for the metric unit of measure, 1 cubic meter, which is equal to 565 square feet (3/4” thickness).

Business-to-Business Industry Average EPDs

Business-to-business EPD's are those that focus on the life cycle up to the point that the product has been manufactured and is ready for shipment, the portion of the life cycle referred to as cradle-to-gate. This EPD includes the cradle-to-gate processes as shown in Figure 1 and in more detail in Figure 2.

Type III environmental product declarations intended for business-to-consumer communication shall be available to the consumer at the point of purchase. This Type III environmental declaration is developed according to ISO 21930 and 14025 for particleboard. This EPD reports environmental impacts based on established life cycle impact assessment methods. The reported environmental impacts are estimates, and their level of accuracy may differ for a particular product line and reported impact. LCAs do not generally address site-specific environmental issues of related to resource extraction or toxic effects of products on human health. Unreported environmental impacts include (but are not limited to) factors attributable to human health, land use change and habitat destruction. Forest certification systems and government regulations address some of these issues. EPDs do not report product environmental performance against any benchmark.

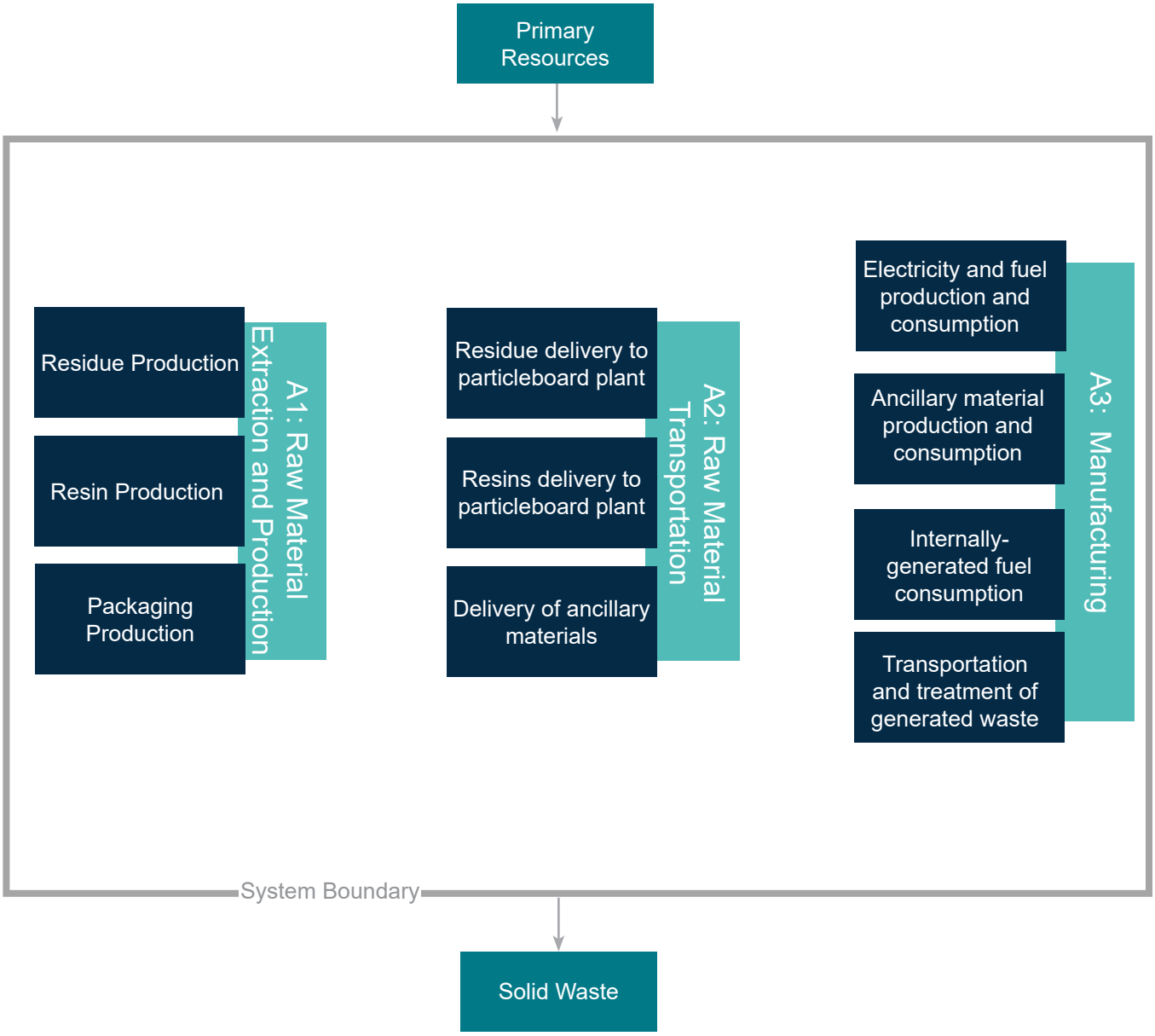
EPDs from different programs may not be comparable. This EPD represents an average performance, in such cases where an EPD declares an average performance for a number of products (i.e., a weighted average based on volume of production that represents the technology, process and energy sources used).

Figure 1: Description of the System Boundary

Description of the System Boundary (x : included in LCA; mnd: module not declared)																		
Product			Construction Installation		Use							End-of-life				Benefits Beyond the System		
Raw Material supply	Transport	Manufacturing	Transport	Construction/Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	De-Construction/ Demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd	mnd

Cradle-to-Gate Life Cycle of Particleboard

Figure 2: Cradle-to-gate product system for particleboard



Methodology of Underlying LCA

Declared Unit

The declared unit in this EPD is 1 cubic meter (m^3) of particleboard. This is equivalent to 565 square feet (3/4" thickness). The average density of North American particleboard including resins and excluding moisture content is 691.61 oven dry kg/m^3. Particleboard produced in North America is understood to have some moisture in the product, while the oven dry unit of measure contains neither free moisture (moisture in cell cavities) nor bound moisture (moisture in cell walls).

System Boundaries

The system boundary begins with raw material production in the forest and ends with the particleboard product (Figure 1 and Figure 2). The system boundary includes forest operations (A1), which may include site preparation and planting seedlings, fertilization and thinning, final harvest, residue production, and resin production. Transportation of all resources and materials (A2) to the particleboard facility and particleboard production (A3) are also inclued in the product system. The particleboard production complex was modeled as a single unit process. The study recognized twelve steps (A3) necessary to make particleboard. Excluded from the system boundaries are fixed capital equipment and facilities, transportation of employees, land use, delivery of particleboard to construction site, construction, maintenance, use, and final disposal.

Cut-off Rules

The cut-off criteria for flows to be considered within the system boundary are as follows:

- Mass – if a flow is less than 1% of the cumulative mass of the model flows it may be excluded, provided its environmental relevance is minor.
- Energy – if a flow is less than 1% of the cumulative energy of the system model it may be excluded, provided its environmental relevance is minor.
- Environmental relevance – if a flow meets the above two criteria, but is determined (via secondary data analysis) to contribute 2% or more to the selected impact categories of the products underlying the EPD, based on a sensitivity analysis, it is included within the system boundary.

Data Quality

Precision and Completeness

Three cradle-to-gate life cycle stages (A1: Raw material extraction and production, A2: Transportation, and A3: Particleboard manufacturing) were checked for data completeness including all input elements such as raw and ancillary materials input, energy input, transportation scenarios, water consumption, and outputs such as products and coproducts, emissions to air, water, land, and final waste disposals. All input and output data were found to be complete and no significant data gaps were identified.

Consistency and Reproducibility

To ensure consistency, only primary data provided by the mill participants were used to model gate-to-gate processes (A3). All other secondary upstream data were consistently applied across particleboard system boundary. At various points in the study (data collection and modeling) a quality and consistency check were performed. The quality check process included a review of the precision and completeness of the collected primary data (e.g. mass and energy balance were performed), applicability of LCI datasets used, general model structure, and results plausibility. The data was found to be within acceptable ranges compared to internally and publicly available information.

Temporal Coverage

Primary data collected from the manufacturing facilities for their operational activities related to the product processes of interest are representative for the year 2016 (reference year). Additional data necessary to model base material production and energy use, etc. was adapted from various secondary databases (CORRIM datasets, USLCI-TS, and ecoinvent)

Geographical Coverage

The geographical coverage for this study is based on United States and Canada system boundaries for all processes and products. Whenever North American background data was not readily available, European data (adjusted for North American system boundaries) was used as a proxy.

Allocation

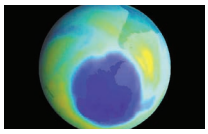
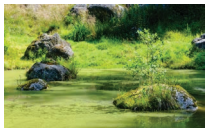
Allocation is the method used to partition the environmental load of a process when several products or functions share the same process. Particleboard is the only valuable output from the manufacturing facility and thus no allocation was applied to A3-product manufacturing.

The wood fiber raw material input is a product of multiple output processes, namely the milling of lumber in the different source regions. In these cases, mass allocation data for fibers was conservatively chosen. Wood fibers are a lower value coproduct than the primary product, lumber, and thus the impacts are higher for fibers in a mass allocation profile. Further, mass allocation data was available for all of the regions participating in this study.

Life Cycle Assessment Results

The life cycle impact assessment (LCIA) establishes links between the life cycle inventory results and potential environmental impacts. In the LCIA, results are calculated for impact category indicators such as global warming potential and smog potential. These impact category indicator results provide general, but quantifiable, indications of potential environmental impacts. The various impact category indicators and means of characterizing the impacts are summarized in Table 2 below. Environmental impacts are determined using the TRACI 2.1 method. These five impact categories are reported consistently with the requirements of the PCR.

Table 2: Impact Assessment Categories

Impact Category Indicators	Characterization Model
Global Warming Potential 	Calculates global warming potential of all greenhouse gasses that are recognized by the IPCC. The characterization model scales substances that include methane and nitrous oxide to the common unit of kg CO_2 equivalents.
Ozone Depletion Potential 	Calculates potential impact of all substances that contribute to stratospheric ozone depletion. The characterization model scales substances that include CFC's, HCFC's, chlorine, and bromine to the common unit of kg CFC-11 equivalents.
Acidification Potential 	Calculates potential impacts of all substances that contribute to terrestrial acidification potential. The characterization model scales substances that include sulfur oxides, nitrogen oxides, and ammonia to the common unit of kg SO_2 equivalents.
Smog Potential 	Calculates potential impacts of all substances that contribute to photochemical smog potential. The characterization model scales substances that include nitrogen oxides and volatile organic compounds to the common unit of kg O_3 equivalents.
Eutrophication Potential 	Calculates potential impacts of all substances that contribute to eutrophication potential. The characterization model scales substances that include nitrates and phosphates to the common unit of kg N equivalents.

Cradle-to-Gate Impact Assessment Results

The impact assessment results are shown in Table 3 on the following page. This LCIA does not make value judgments about the impact indicators, meaning that no single indicator is given more or less value than any of the others. All are presented as equals. Additionally, each impact indicator value is stated in units that are not comparable to others.

Some variation exists between the two underlying data sets and is a result of differences in regional energy mixes, particularly the sources of electricity, as well as differences in production practices and efficiencies.

The results presented in Table 3 on the following page indicate the potential impacts caused by the cradle-to-gate production of particleboard. The LCA includes all water withdrawals without netting out non-consumptive use. As a result, the weighted average overstates total water consumption and is therefore conservative.

Table 3: Cradle-to-Gate Impact Assessment Results - 1m^3 North American Particleboard					
Impact category indicator	**Unit**	**Total**	**A1**	**A2**	**A3**
Global warming potential	kg CO_2 eq.	402.61	228.32	4.29	170.00
Acidification potential	kg SO_2 eq.	3.88	2.44	0.05	1.39
Eutrophication potential	kg N eq.	1.23	0.40	0.00	0.84
Ozone depletion potential	kg CFC-11 eq.	3.41E-05	2.45E-05	1.82E-10	9.57E-06
Smog potential	kg O_3 eq.	46.37	24.19	1.27	20.90
Total primary energy consumption	**Unit**	**Total**	**A1**	**A2**	**A3**
Total primary energy	MJ	8,926.46	5,478.04	61.27	3,387.14
Non-renewable fossil	MJ	5,938.15	3,661.27	60.72	2,216.16
Non-renewable nuclear	MJ	633.91	130.84	0.56	502.52
Renewable, biomass	MJ	1,936.18	1,560.54	0.00	375.64
Renewable, other	MJ	418.21	125.39	0.00	292.82
Material resources consumption	**Unit**	**Total**	**A1**	**A2**	**A3**
Non-renewable materials	kg	28.95	22.77	0.00	6.17
Renewable materials	kg	798.85	796.63	0.00	2.22
Fresh water	L	1,242.29	662.45	0.00	579.84
Waste generation	**Unit**	**Total**	**A1**	**A2**	**A3**
Hazardous waste generated	kg	0.00	0.00	0.00	0.00
Non-hazardous waste generated	kg	9.22	0.00	0.00	9.22

Impact Assessment Results by Life Stage

The two graphs below show that particleboard manufacturing itself is the primary driver of impacts in the cumulative cradle-to-gate product system. Figure 2 shows that raw material production, A1, consumes 58% of non-renewable fuels which drive the impacts in every category. Figure 3 shows the breakdown of impacts caused by the upstream production of raw material inputs and the fact that resin production accounts for 57% of non-renewable energy use that drives impacts in every category.

Figure 2: Cradle-to-Gate Contribution Analysis

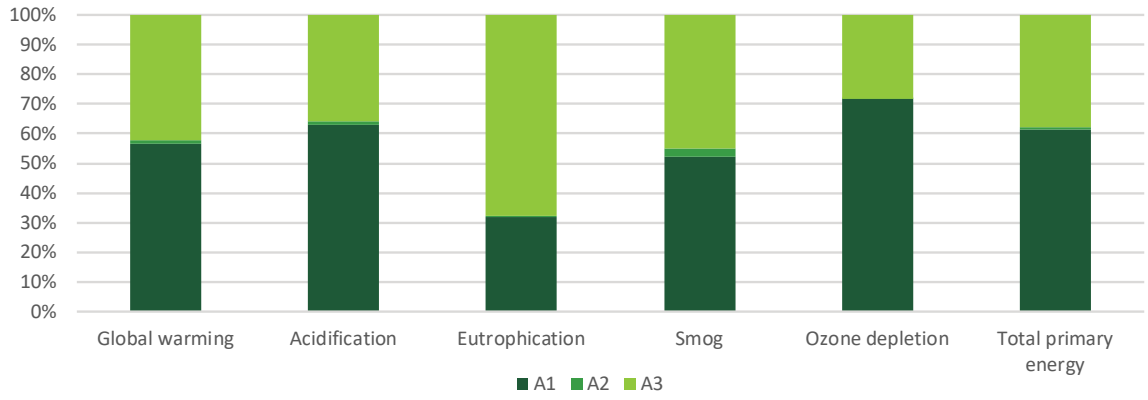


Figure 3: A1 - Raw Materials Production Contribution Analysis

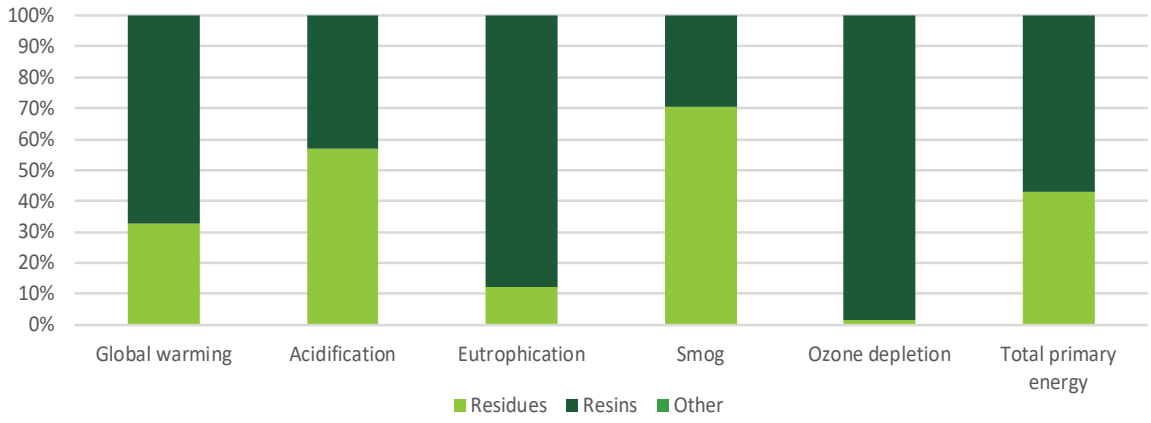


Figure 4: Cradle-to-Gate Energy Use

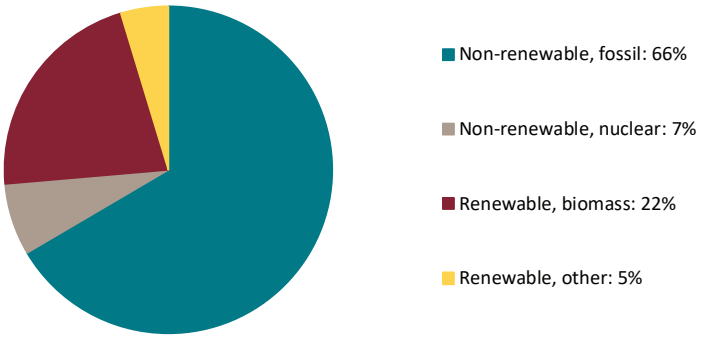


Figure 5: A1 - Raw Materials Production Energy Use

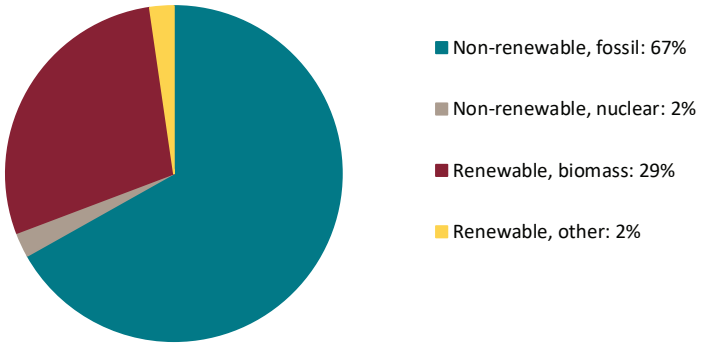
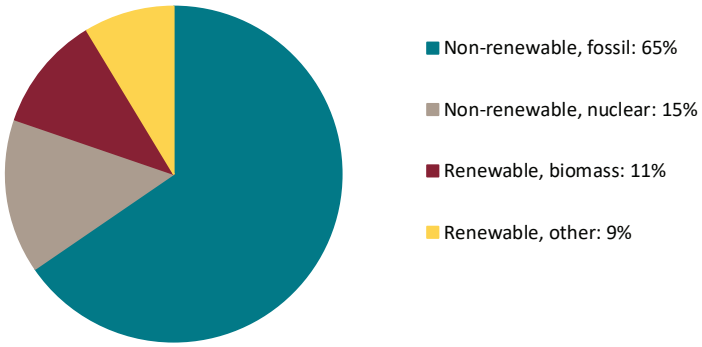


Figure 6: A3 - Manufacturing Energy Use



Primary Energy Consumption by Resource

The three pie charts show the consumption of various energy resources in the cradle-to-gate portion of the life cycle. The cradle-to-gate and particleboard production charts show similar results as manufacturing consumes the bulk of cradle-to-gate energy.

The cradle-to-gate life cycle relies on oil-based energy as consumed in the form of diesel by heavy machinery used in logging, and transportation of materials as well as natural gas used to heat the production facilities. Non-renewable energy accounts for 62% of energy resources consumed in the cradle-to-gate life cycle.

A significant portion of the energy requirement in manufacturing is met by renewable energy sources, 27% from biomass and 5% from hydro power. This translates to 30% of cradle-to-gate energy use for renewable sources. Biomass is also used in the upstream residue production as a readily available coproduct of lumber milling. Besides biomass and hydroelectricity, coal, natural gas, oil, and nuclear power comprise the remaining energy use.

The prevalence of renewable energy use in the life cycle of particleboard means that particleboard has a particularly low carbon footprint relative to the energy required for manufacturing.

Additional Information

Range of Applications

Particleboard panels are composite panel product used for non-structural applications such as kitchen counter-tops, kitchen cabinets, and composite furniture. This breakdown of uses for particleboard is as follows:

- Cabinets, vanities, and countertops: 30%
- Residential and office furniture: 20%
- Retail/Store fixtures: 7%
- Door components: 6%
- Other uses: 36%

Source: 2016 North American Shipments and Downstream Market Report. Summarizing shipment data of particlboard, medium density fiberboard, hardboard and engineered wood siding and trim. 2016. Composite Panel Association.

Carbon Sequestration

The PCR requires that carbon sequestration may only be credited to the product if the end-of-life fate of that carbon is considered in the LCA study. FPInnovations (FPI) has recently published a carbon sequestration calculation tool that estimates the emissions from typical end-of-life treatment of wood products that includes recycling, combustion, and landfilling. The carbon sequestered in the product at the manufacturing gate serves as the basis for such an analysis and is as follows (all conversion factors and assumptions are documented in carbon tool):

1m^3 Particleboard = 639.37 oven dry kg = 319.69 kg Carbon = 1172.18 kg CO_2 eq.

This initial carbon sequestration may then be considered against its emission as the particleboard product reaches the end of its service life in various applications. The FPI carbon tool is used to estimate the biogenic carbon balance at year 100, including service life estimations for various applications and the average landfill decay rate. The carbon tool gives the following results:

Carbon sequestered in product at manufacturing gate:
1172.18 kg CO_2 eq. = - 1172.18 kg CO_2 eq emission

Methane emitted from fugitive landfill gas:
8.68 kg CH_4 = 217.10 kg CO_2 eq. emission

Carbon dioxide emitted from fugitive landfill gas and the combustion of waste and captured landfill gas:
506.88 kg CO_2 eq. emission

Carbon sequestration at year 100, net of biogenic carbon emissions:
448.20 kg CO_2 eq. = - 448.20 kg CO_2 eq. emission

References

Composite Panel Association (CPA). 2017. 2016 North American Shipments Report – Particleboard, Medium Density Fiberboard, and Hardboard. 32pp.

FPInnovations: 2015. Product Category Rules (PCR) For preparing an Environmental Product Declaration (EPD) For North American Structural and Architectural Wood Products: UN CPC 31, NAICS 321 - June 18, 2015; Version 2.

FPInnovations and Athena Institute: 2015. Business-to-Business (B2B) Carbon Sequestration Tool for Wood EPD's as per PCR for North American Structural and Architectural Wood Products, Version 2.

ISO 14040:2006. Environmental Management – Life Cycle Assessment – Principles and Framework.

ISO 14044:2006. Environmental Management – Life Cycle Assessment – Requirements and guidelines.

ISO 21930:2007 – Building and Construction Assets – Sustainability in building construction – Environmental declaration of building products.

Puettmann, M. and J. Salazar. 2018. Cradle to Gate Life Cycle Assessment of North American Particleboard Production. 45pp.

TRACI: Tool for the Reduction and Assessment of Chemical and other environmental Impacts: https://www.epa.gov/chemical-research/tool-reduction-and-assessment-chemicals-and-other-environmental-impacts-traci

USLCI-TS (Full US) Database. 2017. USLCI Database (US National Renewable Energy Laboratory) supplemented with Thinkstep data for missing data.

Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., and Weidema, B., 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment, [online] 21(9), pp.1218–1230. Available at: <http://link.springer.com/10.1007/s11367-016-1087-8> [Accessed 01 12 2017].