

# SAFE USE INSTRUCTION SHEET

Creation Date 28-Jul-2016

Revision Date 22-Jul-2020

Version 6

#### **0.** General Information

This Safe Use Instruction Sheet is the document provided by Owens Corning to communicate recommended safe handling and use instructions for manufactured articles neither regulated by OSHA Hazard Communication Standard, 29 CFR 1910.1200 nor by the Canada Hazardous Products Regulation SOR/2015-17 (WHMIS 2015)

| 1. IDENTIFICATION   |   |  |  |
|---|---|--|--|
| Product Name  | Bonded Mineral Wool   |  |  |
| Synonyms  | Thermafiber® FireSpan® 90 & 40, Thermafiber® Safing™, Thermafiber® FireLedge®,<br>Thermafiber® RainBarrier®, HD, Thermafiber® RainBarrier® 45, Thermafiber® SAFB™<br>(Sound Attenuation Fire Blanket), Thermafiber® VersaBoard®, Thermafiber® UltraBatt™,<br>Thermafiber® TopStop®, Thermafiber® FixtureShield®, Thermafiber® U.S. Coast Guard<br>Felt, Thermafiber® Industrial Felt, Thermafiber® Industrial Board, Thermafiber® Industrial<br>Blanket, Thermafiber® Metal Mesh Blankets, Thermafiber® Industrial Fabrication Board,<br>RainBarrier® ci HC 80, RainBarrier® ci HC Plus 110, RainBarrier® ci HC Max |  |  |
| Product code  | OCMW00004   |  |  |
| Recommended Use   | Curtain Wall Insulation, Fire Containment Insulation, Thermafiber® Impasse® No Backer<br>Bar™ System, Continuous Insulation, Sound Control Insulation, Commercial Insulation,<br>Residential & Light Commercial Insulation, Head-of-Wall Insulation, Light Fixture Insulation,<br>Maritime Insulation, Industrial Felt, Industrial Insulation, Semi-Refractory Felt, Horticulture   |  |  |
| Manufacturer Address                                      | Owens Corning Mineral Wool, LLC<br>One Owens Corning Parkway<br>Toledo, Ohio 43659  |  |  |
| Company Phone Number<br>E-mail address<br>Company Website | 1-800-GET-PINK or 1-800-438-7465<br>safetydatasheet@owenscorning.com<br>http://owenscorning.com/  |  |  |
|   | 2. HAZARDS IDENTIFICATION   |  |  |
| Regulatory Status   | This product is considered an article. 29 CFR 1910.1200(c) definition of an article is as   |  |  |

This product is considered an article. 29 CFR 1910.1200(c) definition of an article is as follows: "Article" means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees

This product is considered an article per the Canadian Hazardous Products Regulation SOR/2015-17

Manufactured articles which meet the definition of the Canadian Hazardous Products Act (any article that is formed to a specific shape or design during manufacture, the intended use of which when in that form is dependent in whole or in part on its shape or design, and that, when being installed, if the intended use of the article requires it to be installed, and under normal conditions of use, will not release or otherwise cause an individual to be exposed to a hazardous product) are not regulated by the Canadian Hazardous Products Regulation SOR/2015-17

#### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

The product contains no substances which at their given concentration, are considered to be hazardous to health Mineral wool may cause temporary skin and mucous membranes itching due to the mechanical abrasion effects of fibers.

| Chemical name                     |   | CAS NO.   | vveight-%   | Trade Secret  |  |  |  |
|-----------------------------------|---|---|---|---|--|--|--|
| Mineral Wool                      |   | 65997-17-3  | 90-100  | *   |  |  |  |
|                                   |   |   |   |   |  |  |  |
|                                   | 4.  | FIRST AID MEASURI   | ES  |   |  |  |  |
| Description of First Aid Measures |   |   |   |   |  |  |  |
| Eye contact                       | • DO NOT ru<br>• Rinse imme<br>• If eye irritati  | b or scratch eyes<br>diately with plenty of water<br>on persists: Get medical ad  | , also under the eyelids, fo<br>dvice/attention   | or at least 15 minutes  |  |  |  |
| Skin contact                      | <ul> <li>Wash off im</li> <li>DO NOT us</li> <li>further penet</li> <li>Use a wash</li> <li>DO NOT ru</li> <li>Remove co</li> <li>If fibers are</li> <li>removing adl</li> <li>If skin irritat</li> <li>Never use of</li> </ul> | mediately with soap and p<br>e warm water because this<br>ration of fibers and dust<br>cloth to help remove fibers<br>b or scratch affected area<br>ntaminated clothing and sh<br>seen penetrating from the<br>nesive tape so that the fiber<br>ion persists, call a physicia<br>compressed air to remove f | lenty of cold water<br>s will open up the pores of<br>s and dust<br>loes<br>skin, the fibers can be ren<br>rs adhere to the tape and<br>n<br>iibers from skin | the skin, which will cause<br>noved by applying and<br>are pulled out of the skin |  |  |  |
| Inhalation                        | <ul><li>Remove to</li><li>If symptoms</li></ul>   | fresh air<br>s persist, call a physician  |   |   |  |  |  |
| Ingestion                         | <ul> <li>Accidental i</li> <li>Rinse mout</li> <li>If this does</li> <li>occur</li> <li>If symptoms</li> </ul>  | ngestion of this product is t<br>h with water and drink wate<br>occur watch person for sev<br>s persist, call a physician   | unlikely<br>er to remove fibers from th<br>reral days to make sure in   | e throat<br>testinal blockage does not  |  |  |  |

# **5. FIRE-FIGHTING MEASURES**

| Suitable extinguishing media                             | <ul> <li>Use extinguishing measures that are appropriate to local circumstances and the<br/>surrounding environment</li> </ul>            |
|--|---|
| Protective equipment and<br>precautions for firefighters | As in any fire, wear self-contained breathing apparatus (positive-pressure), MSHA/NIOSH (approved or equivalent) and full protective gear |

# 6. ACCIDENTAL RELEASE MEASURES

| Personal precautions    | Avoid contact with eyes and skin   |  |
|-------------------------|--|--|
| Methods for cleaning up | <ul> <li>Use personal protective equipment as required</li> <li>Avoid creating dust</li> <li>Clean contaminated surface thoroughly</li> <li>Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry</li> <li>Take up mechanically, placing in appropriate containers for disposal</li> </ul> |  |
| 7. HANDLING AND STORAGE |  |  |

| Precautions for safe handling | <ul> <li>Prevent and/or minimize dust formation</li> </ul>                                |
|-------------------------------|---|
| -                             | Do not breathe dust   |
|                               | Wear appropriate personal protective equipment in case of direct contact with the product |

#### **Storage Conditions**

- Keep product in packaging until use to minimize potential dust generation
- Product should be kept dry and undercover
- Incompatible materials
- None known based on information supplied

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### **Exposure Guidelines**

| Chemical name | ACGIH TLV                                      | OSHA PEL | NIOSH REL |
|---------------|--|----------|-----------|
| Mineral Wool  | TWA: 1 fiber/cm3 respirable fibers:            | -        | -         |
| 65997-17-3    | length >5 µm, aspect ratio >=3:1, as           |          |           |
|               | determined by the membrane filter              |          |           |
|               | method at 400-450X magnification               |          |           |
|               | [4-mm objective], using                        |          |           |
|               | phase-contrast illumination                    |          |           |
|               | TWA: 5 mg/m <sup>3</sup> inhalable particulate |          |           |
|               | matter   |          |           |

Engineering Controls Provide local exhaust and/or general ventilation to maintain exposure below regulatory and recommended limits Dust collection system must be used in transferring operations, cutting or other dust generating processes, such as using power tools Vacuum or wet clean-up methods should be used

#### Individual protection measures, such as personal protective equipment

| Eye/face protection      | <ul> <li>Wear safety glasses with side shields (or goggles)</li> </ul>   |  |  |
|--------------------------|--|--|--|
| Skin and body protection | <ul><li>Wear protective gloves</li><li>Wear long-sleeved shirt and long pants</li></ul>  |  |  |
| Respiratory protection   | <ul> <li>When workers are facing airborne particulates/dust concentrations above the exposure limits, they must use an appropriate certified respirator</li> <li>A properly fitted NIOSH approved disposable N 95 type dust respirator or better is recommended</li> </ul> |  |  |
|                          |  |  |  |

General Hygiene Considerations • Wash hands before breaks and immediately after handling products • Remove and wash contaminated clothing before re-use

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

| Solid<br>Fibrous<br>No information available<br>No information available |
|--|
| Insoluble in water   |
|  |

#### **10. STABILITY AND REACTIVITY**

Possibility of Hazardous Reactions • None under normal processing conditions

Hazardous Decomposition Products • None known based on information supplied

#### **11. TOXICOLOGICAL INFORMATION**

| Product Information | Dusts may cause mechanical irritation to eyes and skin. Ingestion may cause transient         |
|---------------------|---|
|                     | irritation of throat, stomach and gastrointestinal tract. Inhalation may cause coughing, nose |
|                     | and throat irritation, and sneezing. High exposures may cause difficulty breathing,           |
|                     | congestion, and chest tightness   |

#### Carcinogenicity

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP

#### 12. ECOLOGICAL INFORMATION

This product is not expected to be hazardous for the environment

#### 13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with applicable regional, national and local laws and regulations

#### **14. TRANSPORT INFORMATION**

This material is not subject to regulation as a hazardous material for shipping

#### **15. REGULATORY INFORMATION**

International Inventories

This product is classified as an article. Articles are exempted from registration or listing under chemicals inventories like TSCA (USA), DSL/NDSL (CAN), REACH (EU), ENCS (JP), IECSC (CN), KECL (KR), PICCS (PH), AICS (AUS)

**California Proposition 65** 

This product can expose you to chemicals including those listed below, which is [are] known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

| Chemical name           | California Proposition 65 |
|-------------------------|---------------------------|
| Formaldehyde<br>50-00-0 | Carcinogen                |

Note: The substance is only relevant in trace amount of release due to the binder composition. The substance that is subject to California Proposition 65 in this product is in a trace amount that is not subject to the occupational exposure limit.

#### **16. OTHER INFORMATION**

Creation Date Revision Date Revision Note 28-Jul-2016 22-Jul-2020 SDS sections updated 1, 8, 15, components review

#### Disclaimer

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use

**End of Safe Use Instruction Sheet** 



# SAFETY DATA SHEET

| Creation 29-May-2015<br>Date  | Revision Date 23-Mar-2021  | Version 6  |
|---|--|--|
| 1.  | PRODUCT AND COMPANY IDENTIFICATION   |  |
| Product Name  | Continuous Filament Glass Fiber Products: Veil (acrylic)   |  |
| Synonyms  | Fiberglass mat with cured acrylic resin (formaldehyde free), VL B3A, VL B4A, VL B8A, VL C68GA, VL KP03, VL KP04, VL KP500, VL KP505, VL KP670, VL KP67<br>KP73, VL KP800, VL KP805, VL KR05, VL KR07, VL KR10, VL KR10A, VL KR10<br>KR11, VL KR16, VL KR17, VL KR18, VL KR19, VL LP02, VL LP03, VL M524-EC<br>M524-ECR 25A, VL M524-ECR 30A, VL M524-ECR 50A/3, VL M524-ECR 70A/3<br>VL 3109, VL 8532A, VL 8101  | B5A, VL<br>'5, VL<br>)L, VL<br>R 20A, VL<br>, VL 3106,                   |
| Product Code  | OCCM00007  |  |
| Recommended Use   | Industrial   |  |
| Supplier Address  | Owens Corning Composite Materials, LLC<br>One Owens Corning Parkway<br>Toledo, Ohio 43659  |  |
| Company Phone Number<br>24 Hour Emergency Phone Number<br>Emergency Telephone | 1-800-GET-PINK or 1-800-438-7465<br>Chemtrec 1-800-424-9300 or 1-703-741-5970 CCN17393<br>1-419-248-5330 (after 5 pm ET and weekends)  |  |
| E-mail address<br>Company Website   | productcompliance@owenscorning.com<br>http://www.owenscorning.com/   |  |
|   | 2. HAZARDS IDENTIFICATION  |  |
| OSHA Regulatory Status  | This product is not classified as hazardous according to the 2012 OSHA Hazard<br>Communication Standard (29 CFR 1910.1200)<br>This product is considered an article. 29 CFR 1910.1200(c) definition of an article<br>follows: "Article" means a manufactured item other than a fluid or particle: (i) which<br>formed to a specific shape or design during manufacture; (ii) which has end use for<br>dependent in whole or in part upon its shape or design during end use; and (iii) w<br>normal conditions of use does not release more than very small quantities, e.g., n<br>trace amounts of a hazardous chemical (as determined under paragraph (d) of the<br>and does not pose a physical hazard or health risk to employees | e is as<br>h is<br>unction(s)<br>hich under<br>ninute or<br>is section), |
| WHMIS Regulatory Status   | This product is not classified as hazardous according to the Canadian Hazardous Regulation SOR/2015-17<br>Continuous Filament Glass Fiber (CFGF) Products are manufactured articles. The of manufactured article given by the Canadian Hazardous Products Act R.S.C., 1<br>H-3 is: any article that is formed to a specific shape or design during manufacture intended use of which when in that form is dependent in whole or in part on its shadesign, and that, when being installed, if the intended use of the article requires it installed, and under normal conditions of use, will not release or otherwise cause individual to be exposed to a hazardous product  | Products<br>e definition<br>985, c.<br>a, the<br>ape or<br>to be<br>an   |
| Label elements  |  |  |

This product is not classified according to Globally Harmonized System (GHS)

# Hazards not otherwise classified<br/>(HNOC)• Not applicableOther Information• As manufactured continuous filament glass fibers are non-respirable. May cause<br/>temporary skin and mucous membranes itching due to mechanical abrasion effect of fibers.<br/>Under normal conditions of use, these products may release dust and non-respirable fibers<br/>(Particulates Not Otherwise Regulated). Under severe process conditions (e.g. shredding,<br/>crushing), these products may release very small amount of respirable particulate, some of<br/>which may be fiber-like in terms of I/d ratio (so-called "shards").Unknown acute toxicity• Not applicable

#### **3. COMPOSITION/INFORMATION ON INGREDIENTS**

#### Product Components

Continuous filament glass fiber 60 - 95 % Cured acrylic polymer 5 - 40 %

| Chemical name                                   | CAS No. | Weight-% | Trade Secret |
|---|---------|----------|--------------|
| Continuous filament glass fiber, non-respirable | -       | 60 - 95  | *            |

\*The exact percentage (concentration) of composition has been withheld as a trade secret or for covering a group of substantially similar products

• \* The remaining components of this product are non-hazardous or are in a small enough quantity as to not meet regulatory thresholds for disclosure. These components contain no substances or impurities which would influence the classification of this product

#### **4. FIRST AID MEASURES**

#### **Description of First Aid Measures**

| Eye contact  | <ul> <li>DO NOT rub or scratch eyes</li> <li>Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes</li> <li>If eye irritation persists: Get medical advice/attention</li> </ul>   |
|--------------|---|
| Skin contact | <ul> <li>DO NOT rub or scratch affected area</li> <li>DO NOT use warm water because this will open up the pores of the skin, which will cause further penetration of fibers and dust</li> <li>Wash skin thoroughly with soap and water</li> <li>Use a wash cloth to help remove fibers and dust</li> <li>If fibers are seen penetrating from the skin, the fibers can be removed by applying and removing adhesive tape so that the fibers adhere to the tape and are pulled out of the skin</li> </ul> |
| Inhalation   | <ul> <li>Move victim to fresh air</li> <li>If symptoms persist, call a physician</li> </ul>   |
| Ingestion    | <ul> <li>Accidental ingestion of this product is unlikely</li> <li>Rinse mouth with water and drink water to remove fibers from the throat</li> <li>If symptoms persist, call a physician</li> </ul>  |

**5. FIRE-FIGHTING MEASURES** 

· Not flammable. Only the organic part of the product is combustible and could release

|   | small quantities of undetermined hazardous compounds in case of major and prolonged heat or fire  |
|---|---|
| Suitable extinguishing media  | <ul> <li>Use CO2, dry chemical, or foam</li> <li>Water spray or fog</li> </ul>  |
| Unsuitable extinguishing media  | • No  |
| Specific hazards arising from the chemical  | No information available  |
| Explosion data<br>Sensitivity to Mechanical Impact<br>Sensitivity to Static Discharge | t • No<br>• No  |
| Protective equipment and<br>precautions for firefighters                              | • As in any fire, wear self-contained breathing apparatus (positive-pressure), MSHA/NIOSH (approved or equivalent) and full protective gear   |
|   | 6. ACCIDENTAL RELEASE MEASURES  |
| Personal precautions, protective eq   | uipment and emergency procedures  |
| Personal precautions  | Avoid contact with eyes and skin  |
| Environmental precautions   | See Section 12 for ecotoxicology additional information   |
| Methods and material for containme  | ent and cleaning up   |
| Methods for containment   | Prevent further leakage or spillage if safe to do so  |
| Methods for cleaning up   | <ul> <li>Use personal protective equipment as required</li> <li>Avoid creating dust</li> <li>Take up mechanically, placing in appropriate containers for disposal</li> <li>Use an industrial vacuum cleaner with a high efficiency filter to clean up dust and fiber contamination</li> </ul>   |
|   | 7. HANDLING AND STORAGE   |
| Precautions for safe handling   | Prevent and/or minimize dust formation  |
| Conditions for safe storage, includi  | ng any incompatibilities  |
| Storage Conditions  | <ul> <li>Store in a manner which will minimize dust generation and accumulation</li> <li>Keep product in packaging until use to minimize potential dust generation</li> </ul>   |
| Incompatible materials  | None known  |
| 8. EXI  | POSURE CONTROLS/PERSONAL PROTECTION   |
| Control parameters  |   |
| Exposure Guidelines   | • As manufactured, continuous filament glass fibers are not respirable. Under normal conditions of use, these products may release dust and non-respirable fibers (Particles Not Otherwise Regulated). Under severe process conditions (e.g. shredding, crushing), they may release very small amount of respirable particulate, some of which may be glass shards (see section 11) |

| Chemical hame ACGINTLY OSHA PEL NIOSH KEL | Chemical name | ACGIH TLV | OSHA PEL | NIOSH REL |
|---|---------------|-----------|----------|-----------|

| Continuous filament glass fiber, | TWA: 1 fiber/cm3 respirable fibers:            | - | - |
|----------------------------------|--|---|---|
| non-respirable                   | length >5 µm, diameter less than 3             |   |   |
| -                                | µm, aspect ratio >=3:1, as                     |   |   |
|                                  | determined by the membrane filter              |   |   |
|                                  | method at 400-450X magnification               |   |   |
|                                  | [4-mm objective], using                        |   |   |
|                                  | phase-contrast illumination                    |   |   |
|                                  | TWA: 5 mg/m <sup>3</sup> inhalable particulate |   |   |
|                                  | matter   |   |   |

NIOSH REL Immediately Dangerous to Life or Health

| Engineering Controls               | <ul> <li>Provide local exhaust and/or general ventilation to maintain exposure below regulatory and recommended limits</li> <li>Local exhaust ventilation should be provided at areas of cutting, milling or other similar processing to remove airborne dust and fibers</li> </ul>                                      |
|------------------------------------|--|
| Individual protection measures, su | ch as personal protective equipment  |
| Eye/face protection                | <ul> <li>Wear safety glasses with side shields (or goggles)</li> </ul>   |
| Skin and body protection           | <ul><li>Wear protective gloves</li><li>Wear long-sleeved shirt and long pants</li></ul>  |
| Respiratory protection             | • If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations |

General Hygiene Considerations • Wash hands before breaks and immediately after handling products • Remove and wash contaminated clothing before re-use

# 9. PHYSICAL AND CHEMICAL PROPERTIES

| Physical state<br>Appearance<br>Odor | Solid - fiber with diameter larger than 6 micron<br>Glass fiber veil<br>Organic    |
|--------------------------------------|--|
| Color                                | white; KR05 and KR07 are purple; KR10 is green; KR11, KR17 and KR18 are grey; KR19 |
| pH value                             | not applicable   |
| Melting point / freezing point       | not applicable   |
| Boiling point / boiling range        | not applicable   |
| Flash point                          | not applicable   |
| Evaporation rate                     | Not applicable   |
| Vapor pressure @20 °C (kPa)          | not applicable   |
| Density VALUE                        | not applicable   |
| Autoignition temperature             | Not applicable   |
| Viscosity                            | not applicable   |
| Explosive properties                 | Not an explosive   |
| Oxidizing properties                 | Not an oxidizer  |
| Specific Gravity                     | not applicable   |
| Softening point                      | > 800°C  |
| Liquid Density                       | not applicable   |

# **10. STABILITY AND REACTIVITY**

| Reactivity                         | No known reactivity                         |
|------------------------------------|---|
| Chemical stability                 | Stable under recommended storage conditions |
| Possibility of Hazardous Reactions | None under normal processing conditions     |
|                                    |   |

**Conditions to avoid** 

None known

Incompatible materials

None known

Hazardous Decomposition Products • Thermal decomposition of organic part can lead to release undetermined compounds in small quantities

# **11. TOXICOLOGICAL INFORMATION**

#### Information on likely routes of exposure

| disease. Continuous filament glass fibers do not possess cleavage planes which would<br>allow them to split length-wise into fibers with smaller diameters, rather they break across<br>the fiber, resulting in fibers which are of the same diameter as the original fiber with a<br>shorter length and a small amount of dust. Microscopic examination of dust from highly<br>chopped and pulverised glass demonstrated the presence of small amounts of respirable<br>dust particles. Among these respirable particles, some were fiber-like in terms of I/d ratic<br>(so-called "shards"). It can be clearly observed however that they are not regular shaped<br>fibers but irregular shaped particles with fiber-like dimensions. To the best of our<br>knowledge, the exposure levels of these fiber-like dust particles measured at our<br>manufacturing plants are of the order of magnitude between 50 to 1000 below existing<br>applicable limits<br>The International Agency for Research on Cancer (IARC) in June, 1987, and in October,<br>2001 (see IARC Monographs on the Evaluation of Carcinogenic risks to humans –<br>Man-made Vitreous Fibers – Volume 81), categorized continuous filament fiber glass as<br>classifiable with respect to human carcinogenicity (Group 3). The evidence from human<br>well as animal studies was evaluated by IARC as insufficient to classify continuous filam<br>glass fiber as a confirmed, probable or even possible cancer-causing material | Organization (WHO) definition. Respirable according to the world Health<br>Organization (WHO) definition. Respirable fibers have a diameter (d) smaller than 3µm, a<br>length (l) larger than 5µm and a l/d-ratio larger than or equal to 3. Fibers with diameters<br>greater than 3 microns, which is the case for continuous filament glass fiber, do not reach<br>the lower respiratory tract and, therefore have no possibility of causing serious pulmonary<br>disease. Continuous filament glass fibers do not possess cleavage planes which would<br>allow them to split length-wise into fibers with smaller diameters, rather they break across<br>the fiber, resulting in fibers which are of the same diameter as the original fiber with a<br>shorter length and a small amount of dust. Microscopic examination of dust from highly<br>chopped and pulverised glass demonstrated the presence of small amounts of respirable<br>dust particles. Among these respirable particles, some were fiber-like in terms of I/d ratio<br>(so-called "shards"). It can be clearly observed however that they are not regular shaped<br>fibers but irregular shaped particles with fiber-like dimensions. To the best of our |
|--|--|
|--|--|

#### **Components Information**

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| Sensitization          | None known.   |
|------------------------|---|
| Germ cell mutagenicity | None known.   |
| Carcinogenicity        | The table below indicates whether each agency has listed any ingredient as a carcinogen |

| Chemical name             | ACGIH | IARC    | NTP | OSHA |
|---------------------------|-------|---------|-----|------|
| Continuous filament glass | -     | Group 3 | -   | -    |
| liber, non-respirable     |       |         |     |      |

ACGIH (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 3 - Not classifiable as a human carcinogen

NTP (National Toxicology Program) Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

#### Reproductive toxicity STOT - single exposure

This product does not contain any known or suspected reproductive hazards. No known effects under normal use conditions.

| STOT - repeated exposure | None under normal use conditions.             |
|--------------------------|---|
| Target Organ Effects     | No known effects under normal use conditions. |
| Aspiration nazaro        |   |

#### **12. ECOLOGICAL INFORMATION**

| Persistence and degradability | No information available   |
|-------------------------------|--|
| Bioaccumulation               | No information available   |
| Other adverse effects         | No information available   |
|                               | 13. DISPOSAL CONSIDERATIONS  |
| Disposal of wastes            | Disposal should be in accordance with applicable regional, national and local laws and regulations |
|                               |  |
| Contaminated packaging        | Do not reuse packaging   |

#### **14. TRANSPORT INFORMATION**

| DOT        | Not regulated |
|------------|---------------|
| TDG        | Not regulated |
| MEX        | Not regulated |
| ICAO (air) | Not regulated |
| ΙΑΤΑ       | Not regulated |
| IMDG       | Not regulated |
| RID        | Not regulated |
| ADR        | Not regulated |
| ADN        | Not regulated |

#### **15. REGULATORY INFORMATION**

Continuous filament glass fiber products are articles. Articles are exempted from registration or listing under chemicals inventories like TSCA (USA), DSL/NDSL (CAN), REACH (EU), ENCS (JP), IECSC (CN), KECL (KR), PICCS (PH), AICS (AUS), TCSI (Taiwan).

#### International Inventories

#### Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
 EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
 ENCS - Japan Existing and New Chemical Substances
 IECSC - China Inventory of Existing Chemical Substances
 KECL - Korean Existing and Evaluated Chemical Substances
 PICCS - Philippines Inventory of Chemicals and Chemical Substances
 ALCS - Australian Inventory of Chemical Substances

#### **US Federal Regulations**

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

#### CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

#### CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

#### **US State Regulations**

#### **California Proposition 65**

This product is not regulated under California Proposition 65.

#### **U.S. State Right-to-Know Regulations**

#### 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

| Prepared By   | FCs                                   |
|---------------|---------------------------------------|
| Creation Date | 29-May-2015                           |
| Revision Date | 23-Mar-2021                           |
| Revision Note | add of synonyms and components review |

#### Disclaimer

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use

#### End of Safety Data Sheet



# SAFETY DATA SHEET

DDP Specialty Electronic Materials US,

LLC

#### Product name: GREAT STUFF PRO™ Gaps & Cracks Insulating Foam Sealant 24oz HC ES GUN 12ct Grainger

Issue Date: 10/21/2019

Print Date: 03/15/2022

DDP Specialty Electronic Materials US, LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

# **1. IDENTIFICATION**

**Product name:** GREAT STUFF PRO<sup>™</sup> Gaps & Cracks Insulating Foam Sealant 24oz HC ES GUN 12ct Grainger

Recommended use of the chemical and restrictions on use Identified uses: Polyurethane foam.

#### **COMPANY IDENTIFICATION**

DDP Specialty Electronic Materials US, LLC 974 Centre Road, Building 730, Wilmington DE 19805 UNITED STATES

**Customer Information Number:** 

833-338-7668 SDSQuestion-NA@dupont.com

**EMERGENCY TELEPHONE NUMBER 24-Hour Emergency Contact:** 1-800-424-9300 **Local Emergency Contact:** 800-424-9300

# 2. HAZARDS IDENTIFICATION

#### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200 Flammable aerosols - Category 2 Gases under pressure - Liquefied gas Skin irritation - Category 2 Eye irritation - Category 2A Respiratory sensitisation - Category 1 Skin sensitisation - Category 1 Effects on or via lactation Specific target organ toxicity - single exposure - Category 3 Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

Label elements Hazard pictograms



#### Signal word: DANGER!

#### Hazards

Flammable aerosol. Contains gas under pressure; may explode if heated. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause harm to breast-fed children. May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

#### **Precautionary statements**

#### Prevention

Obtain special instructions before use. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Avoid contact during pregnancy/ while nursing. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/ eye protection/ face protection. In case of inadequate ventilation wear respiratory protection.

#### Response

IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/ attention. If skin irritation or rash occurs: Get medical advice/ attention. If eye irritation persists: Get medical advice/ attention. Take off contaminated clothing and wash before reuse.

#### Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

#### Disposal

Dispose of contents/ container to an approved waste disposal plant.

#### Other hazards

No data available

# **3. COMPOSITION/INFORMATION ON INGREDIENTS**

This product is a mixture.

| Component   | CASRN      | Concentration       |
|---|------------|---------------------|
|   |            |                     |
| Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer      | 57029-46-6 | >= 30.0 - <= 60.0 % |
| Diphenylmethane Diisocyanate, isomers and homologues                  | 9016-87-9  | >= 10.0 - <= 30.0 % |
| 4,4' -Methylenediphenyl diisocyanate                                  | 101-68-8   | >= 7.0 - <= 13.0 %  |
| Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer | 53862-89-8 | >= 5.0 - <= 10.0 %  |
| Paraffin waxes and Hydrocarbon waxes, chlorinated                     | 63449-39-8 | >= 5.0 - <= 10.0 %  |
| Isobutane   | 75-28-5    | >= 3.0 - <= 7.0 %   |
| Propane   | 74-98-6    | >= 1.0 - <= 5.0 %   |
| Methyl ether  | 115-10-6   | >= 1.0 - <= 5.0 %   |
| N,N'-Dimorpholinodiethylether   | 6425-39-4  | >= 0.5 - <= 5.0 %   |

## 4. FIRST AID MEASURES

#### Description of first aid measures

#### General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

#### Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Although cholinesterase depression has been reported with this material, it is not of benefit in determining exposure and need not be considered in the treatment of persons exposed to the material. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Repeated excessive exposure may aggravate preexisting lung disease.

## 5. FIREFIGHTING MEASURES

#### **Extinguishing media**

**Suitable extinguishing media:** Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

**Unsuitable extinguishing media:** Do not use direct water stream.. Straight or direct water streams may not be effective to extinguish fire..

#### Special hazards arising from the substance or mixture

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating..

Combustion products may include and are not limited to:. Nitrogen oxides.. Isocyanates.. Hydrogen chloride.. Carbon monoxide.. Carbon dioxide.. Hydrogen cyanide..

**Unusual Fire and Explosion Hazards:** Contains flammable propellant. Aerosol cans exposed to fire can rupture and become flaming projectiles. Propellant release may result in a fireball.. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.. Dense smoke is produced when product burns..

#### Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry.. Stay upwind. Keep out of low areas where gases (fumes) can accumulate.. Water may not be effective in extinguishing fire.. Do not use direct water stream. May spread fire.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Eliminate ignition sources.. Move container from fire area if this is possible without hazard.. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out..

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections..

# 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep personnel out of confined or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. For large spills, warn public of downwind explosion hazard. Spilled material may cause a slipping hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. See Section 10 for more specific information. Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Confined space entry procedures must be followed before entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Ground and bond all containers and handling equipment. Isolate area until gas has dispersed. Use non-sparking tools in cleanup operations. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Collect in suitable and properly labeled containers. Absorb with materials such as: Clay. Dirt. Milsorb®. Sand. Sawdust. Vermiculite. See Section 10 for more specific information. See Section 13, Disposal Considerations, for additional information.

# 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Keep out of reach of children. No smoking, open flames or sources of ignition in handling and storage area. This material is hygroscopic in nature. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Contents under pressure. Do not puncture or incinerate container. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Do not enter confined spaces unless adequately ventilated. Never use air pressure for transferring product. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in a dry place. See Section 10 for more specific information.

#### Storage stability

| Storage temperature: | Storage Period: |
|----------------------|-----------------|
| 49 °C (120 °F)       | 12 Month        |

# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### **Control parameters**

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

| Component               | Regulation   | Type of listing   | Value   |
|-------------------------|--|---|---|
| 4,4' -Methylenediphenyl | Dow IHG  | TWA   | 0.005 ppm   |
| diisocyanate            |  |   |   |
|                         | Dow IHG  | STEL  | 0.02 ppm  |
|                         | ACGIH  | TWA   | 0.005 ppm   |
|                         | Further information: resp se   | ens: Respiratory sensitization  |   |
|                         | OSHA Z-1   | C   | 0.2 mg/m3 0.02 ppm  |
|                         | Further information: (b): The value in mg/m3 is approximate.; <sup>©</sup> : Ceiling limit is to be determined from breathing-zone air samples.  |   |   |
| Isobutane               | ACGIH  | STEL  | 1,000 ppm   |
|                         | Further information: EX: Ex<br>excursions above the TLV®<br>impair: Central Nervous Sy   | plosion hazard: the substanc<br>could approach 10% of the stem impairment | e is a flammable asphyxiant or<br>lower explosive limit.; CNS |
| Propane                 | ACGIH  |   | See Further information                                       |
|                         | Further information: See Appendix F: Minimal Oxygen Content; EX: Explosion hazard:<br>the substance is a flammable asphyxiant or excursions above the TLV® could<br>approach 10% of the lower explosive limit.; asphyxia: Asphyxia; D: Simple asphyxiant;<br>see discussion covering Minimal Oxygen Content found in the 'Definitions and<br>Notations' section following the NIC tables |   |   |
|                         | OSHA Z-1   | TWA   | 1,800 mg/m3 1,000   |
|                         |  |   | ppm   |
|                         | Further information: (b): The value in mg/m3 is approximate.   |   |   |

|              | CAL PEL   | PEL  | 1,800 mg/m3 1,000   |
|--------------|---|--|---|
|              |   |  | ppm   |
|              | Further information: (h): A r<br>concentrations, act primaril<br>concentration limit is not ind<br>available oxygen. (Several | number of gases and vapors,<br>y as asphyxiants without othe<br>cluded for each material beca<br>of these materials present fire | when present in high<br>er adverse effects. A<br>use the limiting factor is the<br>e or explosion hazards.) |
|              | NIOSH REL   | TWA  | 1,800 mg/m3 1,000   |
|              |   |  | ppm   |
| Methyl ether | US WEEL   | TWA  | 1,000 ppm   |

This material contains a simple asphyxiant which may displace oxygen. Insure adequate ventilation to prevent an oxygen deficient atmosphere.

The minimum requirement of 19.5% oxygen at sea level (148 torr O2, dry air) provides an adequate amount of oxygen for most work assignments.

#### Exposure controls

**Engineering controls:** Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure. Lethal concentrations may exist in areas with poor ventilation.

#### Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

#### Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Viton. Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained or positive self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

# 9. PHYSICAL AND CHEMICAL PROPERTIES

| Appearance                                 |   |
|--|---|
| Physical state                             | Foam                                    |
| Color                                      | Orange                                  |
| Odor                                       | Odorless                                |
| Odor Threshold                             | No test data available                  |
| рН   | Not applicable                          |
| Melting point/range                        | No test data available                  |
| Freezing point                             | No test data available                  |
| Boiling point (760 mmHg)                   | Not applicable                          |
| Flash point                                | closed cup -104 °C (-155 °F) Estimated. |
| Evaporation Rate (Butyl Acetate = 1)       | No test data available                  |
| Flammability (solid, gas)                  | No data available                       |
| Lower explosion limit                      | No test data available                  |
| Upper explosion limit                      | No test data available                  |
| Vapor Pressure                             | 1,100 kPa at 55 °C (131 °F) Supplier    |
| Relative Vapor Density (air = 1)           | No test data available                  |
| Relative Density (water = 1)               | 1.06 Calculated.                        |
| Water solubility                           | insoluble                               |
| Partition coefficient: n-<br>octanol/water | No data available                       |
| Auto-ignition temperature                  | No test data available                  |
| Decomposition temperature                  | No test data available                  |
| Kinematic Viscosity                        | Not applicable                          |
| Explosive properties                       | Not explosive                           |
| Oxidizing properties                       | No                                      |
| Molecular weight                           | No data available                       |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

# **10. STABILITY AND REACTIVITY**

#### Reactivity: No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7. Unstable at elevated temperatures.

**Possibility of hazardous reactions:** Can occur. Exposure to elevated temperatures can cause product to decompose and generate gas. This can cause pressure build-up and/or rupturing of closed containers. Acids.

**Conditions to avoid:** Avoid temperatures above 50 °C Elevated temperatures can cause container to vent and/or rupture. Exposure to elevated temperatures can cause product to decompose.

**Incompatible materials:** Avoid contact with: Acids. Alcohols. Amines. Ammonia. Bases. Metal compounds. Strong oxidizers. Products based on diisocyanates like TDI and MDI react with many materials to release heat. The reaction rate increases with temperature as well as with increased contact; these reactions can become violent. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition..

# 11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

#### Acute toxicity

#### Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

As product: Single dose oral LD50 has not been determined.

LD50, Rat, > 2,000 mg/kg Estimated.

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

LD50, Rabbit, > 2,000 mg/kg Estimated.

#### Acute inhalation toxicity

In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. May cause central nervous system depression. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Decreased lung function has been associated with overexposure to isocyanates.

The LC50 has not been determined.,

#### Skin corrosion/irritation

Prolonged contact may cause moderate skin irritation with local redness. Material may stick to skin causing irritation upon removal. May stain skin.

#### Serious eye damage/eye irritation

May cause moderate eye irritation. May cause slight temporary corneal injury.

#### Sensitization

Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

#### Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

#### Specific Target Organ Systemic Toxicity (Repeated Exposure)

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Contains component(s) which have been reported to cause effects on the following organs in animals: kidney

Liver.

#### Carcinogenicity

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m3) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

#### Teratogenicity

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother. Contains component(s) which caused birth defects in laboratory animals only at doses toxic to the mother.

#### **Reproductive toxicity**

Based on information for component(s): May cause harm to breastfed babies.

#### Mutagenicity

In vitro genetic toxicity studies were negative for component(s) tested. Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

#### Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

| Carcinogenicity    |      |
|--------------------|------|
| Component          | List |
| Paraffin waxes and | IARC |

Classification Group 2B: Possibly carcinogenic to Hydrocarbon waxes, chlorinated

humans

US NTP

Reasonably anticipated to be a human carcinogen

# 12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

#### Toxicity

# Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer

Acute toxicity to fish For this family of materials: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

#### Diphenylmethane Diisocyanate, isomers and homologues

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). Based on information for a similar material: LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

#### Acute toxicity to aquatic invertebrates

Based on information for a similar material: EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

#### Acute toxicity to algae/aquatic plants

Based on information for a similar material: NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

#### Toxicity to bacteria

Based on information for a similar material: EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

#### Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

#### **Toxicity to terrestrial plants**

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

#### 4,4' -Methylenediphenyl diisocyanate Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis

(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

#### Acute toxicity to aquatic invertebrates

Based on information for a similar material: EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

#### Acute toxicity to algae/aquatic plants

Based on information for a similar material: NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

#### Toxicity to bacteria

Based on information for a similar material: EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

#### Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

#### Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

#### Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

#### Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 0.1 mg/l

#### Chronic toxicity to fish

Based on data from similar materials NOEC, Oncorhynchus mykiss (rainbow trout), 60 d, 4.5 mg/l

#### **Isobutane**

Acute toxicity to fish No relevant data found.

#### **Propane**

Acute toxicity to fish No relevant data found.

#### Methyl ether

#### Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50, Poecilia reticulata (guppy), semi-static test, 96 Hour, > 4,000 mg/l

#### Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), 48 Hour, > 4,000 mg/l, OECD Test Guideline 202 or Equivalent

#### N,N'-Dimorpholinodiethylether

#### Acute toxicity to fish

Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L). May increase pH of aquatic systems to > pH 10 which may be toxic to aquatic organisms. LC50, Danio rerio (zebra fish), static test, 96 Hour, > 2,150 mg/l, OECD Test Guideline 203 or Equivalent

#### Acute toxicity to aquatic invertebrates

EC50, Daphnia (water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

#### Acute toxicity to algae/aquatic plants

ErC50, Algae, static test, 72 Hour, > 100 mg/l, OECD Test Guideline 201 or Equivalent

#### **Toxicity to bacteria**

EC50, Bacteria, static test, 3 Hour, 100 mg/l, activated sludge test (OECD 209)

#### Persistence and degradability

#### Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer

**Biodegradability:** For this family of materials: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

#### Diphenylmethane Diisocyanate, isomers and homologues

**Biodegradability:** In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates. 10-day Window: Not applicable

Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 302C or Equivalent

#### 4,4' -Methylenediphenyl diisocyanate

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C or Equivalent

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

**Biodegradability:** Expected to degrade slowly in the environment.

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

Biodegradability: Expected to degrade slowly in the environment.
For similar material(s):
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

#### Theoretical Oxygen Demand: 2.89 mg/mg

#### Isobutane

**Biodegradability:** Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Theoretical Oxygen Demand: 3.58 mg/mg

Photodegradation Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 4.4 d Method: Estimated.

#### **Propane**

Biodegradability: No relevant data found.

Theoretical Oxygen Demand: 3.64 mg/mg

#### Photodegradation

Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 8.4 d Method: Estimated.

#### Methyl ether

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301A or Equivalent

Theoretical Oxygen Demand: 2.08 mg/mg

Photodegradation Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 6.4 d Method: Estimated.

#### N,N'-Dimorpholinodiethylether

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 0 - 10 %
Exposure time: 28 d
Method: OECD Test Guideline 301A or Equivalent

Theoretical Oxygen Demand: 2.49 mg/mg

Photodegradation Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 0.03 d Method: Estimated.

#### **Bioaccumulative potential**

#### Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer Bioaccumulation: No relevant data found.

#### Diphenylmethane Diisocyanate, isomers and homologues

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas. **Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

#### 4,4' -Methylenediphenyl diisocyanate

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas. **Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

**Bioaccumulation:** In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

**Bioaccumulation:** Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

Partition coefficient: n-octanol/water(log Pow): 7.4 Estimated.

#### **Isobutane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient: n-octanol/water(log Pow):** 2.76 Measured

#### **Propane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient: n-octanol/water(log Pow):** 2.36 Measured

#### Methyl ether

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient:** n-octanol/water(log Pow): 0.10 Measured

#### N,N'-Dimorpholinodiethylether

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient: n-octanol/water(log Pow):** 0.5 Estimated.

#### Mobility in soil

Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer No relevant data found.

#### Diphenylmethane Diisocyanate, isomers and homologues

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### 4,4' -Methylenediphenyl diisocyanate

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process. Expected to be relatively immobile in soil (Koc > 5000). **Partition coefficient (Koc):** > 5000 Estimated.

#### **Isobutane**

Potential for mobility in soil is very high (Koc between 0 and 50). **Partition coefficient (Koc):** 35 Estimated.

#### **Propane**

Potential for mobility in soil is very high (Koc between 0 and 50). **Partition coefficient (Koc):** 24 - 460 Estimated.

#### Methyl ether

Potential for mobility in soil is very high (Koc between 0 and 50). **Partition coefficient (Koc):** 1.29 - 14 Estimated.

#### N,N'-Dimorpholinodiethylether

Potential for mobility in soil is low (Koc between 500 and 2000). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process. **Partition coefficient (Koc):** 784 Estimated.

## **13. DISPOSAL CONSIDERATIONS**

**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR

SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

## 14. TRANSPORT INFORMATION

#### DOT

| Proper shipping name | Aerosols |
|----------------------|----------|
| UN number            | UN 1950  |
| Class                | 2.1      |
| Packing group        |          |

Classification for SEA transport (IMO-IMDG):

| Proper shipping name       | AEROSÓLS   |
|----------------------------|--|
| UN number                  | UN 1950  |
| Class                      | 2.1  |
| Packing group              |  |
| Marine pollutant           | Paraffin waxes and Hydrocarbon waxes, chlorinated      |
| Transport in bulk          | Consult IMO regulations before transporting ocean bulk |
| according to Annex I or II |  |
| of MARPOL 73/78 and the    |  |
| IBC or IGC Code            |  |

#### Classification for AIR transport (IATA/ICAO):

| Proper shipping name | Aerosols, flammable |
|----------------------|---------------------|
| UN number            | UN 1950             |
| Class                | 2.1                 |
| Packing group        |                     |

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transportation of the material.

# **15. REGULATORY INFORMATION**

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312 Flammable (gases, aerosols, liquids, or solids) Gases under pressure Skin corrosion or irritation Serious eye damage or eye irritation Respiratory or skin sensitisation Reproductive toxicity Specific target organ toxicity (single or repeated exposure)

# Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

#### Components

Diphenylmethane Diisocyanate, isomers and homologues 4,4' -Methylenediphenyl diisocyanate

CASRN 9016-87-9 101-68-8

# Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

| Calculated RQ exceeds reasonably attainal | ole upper limit. |                |
|---|------------------|----------------|
| Components                                | CASRN            | RQ (RCRA Code) |
| 4,4' -Methylenediphenyl diisocyanate      | 101-68-8         | 5000 lbs RQ    |

#### Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

| Components   | CASRN    |
|--------------|----------|
| Isobutane    | 75-28-5  |
| Propane      | 74-98-6  |
| Methyl ether | 115-10-6 |

#### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

#### United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

# **16. OTHER INFORMATION**

#### Hazard Rating System

HMIS

| Health | Flammability | Physical<br>Hazard |
|--------|--------------|--------------------|
| 4*     | 4            | 3                  |

\* = Chronic Effects (See Hazards Identification)

#### Revision

Identification Number: 99054172 / A749 / Issue Date: 10/21/2019 / Version: 4.2 Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

| Lea | end  |
|-----|------|
| LUg | CITU |

| =======   |  |
|-----------|--|
| ACGIH     | USA. ACGIH Threshold Limit Values (TLV)  |
| С         | Ceiling  |
| CAL PEL   | California permissible exposure limits for chemical contaminants (Title 8, Article |
|           | 107)   |
| Dow IHG   | Dow Industrial Hygiene Guideline   |
| NIOSH REL | USA. NIOSH Recommended Exposure Limits   |
| OSHA Z-1  | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air                |
|           | Contaminants   |
| PEL       | Permissible exposure limit   |
| STEL      | Short-term exposure limit  |
| TWA       | 8-hr TWA   |
| US WEEL   | USA. Workplace Environmental Exposure Levels (WEEL)                                |
|           |  |

#### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials: bw - Body weight: CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO -International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO -International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 -Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA -Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA -Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods: vPvB - Verv Persistent and Very Bioaccumulative

#### Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DDP Specialty Electronic Materials US, LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



# SAFETY DATA SHEET

DDP Specialty Electronic Materials US,

LLC

Product name: GREAT STUFF™ Fireblock Insulating Foam Sealant 16oz HC ES STW 12ct

Issue Date: 06/29/2020

Print Date: 03/15/2022

DDP Specialty Electronic Materials US, LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

# **1. IDENTIFICATION**

Product name: GREAT STUFF™ Fireblock Insulating Foam Sealant 16oz HC ES STW 12ct

Recommended use of the chemical and restrictions on use Identified uses: Polyurethane foam.

#### **COMPANY IDENTIFICATION**

DDP Specialty Electronic Materials US, LLC 974 Centre Road, Building 730, Wilmington DE 19805 UNITED STATES

**Customer Information Number:** 

833-338-7668 SDSQuestion-NA@dupont.com

EMERGENCY TELEPHONE NUMBER 24-Hour Emergency Contact: 1-800-424-9300 Local Emergency Contact: 800-424-9300

# 2. HAZARDS IDENTIFICATION

#### Hazard classification

GHS classification in accordance with 29 CFR 1910.1200 Flammable aerosols - Category 2 Gases under pressure - Liquefied gas Skin irritation - Category 2 Eye irritation - Category 2B Respiratory sensitisation - Category 1 Skin sensitisation - Category 1 Effects on or via lactation Specific target organ toxicity - single exposure - Category 3 Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

Label elements Hazard pictograms



#### Signal word: DANGER!

#### Hazards

Flammable aerosol.

Contains gas under pressure; may explode if heated.

Causes skin and eye irritation.

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

May cause harm to breast-fed children.

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

#### **Precautionary statements**

#### Prevention

Obtain special instructions before use. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. Avoid contact during pregnancy/ while nursing. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves. In case of inadequate ventilation wear respiratory protection.

#### Response

IF ON SKIN: Wash with plenty of soap and water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Get medical advice/ attention.

If skin irritation or rash occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

#### Storage

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F.

#### Disposal

Dispose of contents/ container to an approved waste disposal plant.

#### Other hazards

No data available

# 3. COMPOSITION/INFORMATION ON INGREDIENTS

| This product is a mixture.<br>Component                               | CASRN      | Concentration       |
|---|------------|---------------------|
|   |            |                     |
| Diphenylmethane Diisocyanate, isomers and homologues                  | 9016-87-9  | >= 10.0 - <= 30.0 % |
| 4,4' -Methylenediphenyl diisocyanate                                  | 101-68-8   | >= 10.0 - <= 30.0 % |
| Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer      | 57029-46-6 | >= 10.0 - <= 30.0 % |
| Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer | 53862-89-8 | >= 10.0 - <= 30.0 % |
| Isobutane   | 75-28-5    | >= 7.0 - <= 13.0 %  |
| Tris(1-chloro-2-propyl) phosphate                                     | 13674-84-5 | >= 5.0 - <= 10.0 %  |
| Paraffin waxes and Hydrocarbon waxes, chlorinated                     | 63449-39-8 | >= 5.0 - <= 10.0 %  |
| Methyl ether  | 115-10-6   | >= 1.0 - <= 5.0 %   |
| Propane   | 74-98-6    | >= 1.0 - <= 5.0 %   |
| Note  |            |                     |

Note: CAS 101-68-8 is an MDI isomer that is part of CAS 9016-87-9.

# 4. FIRST AID MEASURES

#### Description of first aid measures

#### General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**Skin contact:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

**Eye contact:** Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

**Ingestion:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

#### Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

#### Indication of any immediate medical attention and special treatment needed

**Notes to physician:** Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Although cholinesterase depression has been reported with this material, it is not of benefit in determining exposure and need not be considered in the treatment of persons exposed to the material. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome). Repeated excessive exposure may aggravate preexisting lung disease.

# **5. FIREFIGHTING MEASURES**

**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

#### Special hazards arising from the substance or mixture

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Isocyanates. Hydrogen chloride. Carbon monoxide. Carbon dioxide. Hydrogen cyanide.

**Unusual Fire and Explosion Hazards:** Contains flammable propellant. Aerosol cans exposed to fire can rupture and become flaming projectiles. Propellant release may result in a fireball. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Dense smoke is produced when product burns.

#### Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

# 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep personnel out of confined or poorly ventilated areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Spilled material may cause a slipping hazard. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Refer to section 7, Handling, for additional precautionary measures.

**Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

**Methods and materials for containment and cleaning up:** Contain spilled material if possible. Ground and bond all containers and handling equipment. Isolate area until gas has dispersed. Use non-sparking tools in cleanup operations. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Collect in suitable and properly labeled containers. Absorb with materials such as: Clay. Dirt. Milsorb®. Sand. Sawdust. Vermiculite. See Section 10 for more specific information. See Section 13, Disposal Considerations, for additional information.
### 7. HANDLING AND STORAGE

**Precautions for safe handling:** Keep away from heat, sparks and flame. Avoid contact with eyes. Avoid contact with skin and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Keep out of reach of children. This material is hygroscopic in nature. No smoking, open flames or sources of ignition in handling and storage area. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Contents under pressure. Do not puncture or incinerate container. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Do not enter confined spaces unless adequately ventilated. Never use air pressure for transferring product. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in a dry place. See Section 10 for more specific information.

#### Storage stability

| Storage temperature: | Storage Period: |
|----------------------|-----------------|
| 25 °C (77 °F)        | 18 Month        |

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### **Control parameters**

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

| Component               | Regulation   | Type of listing  | Value  |  |  |
|-------------------------|--|--|--|--|--|
| 4,4' -Methylenediphenyl | Dow IHG  | TWA  | 0.005 ppm  |  |  |
| diisocyanate            |  |  |  |  |  |
|                         | Dow IHG  | STEL   | 0.02 ppm   |  |  |
|                         | ACGIH  | TWA  | 0.005 ppm  |  |  |
|                         | Further information: resp se   | ens: Respiratory sensitization   |  |  |  |
|                         | OSHA Z-1   | C  | 0.2 mg/m3 0.02 ppm   |  |  |
|                         | Further information: (b): Th   | e value in mg/m3 is approxim   | nate.; <sup>©</sup> : Ceiling limit is to be   |  |  |
|                         | determined from breathing-   | zone air samples.  |  |  |  |
| Isobutane               | ACGIH  | STEL   | 1,000 ppm  |  |  |
|                         | Further information: EX: Ex<br>excursions above the TLV®                               | plosion hazard: the substanc<br>could approach 10% of the                                      | e is a flammable asphyxiant or<br>lower explosive limit.; CNS  |  |  |
|                         | impair: Central Nervous Sy   | stem impairment  | •  |  |  |
| Methyl ether            | US WEEL  | TWA  | 1,000 ppm  |  |  |
| Propane                 | ACGIH  |  | See Further information  |  |  |
|                         | Further information: See Ap<br>the substance is a flammat<br>approach 10% of the lower | opendix F: Minimal Oxygen C<br>ole asphyxiant or excursions a<br>explosive limit.; asphyxia: A | ontent; EX: Explosion hazard:<br>above the TLV® could<br>sphyxia; D: Simple asphyxiant;<br>in the /Definitions and |  |  |
|                         | Notations' section following   | the NIC tables   | In the Demitions and   |  |  |
|                         | OSHA Z-1   | TWA  | 1,800 mg/m3 1,000  |  |  |
|                         |  |  | ppm  |  |  |
|                         | Further information: (b): The value in mg/m3 is approximate.                           |  |  |  |  |
|                         | CAL PEL  | PEL  | 1,800 mg/m3 1,000  |  |  |
|                         |  |  | ppm  |  |  |

| Further information: (h): A r<br>concentrations, act primarily<br>concentration limit is not ind<br>available oxygen. (Several | number of gases and vapors,<br>y as asphyxiants without othe<br>cluded for each material beca<br>of these materials present fire | when present in high<br>r adverse effects. A<br>use the limiting factor is the<br>e or explosion hazards.) |
|--|--|--|
| NIOSH REL  | TWA  | 1,800 mg/m3 1,000  |
|  |  | ppm  |

This material contains a simple asphyxiant which may displace oxygen. Insure adequate ventilation to prevent an oxygen deficient atmosphere.

The minimum requirement of 19.5% oxygen at sea level (148 torr O2, dry air) provides an adequate amount of oxygen for most work assignments.

#### Exposure controls

**Engineering controls:** Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure. Lethal concentrations may exist in areas with poor ventilation.

#### Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

#### Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Viton. Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained or positive self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance Physical state

Foam

| Color                                      | Orange   |
|--|--|
| Odor                                       | mild   |
| Odor Threshold                             | 0.4 ppm <i>Based on Literature for MDI</i> . Odor is inadequate warning of excessive exposure. |
| рН   | Not applicable   |
| Melting point/range                        | No test data available   |
| Freezing point                             | No test data available   |
| Boiling point (760 mmHg)                   | Not applicable   |
| Flash point                                | closed cup -104 °C (-155 °F) Estimated.  |
| Evaporation Rate (Butyl Acetate = 1)       | No test data available   |
| Flammability (solid, gas)                  | No data available  |
| Lower explosion limit                      | No test data available   |
| Upper explosion limit                      | No test data available   |
| Vapor Pressure                             | 1,151 hPa at 55 °C (131 °F) Not reported Container is under pressure.                          |
| Relative Vapor Density (air = 1)           | No test data available   |
| Relative Density (water = 1)               | 1.069 at 25 °C (77 °F) / 25 °C Estimated.  |
| Water solubility                           | Not applicable   |
| Partition coefficient: n-<br>octanol/water | No data available  |
| Auto-ignition temperature                  | No test data available   |
| Decomposition temperature                  | No test data available   |
| Dynamic Viscosity                          | No test data available   |
| Kinematic Viscosity                        | Not applicable   |
| Explosive properties                       | Not explosive  |
| Oxidizing properties                       | No   |
| Molecular weight                           | No test data available   |
|  |  |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

# **10. STABILITY AND REACTIVITY**

Reactivity: No data available

**Chemical stability:** Stable under recommended storage conditions. See Storage, Section 7. Unstable at elevated temperatures.

**Possibility of hazardous reactions:** Can occur. Exposure to elevated temperatures can cause product to decompose and generate gas. This can cause pressure build-up and/or rupturing of closed containers. Acids.

**Conditions to avoid:** Avoid temperatures above 50 °C Elevated temperatures can cause container to vent and/or rupture. Exposure to elevated temperatures can cause product to decompose.

**Incompatible materials:** Avoid contact with: Acids. Alcohols. Amines. Ammonia. Bases. Metal compounds. Strong oxidizers. Products based on diisocyanates like TDI and MDI react with many materials to release heat. The reaction rate increases with temperature as well as with increased contact; these reactions can become violent. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat.

**Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition.

## 11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

#### Acute toxicity

#### Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

As product: Single dose oral LD50 has not been determined.

LD50, Rat, > 2,000 mg/kg Estimated.

#### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

LD50, Rabbit, > 2,000 mg/kg Estimated.

#### Acute inhalation toxicity

In confined or poorly ventilated areas, vapor can easily accumulate and can cause unconsciousness and death due to displacement of oxygen. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. May cause central nervous system depression. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). Decreased lung function has been associated with overexposure to isocyanates.

The LC50 has not been determined.,

#### Skin corrosion/irritation

Prolonged contact may cause moderate skin irritation with local redness. Material may stick to skin causing irritation upon removal. May stain skin.

#### Serious eye damage/eye irritation

May cause moderate eye irritation. May cause slight temporary corneal injury.

#### Sensitization

Skin contact may cause an allergic skin reaction. Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

#### Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

#### Specific Target Organ Systemic Toxicity (Repeated Exposure)

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Contains component(s) which have been reported to cause effects on the following organs in animals: kidney

Liver.

#### Carcinogenicity

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m3) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

#### Teratogenicity

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother. Contains component(s) which caused birth defects in laboratory animals only at doses toxic to the mother.

#### **Reproductive toxicity**

Based on information for component(s): May cause harm to breastfed babies.

#### Mutagenicity

In vitro genetic toxicity studies were negative for component(s) tested. Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

#### Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

| Carcinogenicity    |      |                                    |
|--------------------|------|------------------------------------|
| Component          | List | Classification                     |
| Paraffin waxes and | IARC | Group 2B: Possibly carcinogenic to |
| Hydrocarbon waxes, |      | humans                             |
| chlorinated        |      |                                    |

### 12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

#### Toxicity

#### Diphenylmethane Diisocyanate, isomers and homologues

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). Based on information for a similar material: LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

#### Acute toxicity to aquatic invertebrates

Based on information for a similar material: EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

#### Acute toxicity to algae/aquatic plants

Based on information for a similar material: NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

#### Toxicity to bacteria

Based on information for a similar material: EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

#### Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

#### Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

#### 4,4' -Methylenediphenyl diisocyanate

#### Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis

(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

#### Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

#### Acute toxicity to algae/aquatic plants

Based on information for a similar material: NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

#### Toxicity to bacteria

Based on information for a similar material: EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

#### Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

#### Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

#### Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer

#### Acute toxicity to fish

For this family of materials: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

#### Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

#### **Isobutane**

Acute toxicity to fish No relevant data found.

#### Tris(1-chloro-2-propyl) phosphate

#### Acute toxicity to fish

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, 84 mg/l, OECD Test Guideline 203 or Equivalent

#### Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 131 mg/l

#### Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, Growth rate inhibition, 82 mg/l, OECD Test Guideline 201 or Equivalent

#### Toxicity to bacteria

EC50, activated sludge, Respiration inhibition, 3 Hour, 784 mg/l, OECD 209 Test

#### Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 32 mg/l

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

#### Acute toxicity to fish

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 0.1 mg/l

#### Chronic toxicity to fish

Based on data from similar materials NOEC, Oncorhynchus mykiss (rainbow trout), 60 d, 4.5 mg/l

#### Methyl ether

#### Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50, Poecilia reticulata (guppy), semi-static test, 96 Hour, > 4,000 mg/l

#### Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), 48 Hour, > 4,000 mg/l, OECD Test Guideline 202 or Equivalent

#### **Propane**

Acute toxicity to fish No relevant data found.

#### Persistence and degradability

#### Diphenylmethane Diisocyanate, isomers and homologues

**Biodegradability:** In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates. 10-day Window: Not applicable **Biodegradation:** 0 % **Exposure time:** 28 d **Method:** OECD Test Guideline 302C or Equivalent

#### 4,4' -Methylenediphenyl diisocyanate

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C or Equivalent

#### Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer

**Biodegradability:** For this family of materials: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

**Biodegradability:** Expected to degrade slowly in the environment.

#### **Isobutane**

**Biodegradability:** Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Theoretical Oxygen Demand: 3.58 mg/mg

Photodegradation Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 4.4 d Method: Estimated.

#### Tris(1-chloro-2-propyl) phosphate

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Fail
Biodegradation: 14 %
Exposure time: 28 d
Method: OECD Test Guideline 301E or Equivalent
10-day Window: Not applicable
Biodegradation: 95 %
Exposure time: 64 d
Method: OECD Test Guideline 302A or Equivalent

Theoretical Oxygen Demand: 1.17 mg/mg

Photodegradation Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 0.24 d Method: Estimated.

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

**Biodegradability:** Expected to degrade slowly in the environment. For similar material(s): **Biodegradation:** 5 % **Exposure time:** 28 d **Method:** OECD Test Guideline 301D

Theoretical Oxygen Demand: 2.89 mg/mg

#### Methyl ether

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301A or Equivalent

Theoretical Oxygen Demand: 2.08 mg/mg

Photodegradation Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 6.4 d Method: Estimated.

#### **Propane**

**Biodegradability:** No relevant data found.

Theoretical Oxygen Demand: 3.64 mg/mg

Photodegradation Test Type: Half-life (indirect photolysis) Sensitization: OH radicals Atmospheric half-life: 8.4 d Method: Estimated.

#### Bioaccumulative potential

#### Diphenylmethane Diisocyanate, isomers and homologues

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas. **Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

#### 4,4' -Methylenediphenyl diisocyanate

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas. **Bioconcentration factor (BCF):** 92 Cyprinus carpio (Carp) 28 d

Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer Bioaccumulation: No relevant data found.

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

**Bioaccumulation:** In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### **Isobutane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient: n-octanol/water(log Pow):** 2.76 Measured

#### Tris(1-chloro-2-propyl) phosphate

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient:** n-octanol/water(log Pow): 2.59 Measured **Bioconcentration factor (BCF):** 0.8 - 4.6 Cyprinus carpio (Carp) 42 d Measured

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

**Bioaccumulation:** Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

Partition coefficient: n-octanol/water(log Pow): 7.4 Estimated.

#### Methyl ether

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient: n-octanol/water(log Pow):** 0.10 Measured

#### **Propane**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3). **Partition coefficient:** n-octanol/water(log Pow): 2.36 Measured

#### Mobility in soil

#### Diphenylmethane Diisocyanate, isomers and homologues

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### 4,4' -Methylenediphenyl diisocyanate

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### Polymethylenepolyphenylisocyanate, propoxylated glycerin polymer

No relevant data found.

#### Polymethylenepolyphenyl polyisocyanate, polypropyleneglycol copolymer

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

#### **Isobutane**

Potential for mobility in soil is very high (Koc between 0 and 50). **Partition coefficient (Koc):** 35 Estimated.

#### Tris(1-chloro-2-propyl) phosphate

Potential for mobility in soil is slight (Koc between 2000 and 5000). **Partition coefficient (Koc):** 1300 Estimated.

#### Paraffin waxes and Hydrocarbon waxes, chlorinated

Expected to be relatively immobile in soil (Koc > 5000). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process. **Partition coefficient (Koc):** > 5000 Estimated.

#### Methyl ether

Potential for mobility in soil is very high (Koc between 0 and 50). **Partition coefficient (Koc):** 1.29 - 14 Estimated.

#### Propane

Potential for mobility in soil is very high (Koc between 0 and 50). **Partition coefficient (Koc):** 24 - 460 Estimated.

### 13. DISPOSAL CONSIDERATIONS

**Disposal methods:** DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

### **14. TRANSPORT INFORMATION**

| DOT   | Proper shipping name<br>UN number<br>Class<br>Packing group<br>Reportable Quantity  | Aerosols<br>UN 1950<br>2.1<br>MDI  |
|-------|---|--|
| Class | ification for SEA transport (II<br>Proper shipping name<br>UN number<br>Class<br>Packing group<br>Marine pollutant<br>Transport in bulk<br>according to Annex I or II<br>of MARPOL 73/78 and the<br>IBC or IGC Code | MO-IMDG):<br>AEROSOLS<br>UN 1950<br>2.1<br>Paraffin waxes and Hydrocarbon waxes, chlorinated<br>Consult IMO regulations before transporting ocean bulk |
| Class | ification for AIR transport (IA<br>Proper shipping name<br>UN number<br>Class<br>Packing group  | <b>TA/ICAO):</b><br>Aerosols, flammable<br>UN 1950<br>2.1  |

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transportation of the material.

### **15. REGULATORY INFORMATION**

# Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gases, aerosols, liquids, or solids) Gases under pressure Skin corrosion or irritation Serious eye damage or eye irritation Respiratory or skin sensitisation Reproductive toxicity Specific target organ toxicity (single or repeated exposure)

# Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

| Components   | CASRN     |
|--|-----------|
| Diphenylmethane Diisocyanate, isomers and homologues | 9016-87-9 |
| 4,4' -Methylenediphenyl diisocyanate                 | 101-68-8  |

# Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

| Calculated RQ exceeds reasonably attaina | ble upper limit. |                |
|--|------------------|----------------|
| Components                               | CASRN            | RQ (RCRA Code) |
| 4,4' - Methylenediphenyl diisocyanate    | 101-68-8         | 5000 lbs RQ    |

#### Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

| Components   | CASRN    |
|--------------|----------|
| Isobutane    | 75-28-5  |
| Propane      | 74-98-6  |
| Methyl ether | 115-10-6 |

#### California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

#### **United States TSCA Inventory (TSCA)**

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

### **16. OTHER INFORMATION**

#### Hazard Rating System

HMIS

| Health Flammability | Physical<br>Hazard |
|---------------------|--------------------|
|---------------------|--------------------|

|      | 4* |      | 4 |  | 3 |  |
|------|----|------|---|--|---|--|
| <br> |    | <br> |   |  |   |  |

\* = Chronic Effects (See Hazards Identification)

#### Revision

Identification Number: 345372 / A749 / Issue Date: 06/29/2020 / Version: 9.0 Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

#### Legend

| ACGIH     | USA. ACGIH Threshold Limit Values (TLV)  |
|-----------|--|
| С         | Ceiling  |
| CAL PEL   | California permissible exposure limits for chemical contaminants (Title 8, Article |
|           | 107)   |
| Dow IHG   | Dow Industrial Hygiene Guideline   |
| NIOSH REL | USA. NIOSH Recommended Exposure Limits   |
| OSHA Z-1  | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air                |
|           | Contaminants   |
| PEL       | Permissible exposure limit   |
| STEL      | Short-term exposure limit  |
| TWA       | 8-hr TWA   |
| US WEEL   | USA. Workplace Environmental Exposure Levels (WEEL)                                |

#### Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA -Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT -Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA -International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO -International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL -Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI -Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 -Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development: OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS -Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act

(United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

#### Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DDP Specialty Electronic Materials US, LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDS obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.



| Version 1.4                |         | Revision Date 05/22/2019                                | Print Date 05/22/2019 |
|----------------------------|---------|---|-----------------------|
| SECTION 1. PRODUCT AND     | СОМР    | ANY IDENTIFICATION                                      |                       |
| Trade name                 | :       | JM CladStone™ Water & Fire Bloo<br>BLOCK®, TEMPCONTROL® | ck, SOUND & FIRE      |
| Manufacturer or supplier's | details | 3   |                       |
| Company                    |         | Johns Manville  |                       |
| Address                    | :       | P.O. Box 5108   |                       |
|                            |         | Denver, CO USA 80127                                    |                       |
| Telephone                  | :       | +1-303-978-2000   |                       |
| Emergency telephone        | :       | +1-800-424-9300 (CHEMTREC)                              |                       |

| Company<br>Address<br>Telephone<br>Emergency telephone<br>number | <ul> <li>Johns Manville Canada Inc.</li> <li>5301 42 Avenue<br/>Innisfail, AB Canada T4G 1A2</li> <li>+1-303-978-2000</li> <li>+1-800-424-9300 (CHEMTREC)</li> </ul> |
|--|--|
| Prepared by  | : productsafety@jm.com   |

#### **SECTION 2. HAZARDS IDENTIFICATION**

# GHS classification in accordance with 29 CFR 1910.1200 (OSHA HCS 2012) and the Hazardous Products Regulations (WHMIS 2015)

Not a hazardous substance or mixture.

#### **GHS** label elements

Not a hazardous substance or mixture.

#### Other hazards

number

Temporary mechanical abrasion (itching) of skin, eyes and respiratory tract may occur upon exposure to fibers or dust during handling of this product and cannot occur unless there is direct contact.

Trace amounts of formaldehyde may be released when contacted with moisture, including humidity. This release is most prevalent in conditions of high heat and humidity.

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### **Chemical nature**

Mineral wool product

#### Hazardous components

Non-hazardous according to 29 CFR 1910.1200 (OSHA HCS 2012) and the Hazardous Products Regulations (WHMIS 2015), when used as intended.

#### **Relevant ingredients**

| Chemical name                                 | CAS-No.      | Concentration (%) |
|---|--------------|-------------------|
| mineral fibers                                | Not Assigned | >= 90 - <= 100 %  |
| cured urea extended phenol-formaldehyde resin | Not Assigned | >= 0 - <= 5 %     |



| Version 1.4 Revision Date 05/22/2019 | Print Date 05/22/2019 |
|--------------------------------------|-----------------------|

#### SECTION 4. FIRST AID MEASURES

| General advice  | : | Get medical attention if symptoms occur.  |
|---|---|---|
| If inhaled  | : | Move to fresh air.<br>If symptoms persist, call a physician.  |
| In case of skin contact                                     | : | If on skin, rinse well with water.<br>Get medical attention if irritation develops and persists.  |
| In case of eye contact                                      | : | In case of eye contact, remove contact lens and rinse<br>immediately with plenty of water, also under the eyelids, for at<br>least 15 minutes.<br>If eye irritation persists, consult a specialist. |
| If swallowed  | : | If symptoms persist, call a physician.<br>Rinse mouth with water to remove dust or fibers and drink<br>plenty of water to help reduce irritation.   |
| Most important symptoms and effects, both acute and delayed | : | None known.   |

#### **SECTION 5. FIREFIGHTING MEASURES**

| Suitable extinguishing media                  | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
|---|---|---|
| Special protective equipment for firefighters | : | Wear self-contained breathing apparatus for firefighting if necessary.                                  |

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

| Personal precautions,<br>protective equipment and<br>emergency procedures | : | Avoid dust formation.                               |
|---|---|---|
| Methods and materials for containment and cleaning up                     | : | Pick up and arrange disposal without creating dust. |

#### SECTION 7. HANDLING AND STORAGE

| Advice on protection against fire and explosion | : | Provide appropriate exhaust ventilation at places where dust is formed.  |
|---|---|--|
| Advice on safe handling                         | : | For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area. |
| Conditions for safe storage                     | : | Keep in a dry, cool place.   |



| Version 1.4                              |   | Revision Date 05/22/2019                | Print Date 05/22/2019 |
|--|---|---|-----------------------|
| Materials to avoid                       | : | No materials to be especially mentioned | d.                    |
| Further information on storage stability | : | Stable at normal ambient temperature a  | and pressure.         |

#### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

| Components  | CAS-No.      | Value type<br>(Form of<br>exposure) | Control<br>parameters /<br>Permissible<br>concentration | Basis |
|---|--------------|-------------------------------------|---|-------|
| Inert or Nuisance Dust,<br>Particulates Not Otherwise<br>Regulated (PNOR) | Not Assigned | PEL (total dust)                    | 15 mg/m3  | OSHA  |
|   |              | PEL<br>(Respirable<br>fraction)     | 5 mg/m3   | OSHA  |

As a member of the North American Insulation Manufacturers Association (NAIMA), JM subscribes to the NAIMA Product Stewardship Program (NPSP). Under the NPSP, JM recommends that exposures be limited to the voluntary concentration of 1 f/cc TWA. The NPSP also includes work practice and respiratory protection recommendations. For more information, see NAIMA's Health and Safety Reference Library (website: http://insulationinstitute.org/tools-resources/resource-library/health-safety/) to find the Product Stewardship Program Pocket Folder (N052) and other Fact Sheets.

#### Personal protective equipment

| Respiratory protection   | : | No personal respiratory protective equipment normally<br>required.<br>When workers are facing concentrations above the exposure<br>limit they must use appropriate certified respirators. |
|--------------------------|---|---|
| Hand protection          |   |   |
| Remarks                  | : | For prolonged or repeated contact use protective gloves.  |
| Eye protection           | : | Safety glasses  |
| Skin and body protection | : | Long sleeved clothing   |
| Hygiene measures         | : | Handle in accordance with good industrial hygiene and safety practice.  |

#### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| Appearance     | : | solid             |
|----------------|---|-------------------|
| Color          | : | natural color     |
| Odor           | : | not significant   |
| Odor Threshold | : | No data available |



|  | <b>A I</b> | Hoor Bunding mouldton    |                       |
|--|------------|--------------------------|-----------------------|
| Version 1.4                                |            | Revision Date 05/22/2019 | Print Date 05/22/2019 |
| рН   | :          | Not applicable           |                       |
| Melting point/freezing point               | :          | Not applicable           |                       |
| Initial boiling point and boiling range    | :          | Not applicable           |                       |
| Flash point                                | :          | Not applicable           |                       |
| Evaporation rate                           | :          | Not applicable           |                       |
| Flammability (solid, gas)                  | :          | No data available        |                       |
| Upper explosion limit                      | :          | Not applicable           |                       |
| Lower explosion limit                      | :          | Not applicable           |                       |
| Vapour pressure                            | :          | Not applicable           |                       |
| Relative vapour density                    | :          | Not applicable           |                       |
| Relative density                           | :          | No data available        |                       |
| Density                                    | :          | Not applicable           |                       |
| Solubility(ies)<br>Water solubility        | :          | Not applicable           |                       |
| Solubility in other solvents               | :          | No data available        |                       |
| Partition coefficient: n-<br>octanol/water | :          | No data available        |                       |
| Auto-ignition temperature                  | :          | No data available        |                       |
| Thermal decomposition                      | :          | Not applicable           |                       |
| Viscosity<br>Viscosity, dynamic            | :          | Not applicable           |                       |
| Viscosity, kinematic                       | :          | Not applicable           |                       |

### SECTION 10. STABILITY AND REACTIVITY

| Reactivity                         | : | No dangerous reaction known under conditions of normal use.                           |
|------------------------------------|---|---|
| Chemical stability                 | : | Stable under normal conditions.   |
| Possibility of hazardous reactions | : | Stable under recommended storage conditions.<br>No hazards to be specially mentioned. |
| Conditions to avoid                | : | No data available   |



#### Mineral Wool Building Insulation Version 1.4 Revision Date 05/22/2019 Print Date 05/22/2019 **SECTION 11. TOXICOLOGICAL INFORMATION** IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. **OSHA** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen

by NTP.

#### **Further information**

#### Product:

Remarks: Temporary mechanical abrasion (itching) of skin, eyes and respiratory tract may occur upon exposure to fibers or dust during handling of this product and cannot occur unless there is direct contact. Trace amounts of formaldehyde may be released when contacted with moisture, including humidity. This release is most prevalent in conditions of high heat and humidity.

#### **SECTION 12. ECOLOGICAL INFORMATION**

| Due to the properties of the product, a hazard to the environment may not be expected. |
|--|
|  |

#### SECTION 13. DISPOSAL CONSIDERATIONS

#### Disposal methods

Disposal of residual product : Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.



Version 1.4

Revision Date 05/22/2019

Print Date 05/22/2019

#### SECTION 14. TRANSPORT INFORMATION

#### International transport regulations

Land transport USDOT: Not classified as a dangerous good under transport regulations TDG: Not classified as a dangerous good under transport regulations

Sea transport IMDG: Not classified as a dangerous good under transport regulations

Air transport IATA/ICAO: Not classified as a dangerous good under transport regulations

#### SECTION 15. REGULATORY INFORMATION

| TSCA list  |   |              |
|--|---|--------------|
| TSCA - 5(a) Significant New Use Rule List of<br>Chemicals  | : | Not relevant |
| U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpart D) | : | Not relevant |

#### EPCRA - Emergency Planning and Community Right-to-Know Act

#### CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

#### California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

**WARNING:** This product can expose you to chemicals including formaldehyde, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

#### The components of this product are reported in the following inventories:

| TSCA | : | On the inventory, or in compliance with the inventory |
|------|---|---|
| DSL  | : | On the inventory, or in compliance with the inventory |



Version 1.4

Revision Date 05/22/2019

Print Date 05/22/2019

#### **SECTION 16. OTHER INFORMATION**

#### **Further information**

Revision Date : 05/22/2019

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



# MinWool® Curtainwall 40 SOUND AND FIRE INSULATION

#### COMPANY

Johns Manville, a Berkshire Hathaway company, was founded in 1858. Our ownership by Berkshire Hathaway, one of the most admired companies in the world and one of the most financially secure, allows JM to invest for the future. This enables JM to continue delivering the broadest range of insulation products in the industry and offering innovative solutions that meet your needs.

#### DESCRIPTION

MinWool<sup>®</sup> Curtainwall 40 Insulation is made of inorganic fibers derived from basalt, a volcanic rock. Advanced manufacturing technology ensures consistent product quality, with high-fiber density and low shot content for excellent performance. MinWool Curtainwall 40 is available in plain or faced with a (FSP) Scrim Rein-forced Foil Facing vapor retarder on one face. MinWool Curtainwall 40 is inorganic, noncombustible, moisture resistant, non-deteriorating, and will not mildew or support corrosion.

#### USE

MinWool Curtainwall 40 is designed to provide superior fire resistance and ther-mal properties in glass, metal, and masonry curtainwall spandrel systems. The board can be placed between or over framing members, and held in place with mechanical fasteners.

#### **INSTALLATION**

MinWool Curtainwall 40 is easy to install. It is easily cut with a utility knife for con-venient jobsite fabrication. A wide range of thicknesses facilitates optimum material usage.

#### PACKAGING

MinWool Curtainwall 40 is packaged in poly shrink wrap.

#### **DESIGN CONSIDERATIONS**

MinWool Curtainwall 40 may also be used in fire-rated wall assemblies as required by the building code. A fire suppression system may also be needed in conjunction with good construction practices to provide adequate fire protection for the building. The need for and the placement of a vapor retarder in commercial construction depends on many factors. The architect or specifier should evaluate the requirements for each project. Two-hour and three-hour fire-rated assemblies are listed in the UL Fire Resistance Directory.



#### **PERFORMANCE ADVANTAGES**

Excellent Acoustical Performance:

Lightweight, flexible insulation batts are excellent sound absorbers, efficiently reducing sound transmission.

**Fire Safety:** MinWool Curtainwall 40 has a melting point in excess of 2000°F (1093°C). See Applicable Standards for details.

**Noncombustible:** See Applicable Standards for details.

**Durable & Inorganic:** MinWool Curtainwall 40 does not support growth of fungi, nor does it sustain vermin.

#### **ENERGY AND ENVIRONMENT**



#### **Typical Perimeter Fire Containment Joint**



\*GREENGUARD certification is not intended for residential environments. Instead, the certification is intended only for buildings meeting ASHRAE 62.1-2007 commercial building ventilation rates. This certification is proof that the product meets the GREENGUARD Environmental Institute's indoor air quality standards and product emission standards for VOCs.



#### **LIMITATIONS OF USE**

Check applicable building codes.

#### **APPLICABLE STANDARDS & BUILDING APPLICATION\***

| MINWOOL CURTAINWALL 40  |
|---|
| ASTM C612 Classification Type I -IVa  |
| ASTM C665 Corrosivity to Steel, Passes  |
| ASTM C1104 Water Vapor Sorption, <1% By Weight; <.02% by Volume at 120°F (49°C), 95% RH                         |
| ASTM C1338 Fungi Resistant, Passes  |
| ASTM E84 Flame Spread/Smoke Developed, Unfaced 0/0, Faced 25/5 or less  |
| ASTM E96 FSP Facing Permeability, 0.02 Perms, Maximum   |
| ASTM E136 Noncombustible, Passes  |
| UL 723, CAN/ULC-S102, Unfaced 0/0   |
| CAN4-S114-M, Passes   |
| City of New York, MEA-346-90  |
| ICC (International Building Code), All Building Classification Types  |
| *DISCLAIMED: IM products are designed manufactured and tested to strict quality standards in our own facilities |

\*DISCLAIMER: JM products are designed, manufactured and tested to strict quality standards in our own facilities.

This, along with third-party auditing, is your assurance that this product delivers consistent high quality.

#### **STANDARD SIZES**

|         | DENSITY ASTM C612 |             |                     |                |          |           | THICK          | NESS*    |
|---------|-------------------|-------------|---------------------|----------------|----------|-----------|----------------|----------|
| PRODUCT | NOMINAL           | ACTUAL      | <b>R-VALUE/inch</b> | RSI-VALUE/25mm | WIDTH    | LENGTH    | UNFACED        | FACED    |
|         | pcf (kg/m³)       | pcf (kg/m³) | (hr•ft²•°F/Btu)     | (°K•m²/W)      | in (mm)  | in (mm)   | in (mm)        | in (mm)  |
| CW4     | 4.0 (64)          | 3.0 (48)    | 4.0                 | 0.70           | 24 (610) | 48 (1219) | 1.5–4 (38–102) | >3 (>76) |

\*Thickness range available in ½" (13mm) increments. Custom lengths, widths and thicknesses are also available. R-value is determined in accordance with C518.

#### ACOUSTICAL PERFORMANCE ASTM C423 Test Method

| PRODUCT | THICKNESS |  |      | SOUND A | BSORPTION COEF | FICIENTS |      |      |
|---------|-----------|--|------|---------|----------------|----------|------|------|
| PRODUCI | INICKNESS | 1/3 Octave Band Center Frequencies, Hz |      |         |                |          |      |      |
|         | in (mm)   | 125                                    | 250  | 500     | 1000           | 2000     | 4000 | NRC  |
|         | 1½ (40)   | 0.13                                   | 0.48 | 1.02    | 1.08           | 1.02     | 1.01 | 0.90 |
| C\M/4   | 2 (50)    | 0.20                                   | 0.61 | 1.07    | 1.06           | 1.04     | 1.07 | 0.95 |
| 6444    | 4 (100)   | 0.88                                   | 1.14 | 1.17    | 1.08           | 1.06     | 1.10 | 1.10 |
|         | 6 (150)   | 1.32                                   | 1.14 | 1.11    | 1.09           | 1.06     | 1.07 | 1.10 |



Visit our website at www.JM.com or call 800-654-3103 | Building Insulation Division P.O. Box 5108 | Denver, CO 80217-5108 Technical specifications as shown in this literature are intended to be used as general guidelines only. Please refer to the Safety Data Sheet and product label prior to using this product. The physical and chemical properties of mineral wool insulation listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Any references to numerical flame spread or smoke developed ratings are not intended to reflect hazards presented by these or any other materials under ac tual fire conditions. Check with the sales office ne arest yo u for current in formation. All Johns Manville products are sold subject to Johns Manville's standard Terms and Conditions, which includes a Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville standard Terms and Conditions or for information on other Johns Manville insulation and systems, visit www.jm.com/terms-conditions or call 800-654-3103.



PROFILE OF INNOVATION

# SCHLUTER®-KERDI-BOARD



SUBSTRATE, BUILDING PANEL, BONDED WATERPROOFING

#### **Application and Function**



12.1 Schluter<sup>®</sup>-KERDI-BOARD

**12.1** Schluter®-KERDI-BOARD is a multifunctional tile substrate and building panel, which can also be used for creating bonded waterproofing assemblies with tile coverings.

It consists of an extruded polystyrene foam panel, with a special reinforcement material on both sides and fleece webbing for effective anchoring in thin-set mortar.

With the available panel thicknesses of 3/16", 3/8", 1/2", 5/8", 3/4", 1", 1-1/2", and 2" (5, 9, 12.5, 15, 19, 25, 38, and 50 mm), KERDI-BOARD covers a broad range of application areas for creating flat, level, plumb, square, and dimensionally stable substrates for the installation of ceramic and natural stone tiles. With suitable preparation of the abutting seams and joint areas, the panel may be used for bonded waterproofing assemblies.

KERDI-BOARD is suitable for interior uses such as: creating tile substrates on masonry walls, wood or metal framing, and other finished wall surfaces; creating straight or curved partition walls; creating straight or curved bathtub and shower surrounds; concealing pipes and columns; as well as creating bathtub platforms, vanities, storage shelves, countertops, and various other bathroom structures. KERDI-BOARD is not intended for exterior applications.

The boards are simply cut to size with a utility knife. The gridlines, which are printed on the surface, are helpful for neat and quick cuts and installation.

KERDI-BOARD can be fully adhered or spotbonded in existing or masonry wall areas with





thin-set mortar. If necessary, the material may be secured with additional wall anchors. In the case of stud framing, KERDI-BOARD is attached with screws and washers from the matching hardware system.

Tiles can be installed directly over KERDI-BOARD using the thin-set method.

L-shaped and U-shaped KERDI-BOARD panels are available for creating pipe and column coverings, and grooved panels are available for creating curved elements. Schluter-Systems also offers profiles and attachment hardware for wall connections and finishing edges, as well as matching wall anchors and screws.

#### 12.1 Schluter®-KERDI-BOARD-SB/-SC

are prefabricated substrates, made of KERDI-BOARD, which integrate with the Schluter-Shower System. The substrates are waterproof and ready for tile, leaving only sealing of joints and corners to complete waterproofing. The KERDI-BOARD-SB shower bench is available in triangular and rectangular configurations in the followings sizes (width x depth x height). The triangular benches are  $16" \times 16" \times 20"$ 

(41 x 41 x 51 cm) and 24" x 24" x 20" (61 x 61 x 51 cm). Rectangular benches are 38" x 16" x 20" (97 x 41 x 51 cm) and 48" x 11-1/2" x 20" (122 x 29 x 51 cm). The KERDI-BOARD-SC shower curb can be used in conjunction with any shower base. Curb dimensions are 38" x 6" x 4-1/2" (97 x 15 x 11.5 cm) and 48" x 6" x 4-1/2" (122 x 15 x 11.5 cm).

**Schluter®-KERDI-BOARD-SN** is a prefabricated shower niche made of KERDI-BOARD that can be installed in both KERDI and KERDI-BOARD wall assemblies. The shower niche features a 1/2" (12.5 mm) -thick by 2" (50 mm) -wide integrated bonding flange and is available in  $12" \times 6"$  ( $30 cm \times 15 cm$ ),  $12" \times 12"$  ( $30 cm \times 30 cm$ ),  $12" \times 20"$  ( $30 cm \times 51 cm$ ), and  $12" \times 28"$  (30 cm or 71 cm) sizes.



Schluter®-KERDI-BOARD-KIT combines all of the necessary components to waterproof the walls of your bathtub and acrylic shower base using waterproof building panels. The

kit includes  $\frac{1}{2}$ " x 48" x 38" (1.25 cm x 122 cm x 97 cm) KERDI-BOARD waterproofing panels, KERDI-BAND, pipe and mixing valve seals, screws and washers, plus 290 ml of KERDI-FIX sealant in bright white. The KERDI-BOARD-KIT provides enough KERDI-BOARD to cover up to 101 ft<sup>2</sup> (9.4 m<sup>2</sup>) of wall area.

# Material Properties and Areas of Application

KERDI-BOARD is made from extruded polystyrene foam, with a cement-free reinforcement layer laminated to both sides and an anchoring fleece webbing. The surface of the board has gridlines consisting of 3/8" x 3/8" (10 mm x 10 mm) squares printed on one side.

KERDI-BOARD is waterproof and vaporretardant and can withstand all chemical stresses that typically occur in conjunction with ceramic tile coverings. KERDI-BOARD may be used in bonded waterproofing assemblies where required.

KERDI-BOARD is completely flat and will not warp, even with one-sided exposure to temperature and moisture fluctuations. It will not rot or decay.

KERDI-BOARD can be used in a multitude of interior applications. KERDI-BOARD is not intended for exterior applications. See the Limitations section for application clarifications. In special cases, the suitability of the material must be verified based on the anticipated chemical and mechanical stresses. The information provided below is intended as general guidelines.

Structures on which KERDI-BOARD is to be installed must be stable and meet any other project-specific requirements.

Select a suitable material thickness if using KERDI-BOARD for the construction of freestanding partition walls, shelving, or similar structures, and use reinforcement profiles as necessary. Arrange supports made of KERDI-BOARD at regular intervals consistent with conventional building practices.

Select the material thickness and installation method depending on the evenness of the substrate. KERDI-BOARD can be spotbonded to walls to correct substrate variations or fully embedded in thin-set mortar where walls are sufficiently even and plumb.

KERDI-BOARD should be stored flat. In case of outdoor storage, protect the material from direct sunlight and weather exposure.

#### 12.1 Schluter<sup>®</sup>-KERDI-BOARD

| Property                     | Method                     | Value  |
|------------------------------|----------------------------|--|
| Water vapor permeance        | ASTM E961                  | 0.36 perms - 1/2" (12.5 mm)  |
| Thermal resistance (R-value) | ASTM C518                  | R 9.1 – 2" (50 mm)<br>R 2.2 – 1/2" (12.5 mm)<br>R 0.9 – 3/16" (5 mm) |
| Service temperature range    |                            | -58°F to 158°F (-50°C to 70°C)                                       |
| Flame spread/smoke developed | ASTM E84<br>CAN/ULC S102.2 | Pass <sup>2</sup><br>Pass <sup>3</sup>                               |
| Thermal barrier evaluation   | NFPA 286                   | Pass <sup>2,4</sup>  |

<sup>1</sup>Using the desiccant method at 100°F (38°C) and 90% RH

Per International Building Code Requirements, contact Schluter®-Systems for more information

<sup>a</sup>Specific building categories, contact Schluter<sup>®</sup>-Systems for more information <sup>4</sup>Porcelain tile used as thermal barrier over 1/2<sup>a</sup> (*12.5 mm*) -thick KERDI-BOARD on wood framing

#### Installation

#### Fully embedded KERDI-BOARD

Any board thickness suitable

- 1. Remove all surface contaminants from the substrate that may weaken the bond.
- Apply thin-set mortar to the substrate and/ or onto KERDI-BOARD with a notched trowel. The mortar must bond to the substrate and mechanically anchor the fleece on the KERDI-BOARD surface.
- 3. Apply the panels to the wall and firmly press them in place to ensure full coverage.
- 4. Tightly abut the individual panels and align them appropriately.
- 5. The tiles can be installed immediately using SET, ALL-SET, FAST-SET or unmodified thin-set mortar. Choose a notched trowel to match the tile format, and back-butter the tiles, if necessary, to attain full coverage.

**Note:** If the bond between the thin-set mortar and substrate is questionable, additional mechanical attachment with the KERDI-BOARD-ZSD anchors or KERDI-BOARD-ZT washers and corresponding screws is required. Fasteners are installed after the thin-set mortar has hardened.

**Note:** See section "Waterproofing" on the use of KERDI-BOARD in bonded waterproofing assemblies.

#### Spot-bonded KERDI-BOARD

Minimum board thickness = 3/8" (9 mm)

- 1. Remove all surface contaminants from the substrate that may weaken the bond.
- 2. Place spots of thin-set mortar on the KERDI-BOARD panel or substrate in intervals of approx. 12" (30 cm). The mortar must bond to the substrate and mechanically anchor the fleece on the KERDI-BOARD surface.

- 3. Apply the panels to the wall, firmly press them in place, and align them with a straight-edge or level.
- 4. The tiles can be installed immediately using SET, ALL-SET, FAST-SET or unmodified thin-set mortar. Choose a notched trowel to match the tile format, and back-butter the tiles, if necessary, to attain full coverage.

**Note:** If the bond between the thin-set mortar and substrate is questionable, additional mechanical attachment with the KERDI-BOARD-ZSD anchors or KERDI-BOARD-ZT washers and corresponding screws is required. Fastener locations must coincide with mortar spots. This may be ensured by making holes in the KERDI-BOARD at the desired fastener locations prior to applying mortar spots. Fasteners are installed after the thin-set mortar has hardened.

**Note:** See section "Waterproofing" on the use of KERDI-BOARD in bonded waterproofing assemblies.

# Use of KERDI-BOARD on wood or metal framing

Minimum board thickness = 1/2" (12.5 mm) for studs spaced at 16" (40.6 cm) o.c.; 3/4" (19 mm) for studs spaced at 24" (61.0 cm) o.c.

- 1. KERDI-BOARD can be mounted vertically or horizontally on wood or metal framing with appropriate screws (i.e., coarse thread wood screw for wood studs and self-tapping for metal studs) and corresponding KERDI-BOARD-ZT washers.
- The selected screws must be of sufficient length to reach a depth of at least 3/4" (20 mm) in wood studs and at least 3/8" (10 mm) in metal studs. The maximum allowable on-center fastener spacing is 12" (30 cm) for walls and 6" (15 cm) for ceilings. Screws may be placed between



adjacent panels such that the washers fasten both panel edges.

3. The tiles can be installed immediately using SET, ALL-SET, FAST-SET or unmodified thin-set mortar. Choose a notched trowel to match the tile format, and back-butter the tiles, if necessary, to attain full coverage.

**Note:** See section "Waterproofing" on the use of KERDI-BOARD in bonded waterproofing assemblies.

# Use of KERDI-BOARD in non-bearing partition wall systems

Minimum board thickness = 2" (50 mm)

- 1. KERDI-BOARD is adhered to the permanent wall in such a way as to provide lateral stability. This can be achieved by sandwiching the panel between adjacent KERDI-BOARD panels, fixed building elements, etc. As an alternative, the KERDI-BOARD-ZW angle profile or KERDI-BOARD-ZB U-shaped profile may be screw-mounted to the wall prior to partition installation.
- 2. Open-ended partition walls can be further stabilized with the corresponding KERDI-BOARD-ZA/-ZB U-shaped profiles. If you plan to screw finishing hardware (e.g., shower door hinges) to the U-shaped profile, adhere the matching KERDI-BOARD-ZFP flat plastic profile to the back of the U-shaped profile to improve the fastening of the screws. U-shaped profiles may also be used for connections in the floor and ceiling areas.
- 3. If multiple KERDI-BOARD panels are required to create the desired partition, the panels must be arranged horizontally with the joints sealed using thin-set mortar or KERDI-FIX adhesive. The KERDI-BOARD-ZW angle profile or KERDI-BOARD-ZB U-shaped profile may be included in the joints for improved stability.
- 4. Such partition walls are not to be considered load-bearing structural walls. As a rule, use the 2" (50 mm) panels for these elements. Panels from a thickness of 3/4" (19 mm) may be used for building shelving. Again, this must be evaluated in accordance with the building specifications.
- 5. The tiles can be installed using SET, ALL-SET, FAST-SET or unmodified thin-set mortar once the bonding materials used to construct the partition have cured sufficiently to stabilize the assembly. Choose a notched trowel to match the tile format, and back-butter the tiles, if necessary, to attain full coverage.

**Note:** See section "Waterproofing" on the use of KERDI-BOARD in bonded waterproofing assemblies.

#### Countertops made of KERDI-BOARD

Minimum board thickness = 1-1/2" (38 mm)

- KERDI-BOARD is adhered directly to base cabinets using the KERDI-FIX adhesive. All joints of KERDI-BOARD panels must be sealed with KERDI-FIX or thin-set mortar.
- The backsplash may consist of KERDI-BOARD or other appropriate tile substrate. Seal the countertop/backsplash transition with KERDI-BAND using SET, ALL-SET, FAST-SET or unmodified thin-set mortar.
- 3. Countertop edges may be finished with the KERDI-BOARD-ZC brushed stainless steel U-profile and corresponding QUADEC or RONDEC, RONDEC-CT, or RONDEC-STEP profiles.
- a. Apply KERDI-FIX to the inside vertical surface of the KERDI-BOARD-ZC profile and slide the profile over the edge of the KERDI-BOARD, pushing it tightly against the panel. The corresponding QUADEC or RONDEC profiles are installed with SET, ALL-SET, FAST-SET or unmodified thin-set mortar in conjunction with the tile.
- b. RONDEC-CT and RONDEC-STEP profiles are installed with SET, ALL-SET, FAST-SET or unmodified thin-set mortar in conjunction with the tile.
- 4. The countertop/backsplash transition may be finished with one of the DILEX coveshaped profiles. Various materials and finishes are available to match the sink rail profiles above.
- 5. Sinks may be mounted on top of the tile or tiled-under using RONDEC or QUADEC profiles and corresponding sink corners.
- 6. The tiles can be installed immediately using SET, ALL-SET, FAST-SET or unmodified thin-set mortar. Choose a notched trowel to match the tile format, and back-butter the tiles, if necessary, to attain full coverage.

**Note:** Please refer to the Walls and Countertops Profiles data sheet for additional information on profiles, including installation instructions.

A bearing plate must be provided for fastening fixtures (e.g., faucet, soap dispenser, etc.) in tiled-under sink applications to distribute the pressure of the fixture hardware on the underside of the assembly. This may be performed by routing a section from the top of the KERDI-BOARD in the area where the fixtures are to be placed. Apply a corresponding piece of ceramic tile with thin-set mortar in the resulting space flush with the surface of the KERDI-BOARD. In general, it is recommended that the tile be at least 5/16" (8 mm) -thick and extend approximately 1-1/2" (38 mm) beyond the fixture hardware on all sides. Once the countertop is tiled and grouted, holes may be drilled through the assembly to fit the fixture-mounting studs. Additional material may be removed from the underside of the KERDI-BOARD to allow installation of the fixture hardware.

# Pipe and column coverings made of KERDI-BOARD

- 1. The KERDI-BOARD-E/-U L-shaped and U-shaped panels allow for quick and easy covering of pipes and columns.
- 2. The panels feature V-shaped grooves. They are supplied flat, which makes them easy to cut to the required size.
- 3. Apply thin-set mortar, KERDI-FIX adhesive, or the KERDI-BOARD-ZDK double-sided adhesive tape to the V-shaped grooves. Fold the panels prior to installation.
- Adhere the edges of the L-shaped or U-shaped panels to the existing walls using either thin-set mortar or KERDI-FIX. If required, mount the KERDI-BOARD-ZW angle profile on the wall area first for reinforcement.
- 5. The tiles can be installed immediately using SET, ALL-SET, FAST-SET or unmodified thin-set mortar. Choose a notched trowel to match the tile format, and back-butter the tiles, if necessary, to attain full coverage.

**Note:** As an alternative, you can also cut a single U-shaped panel into two L-shaped panels with shorter legs.

**Note:** See section "Waterproofing" on the use of KERDI-BOARD in bonded waterproofing assemblies.

# Curved wall areas made of KERDI-BOARD

- 1. The KERDI-BOARD-V panels feature grooves to allow for quick and easy creation of curved elements.
- 2. First, cut the panels to the required size. If a larger expanse of panels is required, several panels can be connected along the edges with thin-set mortar, KERDI-FIX adhesive, or the KERDI-BOARD-ZDK double-sided adhesive tape.
- 3. If the grooved surface points toward the inside, it is recommended that the

grooves be filled with thin-set mortar prior to panel installation.

- 4. Outward-facing grooves should be filled with thin-set mortar prior to or during the tile installation.
- 5. The tiles can be installed using SET, ALL-SET, FAST-SET or unmodified thin-set mortar once the bonding materials used to construct the element have cured sufficiently to stabilize the assembly. Choose a notched trowel to match the tile format, and back-butter the tiles, if necessary, to attain full coverage Note: See section "Waterproofing" on the use of KEPDL ROAPD in bonded

the use of KERDI-BOARD in bonded waterproofing assemblies.

#### **KERDI-BOARD-SB** bench

- 1. Apply SET, ALL-SET, FAST-SET or unmodified thin-set mortar to the floor and walls using a 1/4" x 3/8" (6 mm x 10 mm) square- or U-notched trowel.
- 2. Press the bench firmly into place and check the underside and backsides to ensure that full coverage and support are achieved. Verify that the slope on the surface of the bench is directed toward the shower base.
- Install KERDI-BAND and KERDI-KERECK and KERDI-KERS-B (for triangular bench) to cover all seams and corners, ensuring a minimum 2" (50 mm) overlap, and work the membrane into the mortar to achieve full coverage and remove air pockets.

#### **KERDI-BOARD-SC** curb

- 1. Apply SET, ALL-SET, FAST-SET or unmodified thin-set mortar to the floor and to the edge of the shower base and walls using a 1/4" x 3/8" (6 mm x 10 mm) square- or U-notched trowel.
- 2. Press the curb or ramp firmly into place. Check the underside of the curb or ramp to ensure that full coverage and support is achieved.
- 3. Seal the curb to the base and walls using KERDI-KERECK and KERDI-BAND.

#### **KERDI-BOARD-SN** shower niche

- 1. Determine desired location and trace around the outside of the KERDI-BOARD-SN flange, making sure the lines are level and plumb. Cut and remove the wallboard such that the niche will be supported on both sides by the studs or other wall framing.
- 2. Insert the niche and fasten to the studs. When installing adjacent to KERDI-

BOARD, use wood or metal screws and KERDI-BOARD-ZT washers, placing the fasteners along the seam between the KERDI-BOARD and the niche. When installing adjacent to gypsum board or other tile backers (e.g., CBU), use wood or metal screws only (i.e., no washers), placing fasteners approximately 1/4" (6 mm) from the edges of the niche. Fasten all corners and limit fastener spacing to 12" (305 mm) o.c.

- 3. Connections between the niche and walls are made using KERDI-BAND or KERDI. When installed adjacent to KERDI-BOARD, seams are most easily constructed using KERDI-BAND. When installed adjacent to gypsum board or other tile backers (e.g., CBU), seams are most easily constructed by continuous application of the KERDI membrane. The membrane is applied up to the niche opening. Once the niche is sealed to the wall assembly, tile can be installed immediately using SET, ALL-SET, FAST-SET or unmodified thin-set mortar.
- 4. When using the prefabricated shelf, determine the desired height of the shelf and mark with a level line. Set tile using SET, ALL-SET, FAST-SET or unmodified thin-set mortar up to that line on the back and sides of the niche. Butter the sides and back of the shelf with SET, ALL-SET, FAST-SET or unmodified thin-set mortar and solidly embed it in the niche, resting on the previously installed tile. The shelf may be raised at the back to create a slope, or the tile may be set on a slope during installation, to prevent water from pooling in the finished application. Continue setting tile using SET, ALL-SET, FAST-SET or unmodified thin-set mortar.

#### **KERDI-BOARD-KIT**

 KERDI-BOARD can be mounted vertically or horizontally on framing with appropriate screws (e.g., KERDI-BOARD-ZS coarse thread screws for wood studs [included] and corresponding KERDI-BOARD-ZT washers [included].) If applying over metal studs, use self-tapping screws.

Minimum board thickness = 1/2" (12.5 *mm*) for studs spaced at 16" (40.6 *cm*) o.c.; 3/4" (19 *mm*) for studs spaced at 24" (61.0 cm) o.c.. Screws must reach a depth of at least 3/4" (20 *mm*) in wood studs. For metal studs, screws must reach a depth of at least 3/8" (10 *mm*).

2. Leave a 1/4" (6 mm)-gap between the bottom edge of KERDI-BOARD and the top of the tub or acrylic shower pan. The back of the KERDI-BOARD can be routered to cover the tub/pan flange.

- 3. The vertical edges of each panel should be positioned over the center of a stud or other solid backing. If necessary, KERDI-BOARD panels can be cut easily with a utility knife and straight edge. Screws may be placed between adjacent panels such that the washers fasten both panel edges. The maximum allowable on-center fastener spacing is 12" (30 cm) for walls and 6" (15 cm) for ceilings.
- 4. Place painter's tape at inside corners of the tub deck or shower base for protection.

Apply a minimum of 5" (125 mm) of Schluter SET<sup>TM</sup>, Schluter ALL-SET<sup>TM</sup>, Schluter FAST-SET<sup>TM</sup>, or unmodified thinset mortar to the KERDI-BOARD using the KERDI-TROWEL or a 1/4" x 3/16" (6 mm x 5 mm) V-notched trowel. Use KERDI-FIX to completely fill the 1/4" (6 mm)-wide gap between the KERDI-BOARD and tub. **Note:** When KERDI-BOARD is installed above the tub flange, apply KERDI-FIX to the tub flange and spread using a smallnotched trowel.

- 5. Apply KERDI-BAND waterproofing strips. Solidly embed the membrane in the mortar and KERDI-FIX to ensure full coverage and remove air pockets.
- KERDI-BOARD joints, corners, and fastener penetrations are sealed with KERDI-BAND, ensuring a minimum 2" (50 mm) overlap. Any protrusions through the panel (e.g., mixing valve, shower head, etc.) must be sealed with KERDI-SEAL-PS/-MV, or KERDI-FIX.

#### Waterproofing with KERDI-BOARD

Where waterproofing is desired, the joints and corners of KERDI-BOARD in the area must be sealed with KERDI-BAND using SET, ALL-SET, FAST-SET or unmodified thin-set mortar. The KERDI-BAND must overlap panel joints by at least 2" (50 mm).

KERDI-BAND is also suitable for sealing connections to fixed building elements such as door and window frames. Where these surfaces will not accept a bond to SET, ALL-SET, FAST-SET or unmodified thin-set mortar, use KERDI-FIX to bond KERDI-BAND.

Separate KERDI-BOARD above the existing movement joints and structural joints and cover the joints with KERDI-FLEX using SET, ALL-SET, FAST-SET or unmodified thin-set mortar, ensuring a minimum 2" (50 mm) overlap.



Fastener penetrations may be sealed with KERDI-BAND using SET, ALL-SET, FAST-SET or unmodified thin-set mortar. Please refer to the Schluter-Shower System Installation Handbook for guidelines on waterproofing showers, steam showers, and tub surrounds.

#### Limitations

- KERDI-BOARD not for use in exterior applications.
- Certain glass tiles may not be compatible with bonded waterproofing applications and/ or may require special setting materials. Consult glass tile manufacturer and Schluter- Systems for more information.
- Certain moisture-sensitive stones, e.g., green marble, or resin-backed tiles may not be appropriate for use in wet areas or may require special setting materials. Consult stone supplier and Schluter-Systems for more information.

**Note:** If installing bathroom fixtures such as grab bars in showers, wall-mounted toilets, or other heavy objects, the fixtures must be anchored in the structure or solid blocking behind KERDI-BOARD.

**Note:** Reinforcement may be required behind the entire footprint of the object. For example, place solid blocking behind the base of a wall-mounted toilet installed over KERDI-BOARD on stud framing.

#### **Product Item Numbers**



| Item No.                  | Width                    | Lenath               | Thickness             |
|---------------------------|--------------------------|----------------------|-----------------------|
| Panel dimension: 48" x 32 | " – 122 cm x 81 cm       |                      |                       |
| KB 12 1220 812            | 48" – 122 cm             | 32" – 81 cm          | 1/2" – 12.5 mm        |
| Panel dimension: 48" x 64 | " – 122 cm x 162.5 cm    |                      |                       |
| KB 5 1220 1625            | 48" – <i>122 cm</i>      | 64" – 162.5 cm       | 3/16" – 5 mm          |
| KB 9 1220 1625            | 48" – <i>122 cm</i>      | 64" – 162.5 cm       | 3/8" – 9 mm           |
| KB 12 1220 1625           | 48" – <i>122 cm</i>      | 64" – 162.5 cm       | 1/2" – <i>12.5 mm</i> |
| Panel dimension: 48" x 96 | " – 122 cm x 244 cm      |                      |                       |
| KB 5 1220 2440            | 48" – <i>122 cm</i>      | 96" <i>– 244 cm</i>  | 3/16" – 5 mm          |
| KB 9 1220 2440            | 48" – <i>122 cm</i>      | 96" <i>– 244 cm</i>  | 3/8" – 9 mm           |
| KB 12 1220 2440           | 48" – <i>122 cm</i>      | 96" <i>– 244 cm</i>  | 1/2" – <i>12.5 mm</i> |
| KB 15 1220 2440           | 48" – <i>122 cm</i>      | 96" <i>– 244 cm</i>  | 5/8" – 15 mm          |
| Panel dimension: 24-1/2"  | x 96" – 62.5 cm x 244 cm |                      |                       |
| KB 19 625 2440            | 24-1/2" – 62.5 cm        | 96" <i>– 244 cm</i>  | 3/4" – 19 mm          |
| KB 25 625 2440            | 24-1/2" – 62.5 cm        | 96" <i>– 244 cm</i>  | 1" <i>– 25 mm</i>     |
| KB 38 625 2440            | 24-1/2" – 62.5 cm        | 96" <i>– 244 cm</i>  | 1-1/2" – 38 mm        |
| KB 50 625 2440            | 24-1/2" – 62.5 cm        | 96" <i>– 244 cm</i>  | 2" – 50 mm            |
| Panel dimension: 48" x 12 | 0" – 122 cm x 305 cm     |                      |                       |
| KB 15 1220 3050           | 48" – 122 cm             | 120" – <i>305 cm</i> | 5/8" – 15 mm          |



| Schluter®-KERDI-B | Waterproof building panel |                     |                   |
|-------------------|---------------------------|---------------------|-------------------|
| Item No.          | Width                     | Length              | Thickness         |
| KB 19 625 2440 V  | 24-1/2" – 62.5 cm         | 96" – 244 cm        | 3/4" – 19 mm      |
| KB 25 625 2440 V  | 24-1/2" – 62.5 cm         | 96" <i>– 244 cm</i> | 1" <i>– 25 mm</i> |
| KB 38 625 2440 V  | 24-1/2" – 62.5 cm         | 96" – 244 cm        | 1-1/2" – 38 mm    |
| KB 50 625 2440 V  | 24-1/2" – 62.5 cm         | 96" <i>– 244 cm</i> | 2" – 50 mm        |





| Schluter <sup>®</sup> -KERDI-B | Waterproof building panel |                     |                   |
|--------------------------------|---------------------------|---------------------|-------------------|
| Item No.                       | Width                     | Length              | Thickness         |
| KB 19 625 2440 E               | 24-1/2" – 62.5 cm         | 96" <i>– 244 cm</i> | 3/4" – 19 mm      |
| KB 25 625 2440 E               | 24-1/2" – 62.5 cm         | 96" <i>– 244 cm</i> | 1" <i>– 25 mm</i> |



| Schluter®-KERDI-BOARD-U Waterproof building panel |   |                     |              |
|---|---|---------------------|--------------|
| Item No.  | Width   | Length              | Thickness    |
| KB 19 625 2440 U20                                | 8-1/4" x 7-7/8" x 8-1/4" = 24-1/2" - 21 x 20 x 21 cm = 62 cm      | 96" <i>– 244 cm</i> | 3/4" – 19 mm |
| KB 19 625 2440 U30                                | 6-5/16" x 11-13/16" x 6-5/16" = 24-1/2" – 16 x 30 x 16 cm = 62 cm | 96" – 244 cm        | 3/4" – 19 mm |



| Schluter®-KERDI-BOARD-SN |                                    |                       | Shower niche |
|--------------------------|------------------------------------|-----------------------|--------------|
| Item No.                 | Size                               | Depth                 | Shelf        |
| KB 12 SN 305 152 A       | 12" x 6" – 305 mm x 152 mm         | 3-1/2" – 89 mm        | -            |
| KB 12 SN 305 305 A       | 12" x 12" – 305 mm x 305 mm        | 3-1/2" – 89 mm        | -            |
| KB 12 SN 305 508 A1      | 12" x 20" – <i>305 mm x 508 mm</i> | 3-1/2" <i>– 89 mm</i> | 1            |
| KB 12 SN 305 711 A1      | 12" x 28" – 305 mm x 711 mm        | 3-1/2" <i>– 89 mm</i> | 1            |



| 12.1 Schluter <sup>®</sup> -KERDI-BOARD-SC Prefa |                  |                     | Prefabricated curb |
|--|------------------|---------------------|--------------------|
| Item No.   | Width            | Length              | Height             |
| KBSC 115 150 970                                 | 4-1/2" – 11.5 cm | 48" – <i>122 cm</i> | 6" - <i>15 cm</i>  |
| KBSC 115 150 1220                                | 4-1/2" – 11.5 cm | 38" – 97 cm         | 6" - <i>15 cm</i>  |



| 12.1 Schluter®-KERDI-BOARD-SB Prefabrica |                    |                    |             | Prefabricated bench |
|--|--------------------|--------------------|-------------|---------------------|
| Item No.                                 | Width              | Length             | Height      | Shape               |
| KBSB 410 TA                              | 16" <i>– 41 cm</i> | 16" <i>– 41 cm</i> | 20" - 51 cm | Triangular          |
| KBSB 610 TA                              | 24" – 61 cm        | 24" – 61 cm        | 20" - 51 cm | Triangular          |
| KBSB 290 970 RA                          | 38" – 97 cm        | 11-1/2" – 29 cm    | 20" - 51 cm | Rectangular         |
| KBSB 410 1220 RA                         | 48" – 122 cm       | 16" – <i>41 cm</i> | 20" - 51 cm | Rectangular         |



| Schluter®-KERDI-BOARD-KIT |   |          |  |  |
|---------------------------|---|----------|--|--|
| Includes                  | Description   | Quantity |  |  |
| 1 KERDI-BOARD             | Waterproofing building panel 1/2" x 48" x 38" (1.25 cm x 122 cm x 97 cm) = 101 ft² (9.4 m²) | 8        |  |  |
| KERDI-BAND                | Waterproofing strip 5" x 98' 5" (125 mm x 30 m)   | 1        |  |  |
| 8 KERDI-SEAL-PS           | Pipe seal 1/2" (12.5 mm), 3/4" (20 mm)  | 2        |  |  |
| 4 KERDI-SEAL-MV           | Mixing valve seal 4-1/2" (114 mm)   | 1        |  |  |
| 5 KERDI-BOARD-ZT/-ZS      | Screws and washers  | 140      |  |  |
| 6 KERDI-FIX               | Sealant 9.8 oz (290 ml)   | 2        |  |  |





| Schluter <sup>®</sup> -KERDI-BOARD-ZW |                               |  |  |
|---------------------------------------|-------------------------------|--|--|
| Item No.                              | Description                   |  |  |
| Length supplied: 6"- 15 cm            |                               |  |  |
| KB ZW 30 E/15                         | Stainless steel angle profile |  |  |
| Length supplied: 8' 2-1/2" - 2.50 m   |                               |  |  |
| KB ZW 30 E                            | Stainless steel angle profile |  |  |



| Schluter <sup>®</sup> -KERDI-BOARD-ZC |  |                       |  |
|---------------------------------------|--|-----------------------|--|
| Item No.                              | Description  | Size                  |  |
| Length supplied: 8' 2-1/2" - 2.50 m   |  |                       |  |
| KB ZC 38 EB                           | U-shaped brushed stainless steel profile with 1 perforated anchoring leg | 1-1/2" <i>– 38 mm</i> |  |
| KB ZC 50 EB                           | U-shaped brushed stainless steel profile with 1 perforated anchoring leg | 2" – 50 mm            |  |



| Schluter <sup>®</sup> -KERDI-BOARD-ZC/E |   |                |  |
|---|---|----------------|--|
| Item No.                                | Description   | Size           |  |
| E/KB ZC 38 EB                           | Brushed stainless steel outside corner piece for ZC | 1-1/2" – 38 mm |  |
| E/KB ZC 50 EB                           | Brushed stainless steel outside corner piece for ZC | 2" – 50 mm     |  |
|   |   |                |  |



| Schluter®-KERDI-BOARD-ZA   |   |                       |  |
|----------------------------|---|-----------------------|--|
| Item No.                   | Description   | Size                  |  |
| Length supplied: 8' 2-1/2" | — 2.50 m  |                       |  |
| KB ZA 19 EB                | U-shaped brushed stainless steel profile with 2 perforated anchoring legs | 3/4" – 19 mm          |  |
| KB ZA 25 EB                | U-shaped brushed stainless steel profile with 2 perforated anchoring legs | 1" – <i>25 mm</i>     |  |
| KB ZA 38 EB                | U-shaped brushed stainless steel profile with 2 perforated anchoring legs | 1-1/2" <i>– 38 mm</i> |  |
| KB ZA 50 EB                | U-shaped brushed stainless steel profile with 2 perforated anchoring legs | 2" – <i>50 mm</i>     |  |

| Schluter <sup>®</sup> -KERDI-BC | Schluter <sup>®</sup> -KERDI-BOARD-ZA/E             |                |  |
|---------------------------------|---|----------------|--|
| Item No.                        | Description   | Size           |  |
| E/KB ZA 38 EB                   | Brushed stainless steel outside corner piece for ZA | 1-1/2" – 38 mm |  |
| E/KB ZA 50 EB                   | Brushed stainless steel outside corner piece for ZA | 2" – 50 mm     |  |

| Schluter®-KERDI-BO         | ARD-Z/V   |                       |
|----------------------------|---|-----------------------|
| Item No.                   | Description                                     | Size                  |
| Length supplied: 8' 2-1/2" | — 2.50 m  |                       |
| V/KB Z 19 EB               | Brushed stainless steel connector for ZC and ZA | 3/4" – 19 mm          |
| V/KB Z 25 EB               | Brushed stainless steel connector for ZC and ZA | 1" <i>– 25 mm</i>     |
| V/KB Z 38 EB               | Brushed stainless steel connector for ZC and ZA | 1-1/2" <i>– 38 mm</i> |
| V/KB Z 50 EB               | Brushed stainless steel connector for ZC and ZA | 2" – 50 mm            |

| Schluter®-KERDI-BC | DARD-ZI/V                                       |                |
|--------------------|---|----------------|
| Item No.           | Description                                     | Size           |
| V/KB ZI 19 E       | Stainless steel internal connector for ZC or ZA | 3/4" – 19 mm   |
| V/KB ZI 25 E       | Stainless steel internal connector for ZC or ZA | 1" – 25 mm     |
| V/KB ZI 38 E       | Stainless steel internal connector for ZC or ZA | 1-1/2" – 38 mm |
| V/KB ZI 50 E       | Stainless steel internal connector for ZC or ZA | 2" – 50 mm     |



.....

| Item No.                   | Description   | Size           |
|----------------------------|---|----------------|
| Length supplied: 8' 2-1/2" | – 2.50 m  |                |
| KB ZB 19 E                 | U-shaped stainless steel profile with 3 perforated anchoring legs | 3/4" – 19 mm   |
| KB ZB 25 E                 | U-shaped stainless steel profile with 3 perforated anchoring legs | 1" – 25 mm     |
| KB ZB 38 E                 | U-shaped stainless steel profile with 3 perforated anchoring legs | 1-1/2" – 38 mm |
| KB ZB 50 E                 | U-shaped stainless steel profile with 3 perforated anchoring legs | 2" – 50 mm     |
|                            |   |                |





| Schluter®-KERDI-BOARD-ZSD |                        |                        |                |  |
|---------------------------|------------------------|------------------------|----------------|--|
| Item No.                  | Description            | Length                 | Packaging      |  |
| KB ZSD 90 E               | Stainless steel anchor | 3-1/2" – 9 cm          | 25 anchors/box |  |
| KB ZSD 110 E              | Stainless steel anchor | 4-5/16" – <i>11 cm</i> | 25 anchors/box |  |
| KB ZSD 90 Z               | Stainless steel anchor | 3-1/2" – 9 cm          | 25 anchors/box |  |
| KB ZSD 110 Z              | Stainless steel anchor | 4-5/16" – <i>11 cm</i> | 25 anchors/box |  |



| Schluter®-KERDI-BOARD-ZDK |                   |                                     |
|---------------------------|-------------------|-------------------------------------|
| Item No.                  | Description       | Size                                |
| KB ZDK 12/10 M            | Double-sided tape | 1/2" x 33' – 12.5 mm x 10 m         |
| KB ZDK 19/10 M            | Double-sided tape | 3/4" x 33' – 19 mm x 10 m           |
| KB ZDK 30/10 M            | Double-sided tape | 1-3/16" x 33' – <i>30 mm x 10 m</i> |



| Schluter <sup>®</sup> -KERDI-BOARD-ZSA |                        |                                  |
|--|------------------------|----------------------------------|
| Item No.                               | Description            | Size                             |
| KB ZSA 100/45M                         | Joint replacement tape | 4" x 148' – <i>100 mm x 45 m</i> |
|  |                        |                                  |



| Schluter <sup>®</sup> -KERDI-BOARD-ZFP |                      |   |
|--|----------------------|---|
| Item No.                               | Description          | Size                                      |
| KB ZFP 35                              | Flat plastic profile | 1-3/8" x 8' 2-1/2" <i>– 35 mm x 2.5 m</i> |

|      | 8.1 Schluter <sup>®</sup> -KERI | DI-BAND             |                      | Waterproofing strips |  |  |
|------|---------------------------------|---------------------|----------------------|----------------------|--|--|
|      | Item No.                        | Width               | Length               | Thickness            |  |  |
|      | KEBA 100/125/5M                 | 5" – <i>12.5 cm</i> | 16' 5" <i>- 5 m</i>  | 4 mil                |  |  |
| 2    | KEBA 100/125/10M                | 5" – 12.5 cm        | 33' - <i>10 m</i>    | 4 mil                |  |  |
|      | KEBA 100/185/5M                 | 7-1/4" – 18.5 cm    | 16' 5" <i>- 5 m</i>  | 4 mil                |  |  |
| 1000 | KEBA 100/250/5M                 | 10" <i>– 25 cm</i>  | 16' 5" <i>- 5 m</i>  | 4 mil                |  |  |
| 12   | KEBA 100/125                    | 5" – 12.5 cm        | 98' 5" - <i>30 m</i> | 4 mil                |  |  |
|      | KEBA 100/185                    | 7-1/4" – 18.5 cm    | 98' 5" - <i>30 m</i> | 4 mil                |  |  |
|      | KEBA 100/250                    | 10" <i>– 25 cm</i>  | 98' 5" <i>- 30 m</i> | 4 mil                |  |  |



| 8.1 Schluter®-KERDI-FLEX<br>Item No. Width |                    | Waterproofing strips for use above movement joints |           |  |
|--|--------------------|--|-----------|--|
|  |                    | Length   | Thickness |  |
| FLEX 125/5M                                | 5" – 12.5 cm       | 16' 5" <i>- 5 m</i>                                | 12 mil    |  |
| FLEX 250/5M                                | 10" <i>– 25 cm</i> | 16' 5" <i>- 5 m</i>                                | 12 mil    |  |
| FLEX 125/30                                | 5" – 12.5 cm       | 98' 5" <i>- 30 m</i>                               | 12 mil    |  |
| FLEX 250/30                                | 10" <i>– 25 cm</i> | 98' 5" <i>- 30 m</i>                               | 12 mil    |  |



| 8.1 Schluter <sup>®</sup> -KER | DI-KERECK-F | Pre-formed corners |
|--------------------------------|-------------|--------------------|
| Item No.                       | Thickness   | Package            |
| KERECK/FI 2                    | 4 mil       | 2 inside corners   |
| KERECK/FI 10                   | 4 mil       | 10 inside corners  |
| KERECK/FA 2                    | 4 mil       | 2 outside corners  |
| KERECK/FA 10                   | 4 mil       | 10 outside corners |

| 8.1 Schluter <sup>®</sup> -KERDI-KERS-B |           |                             | Preformed corner  |
|---|-----------|-----------------------------|---|
| Item No.                                | Thickness | Description                 | Packaging   |
| KERECK 135 FI 2                         | 4 mil     | Inside corner, 135°         | 2 units   |
| KERECK 135 FI 10                        | 4 mil     | Inside corner, 135°         | 10 units  |
| KERSB135 K LR                           | 4 mil     | Bench corners               | 1 right and 1 left  |
| KERSB135 K 5LR                          | 4 mil     | Bench corners               | 5 right and 5 left  |
| KERSB135 K                              | 4 mil     | Bench/ neo-angle corner kit | 1 right and 1 left bench corner, and<br>2 135° inside corners |





| 8.1 Schluter <sup>®</sup> -KER | DI-SEAL-PS                | Pipe seal with over-molded rubber gasket |           |  |
|--------------------------------|---------------------------|--|-----------|--|
| Item No.                       | Pipe nipple opening diam. | Thickness                                | Packaging |  |
| KMS185/12                      | 1/2" – 12.5 mm            | 4 mil                                    | 1 unit    |  |
| KMS185/20                      | 3/4" – 20 mm              | 4 mil                                    | 1 unit    |  |
| KMS10185/12                    | 1/2" – 12.5 mm            | 4 mil                                    | 10 units  |  |
| KMS10185/20                    | 3/4" – 20 mm              | 4 mil                                    | 10 units  |  |



| 8.1 Schluter <sup>®</sup> -KERDI-SEAL-MV |                            | Mixing valve seal with | h over-molded rubber gasket |
|--|----------------------------|------------------------|-----------------------------|
| Item No.                                 | Mixing valve opening diam. | Thickness              | Packaging                   |
| KMSMV235/114                             | 4-1/2" – <i>114 mm</i>     | 4 mil                  | 1 unit                      |
| KMSMV10235/114                           | 4-1/2" – <i>114 mm</i>     | 4 mil                  | 10 units                    |



| 8.3 Schluter <sup>®</sup> -KEF | Adhesive/sealant             | *Color Codes            |
|--------------------------------|------------------------------|-------------------------|
| Item No.                       | Description                  |                         |
| KERDIFIX / color*              | Cartridge - 9.81 oz (290 ml) | Bright G G              |
| KERDIFIX 100 G                 | Tube - 3.38 oz (100 ml)      | white                   |
|                                |                              | To complete the item nu |

To complete the item number, add the *color* code (e.g., KERDIFIX / **BW**).

|   | Schluter <sup>®</sup> -KERDI-BOARD-ZT |                                      |                       |                  |  |  |
|---|---------------------------------------|--------------------------------------|-----------------------|------------------|--|--|
|   | Item No.                              | Description                          | Size                  | Packaging        |  |  |
|   | KB ZT 32 Z                            | Galvanized steel attachment washers  | 1-1/4" <i>– 32 mm</i> | 100 washers/box  |  |  |
|   | KB ZT 32 Z/L                          | Galvanized steel attachment washers  | 1-1/4" <i>– 32 mm</i> | 1000 washers/box |  |  |
|   |                                       |                                      |                       |                  |  |  |
| 111                                     |                                       |                                      |                       |                  |  |  |
| /////////////////////////////////////// | Schluter®-KERDI-BOARD-2S              |                                      |                       |                  |  |  |
|   | Item No.                              | Description                          | Size                  | Packaging        |  |  |
| /////////////////////////////////////// | KB ZS 35 G                            | Course thread screw for wood framing | 1-5/8" – <i>41 mm</i> | 200 screws/box   |  |  |

| Schluter®-KERDI-BOARD-ZS |                                      |                       |                |  |  |
|--------------------------|--------------------------------------|-----------------------|----------------|--|--|
| Item No.                 | Description                          | Size                  | Packaging      |  |  |
| KB ZS 35 G               | Course thread screw for wood framing | 1-5/8" – <i>41 mm</i> | 200 screws/box |  |  |
| KB ZS 55 G               | Course thread screw for wood framing | 2" – 50 mm            | 100 screws/box |  |  |
| KB ZS 75 G               | Course thread screw for wood framing | 3" – 75 mm            | 100 screws/box |  |  |

| Schluter <sup>®</sup> -KERDI-BOARD-ZT/-ZS |                      |                       |             |  |  |  |
|---|----------------------|-----------------------|-------------|--|--|--|
| Item No.                                  | Description          | Size                  | Packaging   |  |  |  |
| KBZS35GT32Z                               | Washer and screw set | 1-5/8" <i>– 41 mm</i> | 40 each/box |  |  |  |



#### Schluter®-KERDI-BOARD 10-Year Limited Warranty

LIMITED WARRANTY COVERAGE: Subject to the conditions and limitations as stated in this Schluter®-KERDI®-BOARD 10-Year Limited Warranty (the "Limited Warranty"), Schluter Systems warrants that its Schluter®-KERDI®-BOARD-SB/-SC, Schluter®-KERDI®-BOARD-SN and Schluter®-KERDI®-BOARD-KIT (the "Products") will be free from manufacturing defects and will perform as described in the Schluter®-Shower System Installation Handbook and Schluter®-KERDI®-BOARD Technical Data Sheet (collectively, the "Written Materials") for a period of ten (10) years from the date of purchase when installed and used in accordance with the terms and conditions of the Written Materials and industry standard guidelines that are not in conflict with the Written Materials in effect at the time of installation.

For the purposes of this Limited Warranty, "**Owner**" is defined as the original end user of the property in which the Products are installed; and "**Tile Assembly**" is defined to include the Products, non-reusable tile surfaces, and applicable setting and grouting materials.

This Limited Warranty is only applicable to installations in the United States of America and Canada. Schluter Systems is not responsible or liable under any circumstances for determining the suitability of the Products for the Owner's intended purpose. It is the responsibility of the Owner to consult with an experienced and professional installer to ensure the suitability of the Products, subfloor/substrate and all building materials in the installation and that the Written Materials are followed properly.

**RESOLUTION:** If the Products are installed and used in accordance with the terms and conditions as described hereinabove and such Products are proven defective within the applicable warranty term, the Owner's exclusive remedy and the sole obligation of Schluter Systems, at its election, shall be to (a) reinstall or replace the failed portion of the Tile Assembly or (b) pay an amount not to exceed the original square foot cost of the installation of the Tile Assembly verified to be defective. Due to conditions beyond the control of Schluter Systems (e.g., color and shade availability, discontinuation, normal wear and tear), Schluter Systems cannot guarantee or warrant an exact match to the specific tile, stone, or other tiling materials used in the original installation. In such event, substantially similar materials may be substituted.

**EXCLUSIONS FROM COVERAGE:** This Limited Warranty excludes and in no event shall Schluter Systems have any liability for any indirect, special, incidental, punitive, exemplary, or consequential damages, including lost profits, arising out of or otherwise connected to the failure of the Products or Tile Assembly, regardless of any strict liability or active or passive negligence of Schluter Systems, and regardless of legal theory, whether in contract, tort, extra-contractual or other. This Limited Warranty further excludes any loss or damage arising out of or otherwise connected to: acts of war, terrorism, fire, explosion, natural disaster, acts of God, any failure to comply with the Written Materials, inadequate subfloor/substrate, improper preparation or other failure of subfloor/substrate, faulty or negligent penetration of the Products or subfloor/substrate, intentional acts of destruction, structural failure, misuse of or failure to maintain the Products, normal wear and tear, scratches, dents, corrosion or discoloration (whether caused by excessive heat, chemical cleaning products, abrasive agents or otherwise), efflorescence and shading which are a natural occurrence with cementitious materials and are not considered a defective condition for the purposes of this Limited Warranty, variations of texture, color or shade from those on product samples, packaging materials or other marketing materials, or other causes unrelated to the Products (e.g. tile covering failure, excess point loading, overvoltage). This Limited Warranty excludes exterior applications and applications utilizing glass tile or other non-approved tile coverings, unless specifically approved in writing on a case by case basis by the Schluter Systems Technical Services Director.

This Limited Warranty is conditioned and will be considered null and void and Schluter Systems will have the right to refuse any claims if: (a) the Products have been improperly stored or installed, or (b) the Products are subject to abusive or abnormal use, lack of maintenance, or used in a manner other than that for which the Products were designed or in any way contrary to the Written Materials.

DISCLAIMER: There are no warranties beyond this expressed warranty as stated herein. To the extent permitted by law, all other warranties, representations or conditions, expressed or implied, are hereby disclaimed and excluded, including but not limited to the implied warranties of **MERCHANTABILITY** or **FITNESS FOR A PARTICULAR PURPOSE** (as limited to such purposes as described in the Written Materials) or arising from a course of dealing, usage of trade or otherwise by law. ANY IMPLIED WARRANTIES ARISING BY OPERATION OF LAW ARE LIMITED IN DURATION TO THE TERM OF THIS LIMITED WARRANTY. NO REPRESENTATION, PROMISE, AFFIRMATION OR STATEMENT BY ANY EMPLOYEE OR AGENT OF SCHLUTER SYSTEMS WILL BE ENFORCEABLE AGAINST SCHLUTER SYSTEMS UNLESS IT IS SPECIFICALLY INCLUDED IN THIS LIMITED WARRANTY OR AUTHORIZED IN WRITING BY THE SCHLUTER SYSTEMS TECHNICAL SERVICES DIRECTOR. This Limited Warranty is given in lieu of any other warranty, whether expressed or implied. The remedies contained herein are the only remedies available for breach of this Limited Warranty. This Limited Warranty extends only to the Owner and is not transferable or assignable unless authorized by written agreement and signed by the Schluter Systems Technical Services Director or otherwise prohibited by specific state or provincial law. This Limited Warranty gives you specific legal rights; some states and provinces do not allow disclaimers or other restrictions of implied warranties; agreements, or other representations made by or on modifications of any terms or conditions of this Limited Warranty are permitted unless duly authorized in writing by the Schluter Systems Technical Services Or the application of the Products and shall apply to any installation occurring on or after March 19, 2021. If the Schluter<sup>\*</sup>-KERDI<sup>®</sup>-BOARD is used in conjunction with other Schluter products, a different Schluter warranty may apply. For the most current information and materials regarding Schluter Systems warranties and programs, please visit https://www.schluter.c

**MAKING A CLAIM:** To make a claim under this Limited Warranty, the Owner must provide Schluter Systems<sup>2</sup> with written notice within thirty (30) days of any alleged defect in the Products covered by this Limited Warranty, together with date and proof of purchase of such Products and/or all of its components and name and address of all installers and all invoices related to the original installation, failing which this Limited Warranty shall have no legal effect<sup>3</sup>. Schluter Systems reserves the right at its election and as a condition of this Limited Warranty to inspect the alleged failed and/or defective Products.

All U.S. Claims shall be sent to:All Canadian Claims shall be sent to:Schluter Systems L.P.Schluter Systems (Canada), Inc.Attn: Warranty Claims Dept.Attn: Warranty Claims Dept.194 Pleasant Ridge Road21100 chemin Ste-MariePlattsburgh, NY 12901-5841Ste-Anne-de-Bellevue, QC H9X 3Y8

<sup>&</sup>lt;sup>1</sup> If there are any conflicting terms between any Written Materials, the most recently updated document shall be deemed to control.

<sup>&</sup>lt;sup>2</sup> This Limited Warranty is limited to sales of the Products made in and intended for use in the United States and Canada. For the purposes of this Limited Warranty, Schluter Systems L.P. shall offer warranty coverage to Owners located in the United States, and Schluter Systems (Canada) Inc. shall offer warranty coverage to Owners located in Canada.

<sup>&</sup>lt;sup>a</sup> In the event that Owner fails to provide such required invoices relating to the original installation, Schluter Systems shall pay Owner an amount equal to the average, reasonable costs of a comparable installation. If the parties fail to agree on such amount, such dispute shall promptly, and in the first instance, be submitted: (a) if a U.S. claim, to arbitration in Clinton County, New York, in accordance with the rules of the American Arbitration Association, or (b) if a Canadian claim, in the Province of Quebec, Canada, in accordance with the ADRIC Arbitration Rules. Any outcome of such arbitration proceeding shall be final and binding upon the parties hereto.



#### Schluter®-KERDI-BOARD Profiles 5-Year Limited Warranty

LIMITED WARRANTY COVERAGE: Subject to the conditions and limitations as stated in this Schluter® Systems KERDI®-BOARD Profiles 5-Year Limited Warranty (the "Limited Warranty"), Schluter Systems warrants that its Schluter®-KERDI®-BOARD-ZW, Schluter®-KERDI®-BOARD-ZC, Schluter®-KERDI®-BOARD-ZC, Schluter®-KERDI®-BOARD-ZA, Schluter®-KERDI®-BOARD-ZA, Schluter®-KERDI®-BOARD-ZA, Schluter®-KERDI®-BOARD-ZA, Schluter®-KERDI®-BOARD-ZA/E, Schluter®-KERDI®-BOARD-Z/V, Schluter®-KERDI®-BOARD-Z/V, and Schluter®-KERDI®-BOARD-ZB (collectively, the "Products") will be free from manufacturing defects and will perform as described in the Schluter®-KERDI®-BOARD Technical Data Sheet (collectively, the "Written Materials") for a period of five (5) years from the date of purchase when installed and used in accordance with the terms and conditions of the Written Materials and industry standard guidelines that are not in conflict with the Written Materials in effect at the time of installation.

For the purposes of this Limited Warranty, "**Owner**" is defined as the original end user of the property in which the Products are installed; and "**Tile Assembly**" is defined to include the Products, non-reusable tile surfaces, and applicable setting and grouting materials.

This Limited Warranty is only applicable to installations in the United States of America and Canada. Schluter Systems is not responsible or liable under any circumstances for determining the suitability of the Products for the Owner's intended purpose. It is the responsibility of the Owner to consult with an experienced and professional installer to ensure the suitability of the Products, subfloor/substrate and all building materials in the installation and that the Written Materials are followed properly.

**RESOLUTION:** If the Products are installed and used in accordance with the terms and conditions as described hereinabove and such Products are proven defective within the applicable warranty term, the Owner's exclusive remedy and the sole obligation of Schluter Systems, at its election, shall be to (a) reinstall or replace the failed portion of the Tile Assembly or (b) pay an amount not to exceed the original square foot cost of the installation of the Tile Assembly verified to be defective. Due to conditions beyond the control of Schluter Systems (e.g., color and shade availability, discontinuation, normal wear and tear), Schluter Systems cannot guarantee or warrant an exact match to the specific tile, stone, or other flooring materials used in the original installation. In such event, substantially similar materials may be substituted.

**EXCLUSIONS FROM COVERAGE:** This Limited Warranty excludes and in no event shall Schluter Systems have any liability for any indirect, special, incidental, punitive, exemplary, or consequential damages, including lost profits, arising out of or otherwise connected to the failure of the Products or Tile Assembly, regardless of any strict liability or active or passive negligence of Schluter Systems, and regardless of legal theory, whether in contract, tort, extra-contractual or other. This Limited Warranty further excludes any loss or damage arising out of or otherwise connected to: acts of war, terrorism, fire, explosion, natural disaster, acts of God, any failure to comply with the Written Materials, inadequate subfloor/substrate, improper preparation or other failure of subfloor/substrate, faulty or negligent penetration of the Products or subfloor/substrate, intentional acts of destruction, structural failure, misuse of or failure to maintain the Products, normal wear and tear, scratches, dents, corrosion or discoloration (whether caused by excessive heat, chemical cleaning products, abrasive agents or otherwise), efflorescence and shading which are a natural occurrence with cementitious materials and are not considered a defective condition for the purposes of this Limited Warranty, variations of texture, color or shade from those on product samples, packaging materials or other marketing materials, or other causes unrelated to the Products (e.g. tile covering failure, excess point loading, overvoltage). This Limited Warranty excludes exterior applications and applications utilizing glass tile or other non-approved tile coverings, unless specifically approved in writing on a case by case basis by the Schluter Systems Technical Services Director.

This Limited Warranty is conditioned and will be considered null and void and Schluter Systems will have the right to refuse any claims if: (a) the Products have been improperly stored or installed, or (b) the Products are subject to abusive or abnormal use, lack of maintenance, or used in a manner other than that for which the Products were designed or in any way contrary to the Written Materials.

DISCLAIMER: There are no warranties beyond this expressed warranty as stated herein. To the extent permitted by law, all other warranties, representations or conditions, expressed or implied, are hereby disclaimed and excluded, including but not limited to the implied warranties of **MERCHANTABILITY** or **FITNESS FOR A PARTICULAR PURPOSE** (as limited to such purposes as described in the Written Materials) or arising from a course of dealing, usage of trade or otherwise by law. ANY IMPLIED WARRANTIES ARISING BY OPERATION OF LAW ARE LIMITED IN DURATION TO THE TERM OF THIS LIMITED WARRANTY. NO REPRESENTATION, PROMISE, AFFIRMATION OR STATEMENT BY ANY EMPLOYEE OR AGENT OF SCHLUTER SYSTEMS WILL BE ENFORCEABLE AGAINST SCHLUTER SYSTEMS UNLESS IT IS SPECIFICALLY INCLUDED IN THIS LIMITED WARRANTY OR AUTHORIZED IN WRITING BY THE SCHLUTER SYSTEMS TECHNICAL SERVICES DIRECTOR. This Limited Warranty is given in lieu of any other warranty, whether expressed or implied. The remedies contained herein are the only remedies available for breach of this Limited Warranty. This Limited Warranty extends only to the Owner and is not transferable or assignable unless authorized by written agreement and signed by the Schluter Systems Technical Services Director or otherwise prohibited by specific state or provincial law. This Limited Warranty gives you specific legal rights; some states and provinces of not allow disclaimers or other restrictions of implied warranties, agreements, or other representations made by or on behalf of Schluter Systems relative to the Products or the application of the Products are used in conjunction with other Schluter products, a different Schluter warranty may apply. For the most current information and materials regarding Schluter Systems warranties and programs, please visit https://www.schluter.com/schluter.us/en\_US/downloadfiles.

**MAKING A CLAIM:** To make a claim under this Limited Warranty, the Owner must provide Schluter Systems<sup>2</sup> with written notice within thirty (30) days of any alleged defect in the Products covered by this Limited Warranty, together with date and proof of purchase of such Products and/or all of its components and name and address of all installers and all invoices related to the original installation, failing which this Limited Warranty shall have no legal effect<sup>3</sup>. Schluter Systems reserves the right at its election and as a condition of this Limited Warranty to inspect the alleged failed and/or defective Products.

| All U.S. Claims shall be sent to: | All Canadian Claims shall be sent to: |
|-----------------------------------|---------------------------------------|
| Schluter Systems L.P.             | Schluter Systems (Canada), Inc.       |
| Attn: Warranty Claims Dept.       | Attn: Warranty Claims Dept.           |
| 194 Pleasant Ridge Road           | 21100 chemin Ste-Marie                |
| Plattsburgh, NY 12901-5841        | Ste-Anne-de-Bellevue, QC H9X 3Y8      |

<sup>&</sup>lt;sup>1</sup> If there are any conflicting terms between any Written Materials, the most recently updated document shall be deemed to control.

<sup>&</sup>lt;sup>2</sup> This Limited Warranty is limited to sales of the Products made in and intended for use in the United States and Canada. For the purposes of this Limited Warranty, Schluter Systems L.P. shall offer warranty coverage to Owners located in the United States, and Schluter Systems (Canada) Inc. shall offer warranty coverage to Owners located in Canada.

<sup>&</sup>lt;sup>a</sup> In the event that Owner fails to provide such required invoices relating to the original installation, Schluter Systems shall pay Owner an amount equal to the average, reasonable costs of a comparable installation. If the parties fail to agree on such amount, such dispute shall promptly, and in the first instance, be submitted: (a) if a U.S. claim, to arbitration in Clinton County, New York, in accordance with the rules of the American Arbitration Association, or (b) if a Canadian claim, in the Province of Quebec, Canada, in accordance with the ADRIC Arbitration Rules. Any outcome of such arbitration proceeding shall be final and binding upon the parties hereto.



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