Section 1 - Chemical Product and Company Identification

Product Name: Fiber Glass Insulation, Formaldehyde-free
CAS# Mixture/None Assigned
Generic Name: Fiber Glass Wool Product
Formula: Mixture
Chemical Name: Mixture
Hazard Label: FGW-01 or L1021

Manufacturer Information
Johns Manville Insulation Group
Building Insulation Division
P.O. Box 5108
Denver, CO 80127 USA

Trade Names:
Basement Wall Insulation, Faced;
FSK-25 Faced Batts;
Insul-SHIELD®, Faced Boards;
ITP Concrete Wall Insulation®, Formaldehyde-free;
Laminated Metal Building Insulation, Formaldehyde-free;
Panel-Deck FSK-25;
Panel-Deck PSK;

Section 2 - Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Component</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>65997-17-3</td>
<td>Fiber glass wool</td>
<td>80-98</td>
</tr>
<tr>
<td>Not Available</td>
<td>Acrylic thermoset resin</td>
<td>2-15</td>
</tr>
<tr>
<td>Not Available</td>
<td>Foil/kraft, kraft, FSK, polyethylene, PSK, and various metal building facings</td>
<td>0-15</td>
</tr>
<tr>
<td>1309-64-4</td>
<td>Antimony trioxide (may be in facing or adhesive)</td>
<td>&gt;0.1*</td>
</tr>
</tbody>
</table>

Additional Component Information
* Note: Antimony trioxide (fire retardant) may be present in the facings and/or adhesives. Occupational exposure to airborne antimony trioxide is not expected to occur due to product form(s) and intended use(s). Exposure limit is given for reference only.

Section 3 - Hazards Identification

Emergency Overview
APPEARANCE AND ODOR: White fibrous glass board, batt, blanket, or loose-fill insulation with or without tan kraft, blue kraft, FSK, or other facings. No significant odor.
Dust from fiber glass wool has been designated by US NTP as a possible cause of cancer by inhalation. However, the World Health Organization (IARC) recently reclassified fiber glass wool to Group 3 - not classifiable as a carcinogen.
Inhalation of excessive amounts of dust from the product may cause temporary upper respiratory irritation and/or congestion--remove individual to fresh air.

Potential Health Effects
Summary
Breathing dust from this product may cause a scratchy throat, congestion, and slight coughing. Getting dust or fibers on the skin, or in the eyes may cause itching, rash, or redness. Additional health and safety information is provided in Section 11 of this material safety data sheet.
Inhalation
Irritation of the upper respiratory tract (scratchy throat), coughing, and congestion may occur in extreme exposures.
Skin
Temporary irritation (itching) or redness may occur.
Ingestion
This product is not intended to be ingested (eaten). If ingested, it may cause temporary irritation to the gastrointestinal (digestive) tract.

Eyes
Temporary irritation (itching) or redness may occur.

Ears
Temporary irritation (itching) or redness may occur.

Primary Routes of Entry (Exposure)
Inhalation (breathing dust), skin, and eye contact.

Target Organs
Nose (nasal passages), throat, lungs, skin, eyes.

Medical Conditions Aggravated by Exposure
Pre-existing chronic respiratory, skin, or eye diseases or conditions.

Section 4 - First Aid Measures

First Aid: Inhalation
Remove to fresh air. Drink water to clear throat, and blow nose to remove dust.

First Aid: Skin
Wash gently with soap and warm water to remove dust. Wash hands before eating or using the restroom.

First Aid: Ingestion
Product is not intended to be ingested or eaten. If this product is ingested, irritation of the gastrointestinal (GI) tract may occur, and should be treated symptomatically. Rinse mouth with water to remove fibers, and drink plenty of water to help reduce the irritation. No chronic effects are expected following ingestion.

First Aid: Eyes
Do not rub or scratch your eyes. Dust particles may cause the eye to be scratched. Flush eyes with large amounts of water for 5-15 minutes. If irritation persists, contact a medical professional.

First Aid: Ears
Wash exposed skin with soap and water. If irritation develops in the inner ear, seek medical attention.

First Aid: Notes to Physician
This product is a mechanical irritant, and is not expected to produce any chronic health effects from acute exposures. Treatment should be directed toward removing the source of irritation with symptomatic treatment as necessary.

Section 5 - Fire Fighting Measures

Flash Point: Not applicable
Method Used: Not applicable
Upper Flammable Limit (UFL): Not applicable
Lower Flammable Limit (LFL): Not applicable
Auto Ignition: Not determined
Flammability Classification: Not determined
Rate of Burning: Not determined

General Fire Hazards
There is no potential for spontaneous fire or explosion.

Extinguishing Media
Carbon dioxide (CO₂), water, water fog, dry chemical.

Fire Fighting Equipment/Instructions
No special procedures are expected to be necessary for this product. Normal fire fighting procedures should be followed to avoid inhalation of smoke and gases.

Section 6 - Accidental Release Measures

Containment Procedures
Pick up large pieces. Vacuum dusts. If sweeping is necessary, use a dust suppressant such as water. Do not dry sweep dust accumulation or use compressed air for clean-up. These procedures will help to minimize potential exposures.

Clean-Up Procedures
Avoid the generation of dusts during clean-up.

Section 7 - Handling and Storage

Handling Procedures
Use protective equipment as described in Section 8 of this material safety data sheet when handling uncontained material.
Storage Procedures
Warehouse storage should be in accordance with package directions, if any. Material should be kept clean, dry, and protected from moisture.

Section 8 - Exposure Controls / Personal Protection

Exposure Guidelines
A: General Product Information
Glass wool fiber, OSHA voluntary Health and Safety Partnership Program (HSPP): 1 f/cc TWA for fibers longer than 5 µm with a diameter less than 3 µm.

B: Component Exposure Limits
Fiber glass wool (65997-17-3)
ACGIH: 1 f/cc TWA (respirable fibers: length > 5 µm, aspect ratio equal to or greater than 3:1, as determined by the membrane filter method at 400-450X magnification (4-mm objective), using phase-contrast illumination.)

Antimony trioxide (may be in facing or adhesive) (1309-64-4)
ACGIH: 0.5 mg/m³ TWA (related to Antimony)
OSHA: 0.5 mg/m³ TWA (related to Antimony)

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face
Safety glasses with sideshields are recommended to keep dust out of the eyes.

Personal Protective Equipment: Ears
Use ear protection (earplugs, hood, or earmuffs) to prevent airborne dust or fibers from entering the ear, if necessary.

Personal Protective Equipment: Skin
Leather or cotton gloves should be worn to prevent skin contact and irritation. Barrier creams may also be used to reduce skin contact and irritation caused by fiber glass.

Personal Protective Equipment: Respiratory
A respirator should be used if ventilation is unavailable, or is inadequate for keeping dust and fiber levels below the applicable exposure limits. In those cases, use a NIOSH-certified disposable or reusable particulate respirator with an efficiency rating of N95 or higher (under 42 CFR 84) when working with this product. For exposures up to five times the established exposure limits use a quarter-mask respirator, rated N95 or higher; and for exposures up to ten times the established exposure limits use a half-mask respirator (e.g., MSA's DM-11, Racal's Delta N95, 3M's 8210), rated N95 or higher. Operations such as sawing, blowing, tearing, and spraying may generate airborne fiber concentrations requiring a higher level of respiratory protection. For exposures up to 50 times the established exposure limits use a full-face respirator, rated N99 or higher.

Ventilation
In fixed manufacturing settings, local exhaust ventilation should be provided at areas of cutting to remove airborne dust and fibers. General dilution ventilation should be provided as necessary to keep airborne dust and fibers below the applicable exposure limits and guidelines. The need for ventilation systems should be evaluated by a professional industrial hygienist, while the design of specific ventilation systems should be conducted by a professional engineer.

Personal Protective Equipment: General
Wear a cap, a loose-fitting, long-sleeved shirt and long pants to protect skin from irritation. Exposed skin areas should be washed with soap and warm water after handling or working with fiber glass. Clothing should be washed separately from other clothes, and the washer should be rinsed thoroughly (run empty for a complete wash cycle). This will reduce the chances of fiber glass being transferred to other clothing.

Section 9 - Physical & Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White fibrous glass board, batt, blanket, or loose fiber, with or without various facings</td>
</tr>
<tr>
<td>Odor</td>
<td>No significant odor</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Point</td>
<td>&gt;704°C/1300°F</td>
</tr>
<tr>
<td>Solubility (H₂O)</td>
<td>Nil</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>Variable</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Percent Volatile</td>
<td>0</td>
</tr>
<tr>
<td>VOC</td>
<td>0</td>
</tr>
</tbody>
</table>
Section 10 - Chemical Stability & Reactivity Information

Chemical Stability
This is a stable material. This product is not reactive.

Hazardous Decomposition
Although fiber glass itself is not combustible, the following decomposition products may be released during burning of the insulation binder: carbon monoxide, carbon dioxide, carbon particles, and small hydrocarbons.

Hazardous Polymerization
Will not occur.

Section 11 - Toxicological Information

Acute Toxicity
A: General Product Information
Dust from this product is a mechanical irritant, which means that it may cause temporary irritation or scratchiness of the throat, and/or itching of the eyes and skin.

B: Component Analysis - LD50/LC50
Antimony trioxide (may be in facing or adhesive) (1309-64-4)
Oral LD50 Rat: >34600 mg/kg

Carcinogenicity
A: General Product Information
No additional information available.

B: Component Carcinogenicity
Fiber glass wool (65997-17-3)
ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans
NTP: Reasonably Anticipated To Be A Carcinogen (respirable size)
IARC: Group 3 - Not Classifiable (IARC Monograph 43, 1988; Monograph 81, 2002)

Antimony trioxide (may be in facing or adhesive) (1309-64-4)
ACGIH: A2 - Suspected Human Carcinogen (production)
IARC: Group 2B - Possibly Carcinogenic to Humans (IARC Monograph 47, 1989)

Chronic Toxicity
Antimony trioxide causes pneumoconiosis in humans. Antimony trioxide was tested for carcinogenicity by inhalation exposure in male and female rats. Evidence for pulmonary cancer in the rat studies was inconsistent. In the earlier studies, rats were exposed to extremely high dose levels; exposed female rats, but not males, had an increased cancer incidence. However, in later studies using more advanced techniques, the rats did not show increased cancers. USEPA and CalEPA concluded that these studies are inadequate for use in quantitative cancer risk assessment. According to USEPA's recently proposed cancer risk assessment guidance, a margin of exposure (MOE) analysis is more appropriate when, as with antimony trioxide, the carcinogenicity of a chemical may be a secondary effect of toxicity or of an induced physiological change. The MOE approach was adopted after conferring with CalEPA scientists involved in the Proposition 65 program who suggested using USEPA's "Proposed Guidance for Carcinogen Risk Assessment." An independent laboratory conducted a risk analysis using the MOE approach; the results indicated that the potential levels of exposure to antimony trioxide in JM products pose no significant cancer risk to the end-user of these products.

Fiber Glass Wool: In October 2001, IARC classified fiber glass wool as Group 3, "not classifiable as to its carcinogenicity to humans." The 2001 decision was based on current human and animal research that shows no association between inhalation exposure to dust from fiber glass wool and the development of respiratory disease. This is a reversal of the IARC finding in 1987 of a Group 2B designation (possibly carcinogenic to humans) based on earlier studies in which animals were injected with large quantities of fiber glass. NTP and ACGIH have not yet reviewed the IARC reclassification or the most current fiber glass health research; at this time, both agencies continue to classify glass wool based on the earlier animal injection studies.

A detailed listing of references on fiber glass health effects can be found in the publication HSE-64C, "Health and Safety Aspects of Fiber Glass," which can be downloaded from Johns Manville's internet homepage, www.jm.com (select "Health Safety and Environment").
Section 12 - Ecological Information

Ecotoxicity
A: General Product Information
No data available for this product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity
Antimony trioxide (may be in facing or adhesive) (1309-64-4)
96 Hr LC50 fathead minnow: 833.0 mg/L; 96 Hr LC50 bluegill: 530 mg/L

Section 13 - Disposal Considerations

US EPA Waste Number & Descriptions
A: General Product Information
Comply with state and local regulations for disposal. If you are unsure of the regulations, contact your local Public Health Department, or the local office of the EPA.

B: Component Waste Numbers
No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions
Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

Section 14 - Transportation Information

Shipping Name: Not listed as a hazardous material for shipping.

Section 15 - Regulatory Information

US Federal Regulations
A: General Product Information
SARA 311/312: This product is not classified as hazardous under SARA 311/312.

B: Component Analysis
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).
Antimony trioxide (may be in facing or adhesive) (1309-64-4)
CERCLA: 1000 lb final RQ; 454 kg final RQ

State Regulations
A: General Product Information
Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State
The following components appear on one or more of the following state hazardous substances lists:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>CA</th>
<th>FL</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber glass wool (related to Mineral wool fiber) (related to Glass wool fiber)</td>
<td>65997-17-3</td>
<td>Yes¹</td>
<td>No</td>
<td>Yes¹</td>
<td>Yes</td>
<td>No</td>
<td>Yes²</td>
</tr>
<tr>
<td>Antimony trioxide (may be in facing or adhesive)</td>
<td>1309-64-4</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer.
Fiber glass wool (related to Mineral wool fiber) CAS# 65997-17-3

A: TSCA Status
This product and its components are listed on the TSCA 8(b) inventory.

None of the components listed in this product are listed on the TSCA Export Notification 12(b) list.
Material Name: Fiber Glass Building Insulation, Formaldehyde-free  Material Safety Data Sheet   ID: 1021

B: Component Analysis - Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>TSCA</th>
<th>DSL</th>
<th>EINECS</th>
</tr>
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<tbody>
<tr>
<td>Fiber glass wool</td>
<td>65997-17-3</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Antimony trioxide (may be in facing or adhesive)</td>
<td>1309-64-4</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Component Analysis - WHMIS IDL
No components are listed in the WHMIS IDL.

Section 16 - Other Information

Other Information
Prepared for:
Johns Manville
Building Insulation Division
P.O. Box 5108
Denver, CO 80217-5108

Prepared by:
Johns Manville Technical Center
P.O. Box 625005
Littleton, CO USA 80162-5005

As of the date of preparation of this document, the foregoing information is believed to be accurate and is provided in good faith to comply with applicable federal and state law(s). However, no warranty or representation with respect to such information is intended or given.

The information herein is presented in good faith and believed to be accurate as of the effective date given. However, no warranty, expressed or implied, is given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

Date          | MSDS #       | Reason                                                                 |
--------------|--------------|------------------------------------------------------------------------|
03/11/02      | 1021-1.0000  | New Products.                                                          |
06/14/02      | 1021-1.0001  | Sect. 1 Trade Names: Added trade names (total of 21).                  |
11/18/02      | 1021-1.0002  | Sect. 1: RID changed to BID. Added 5 trade names. Sect. 11 updated FGW to IARC Grp. 3. |
02/12/03      | 1021-1.0003  | Sect. 1, trade names: added "Formaldehyde-free" to trade names that are also sold with UPF binder (see MSDS 1010). |
06/30/03      | 1021-1.0004  | Sect. 10 Correction: remove hydrogen cyanide as possible product of burning of insulation binder. |
10/27/03      | 1021.1.0005  | Section 1 added Kraft-Faced MR Insulation.                             |
11/26/03      | 1021-1.0006  | Section 16 division change from RID to BID                             |
02/13/04      | 1021-1.0007  | Section 3 added 'blue kraft' to appearance. Regulatory update.          |
               |              | Minor edits.                                                            |
03/23/05      | 1021-1.0008  | Sect. 1, trade name removals: Best-Pak; ComfortTherm; Commercial Bl, Formaldehyde-free; DuctWrap Roll; EasyFit; FGBl, Formaldehyde-free; Foil Faced Batts; High Density Blowing Wool; Kraft Faced Batts; Kraft Faced MR Insulation; Microlite L; Micro-Pak; Mobilinsul; Multi-Purpose Insulation; Pan Insul; Rich R Blowing Wool; Thermal/Acoustical Batts and Rolls; UMBI; Unfaced Sound Control Batts; RBI, Formaldehyde-free; PEBS Blanket; & High Performance Batts. Basement Wall Insulation was changed to Basement Wall Insulation, Faced. Panel-Deck was changed to Panel-Deck FSK-25 and Panel-Deck PSK. |
04/05/05      | 1021-1.0009  | Sect. 1 addition of Insul-SHIELD, Faced Boards. Sect. 2 addition of carbon black. |
06/24/05      | 1021-1.0010  | Sect. 2 minor edit to composition                                       |

This is the end of MSDS # 1021