



Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **N4000-12 Unclad Laminate**
Synonyms • N4000-12 SI® Unclad Laminate

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Laminate for consumer and industrial electronics.
Use(s) advised against • Consumer goods in direct contact with food stuffs, potable water, or continuous skin contact

1.3 Details of the supplier of the safety data sheet

| | <u>North America</u> | <u>Asia</u> | <u>Europe</u> |
|---------------------|--|--|---|
| Manufacturer | AGC Multi Material America, Inc. | AGC Multi Material Singapore PTE, Ltd | AGC Multi Material Europe S.A. |
| | 1420 W. 12 th Place Tempe, AZ 85281 United States | 4 Gul Crescent Jurong, Singapore 629520 | Route des Usines, BP25 65303, Lannemezan, Cedex, France |
| | www.agc-multimaterial.com agc-ml.digital-po@agc.com | | |

1.4 Emergency telephone number

| | | |
|--|----------------------|---|
| 1-480-967-5600- (8AM - 5PM CST) M-F | +65 6861 7117 - Asia | +33-5-62-98-52-90- Europe (8AM-4PM M-F) |
| 1-800-424-9300 - CHEMTREC (US and Canada only) | | |

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
 According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

- CLP • Not Classified
DSD/DPD • Not Classified

2.2 Label Elements

- CLP
Hazard statements • No label element(s) required.

DSD/DPD

- Risk phrases • No label element(s) required.

2.3 Other Hazards

- CLP • This material is exempt from CLP/REACH obligations as an article as specified in REACH (1907/2006) and related ECHA guidance.
DSD/DPD • Under European Directive 1999/45/EC these product(s) are exempt and considered manufactured article(s) under stated normal conditions of use.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

- OSHA HCS 2012 • Not Classified

2.2 Label elements

OSHA HCS 2012

- Hazard statements • No label element(s) required.

2.3 Other hazards

- OSHA HCS 2012 • Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), these product(s) are exempt and considered manufactured article(s) under stated normal use conditions.

Canada

According to: WHMIS

2.1 Classification of the substance or mixture

- WHMIS • Not classified

2.2 Label elements

- WHMIS • No label element(s) required

2.3 Other hazards

- WHMIS • Under Canadian regulations (Workplace Hazardous Materials Information System (WHMIS) – Hazardous Products Act (HPA), Section 11 (1)), these product(s) are exempt and considered manufactured article(s) under stated normal conditions of use.

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance.

3.2 Mixtures

| Composition | | |
|---------------------------|---|------------|
| Chemical Name | Identifiers | % |
| 2-Butanone | CAS:78-93-3 EC Number:201-159-0 EU Index:606-002-00-3 | <0.1% |
| Formamide, N,N-dimethyl- | CAS:68-12-2 EC Number:200-679-5 EU Index:616-001-00-X | <0.1% |
| Acetone | CAS:67-64-1 EC Number:200-662-2 EU Index:606-001-00-8 | <0.1% |
| Cured Epoxy resin mixture | CAS:NA EC Number:NA | 30% TO 60% |
| Glass, oxide, chemicals | CAS:65997-17-3 EC Number:266-046-0 | 30% TO 65% |

Section 4 - First Aid Measures

4.1 Description of first aid measures

- Inhalation** • First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If signs/symptoms develop, move victim to fresh air. Administer oxygen if breathing is difficult. If signs/symptoms continue, get medical attention. Give artificial respiration if victim is not breathing.
- Skin** • First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. In case of contact with substance, flush skin with running water for at least 20 minutes. Remove and isolate contaminated clothing. Wash skin with soap and water. If irritation develops and persists, get medical attention.
- Eye** • First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
- Ingestion** • First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to Physician** • All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- LARGE FIRES: Water spray, fog or alcohol-resistant foam.
- SMALL FIRES: Dry chemical, CO₂, water spray or alcohol-resistant foam.

Unsuitable Extinguishing Media

- Do not use straight streams.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Hazardous decomposition will occur at elevated temperatures.

Hazardous Combustion Products

- Nitrous Oxides, Aldehydes, Carbon Monoxide, HBr, Various Acids.

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- No special precautions are expected to be necessary if material is used under ordinary conditions and as recommended. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep unauthorized personnel away. Ventilate closed spaces before entering.

6.2 Environmental precautions

- Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Avoid generating dust.
- Carefully shovel or sweep up spilled material and place in suitable container.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Avoid contact with heat and ignition sources. Minimize dust generation and accumulation. Use only with adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Do not breathe dust. Avoid contact with skin, eyes or clothing. Avoid breathing fumes generated during processing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Keep away from heat, sparks and flame. Store in a well-ventilated place. Keep container tightly closed. Avoid generating dust. Store at 77°F or below.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

| Exposure Limits/Guidelines | | | | | | |
|---|--------|--|---|--|---|--|
| | Result | ACGIH | Australia | Brazil | Canada Alberta | Canada British Columbia |
| Acetone (67-64-1) | STELs | 750 ppm STEL | 1000 ppm STEL; 2375 mg/m ³ STEL | Not established | 750 ppm STEL; 1800 mg/m ³ STEL | 500 ppm STEL |
| | TWAs | 500 ppm TWA | 500 ppm TWA; 1185 mg/m ³ TWA | 780 ppm TWA LT; 1870 mg/m ³ TWA LT | 500 ppm TWA; 1200 mg/m ³ TWA | 250 ppm TWA |
| Formamide, N,N- dimethyl- (68-12-2) | TWAs | 10 ppm TWA | 10 ppm TWA; 30 mg/m ³ TWA | 8 ppm TWA LT; 24 mg/m ³ TWA LT | 10 ppm TWA; 30 mg/m ³ TWA | 10 ppm TWA |
| 2-Butanone (78-93-3) | STELs | 300 ppm STEL | 300 ppm STEL; 890 mg/m ³ STEL | Not established | 300 ppm STEL; 885 mg/m ³ STEL | 100 ppm STEL |
| | TWAs | 200 ppm TWA | 150 ppm TWA; 445 mg/m ³ TWA | 155 ppm TWA LT; 460 mg/m ³ TWA LT | 200 ppm TWA; 590 mg/m ³ TWA | 50 ppm TWA |
| Glass, oxide, chemicals as Glass wool fiber | TWAs | 1 fiber/cm ³ TWA (respirable fibers: 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, listed under Synthetic vitreous fibers) <i>as Glass wool fiber</i> | 0.5 fibre/mL TWA (listed under Synthetic mineral fibres) <i>as Glass wool fiber</i> | Not established | 1 fiber/cm ³ TWA <i>as Glass wool fiber</i> | 1 fiber/cm ³ TWA (respirable fibers: 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, listed under Synthetic vitreous fibers) <i>as Glass wool fiber</i> |
| Exposure Limits/Guidelines (Con't.) | | | | | | |
| | Result | Canada Manitoba | Canada New Brunswick | Canada Northwest Territories | Canada Nova Scotia | Canada Nunavut |
| Acetone (67-64-1) | STELs | 750 ppm STEL | 750 ppm STEL; 1782 mg/m ³ STEL | 1250 ppm STEL; 2970 mg/m ³ STEL | 750 ppm STEL | 1250 ppm STEL; 2970 mg/m ³ STEL |
| | TWAs | 500 ppm TWA | 500 ppm TWA; 1188 mg/m ³ TWA | 1000 ppm TWA; 2370 mg/m ³ TWA | 500 ppm TWA | 1000 ppm TWA; 2370 mg/m ³ TWA |
| Formamide, N,N- dimethyl- (68-12-2) | TWAs | 10 ppm TWA | 10 ppm TWA; 30 mg/m ³ TWA | 10 ppm TWA; 30 mg/m ³ TWA | 10 ppm TWA | 10 ppm TWA; 30 mg/m ³ TWA |
| | STELs | Not established | Not established | 20 ppm STEL; 60 mg/m ³ STEL | Not established | 20 ppm STEL; 60 mg/m ³ STEL |
| 2-Butanone (78-93-3) | STELs | 300 ppm STEL | 300 ppm STEL; 885 mg/m ³ STEL | 300 ppm STEL; 885 mg/m ³ STEL | 300 ppm STEL | 300 ppm STEL; 885 mg/m ³ STEL |
| | TWAs | 200 ppm TWA | 200 ppm TWA; 590 mg/m ³ TWA | 200 ppm TWA; 590 mg/m ³ TWA | 200 ppm TWA | 200 ppm TWA; 590 mg/m ³ TWA |
| Glass, oxide, chemicals as Glass | TWAs | 1 fiber/cm ³ TWA (respirable fibers: | 1 fiber/cm ³ TWA (fibers >5 µm with a | 3 fiber/cm ³ TWA (with a diameter of <=3.5 | 1 fiber/cm ³ TWA (respirable fibers: | 3 fiber/cm ³ TWA (with a diameter |

| | | | | | | |
|------------|--|--|---|--|--|---|
| wool fiber | | 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, listed under Synthetic vitreous fibers) <i>as Glass wool fiber</i> | diameter of <3 µm, aspect ratio >5:1) <i>as Glass wool fiber</i> | µm and a length >=10 µm); 5 mg/m3 TWA (total mass) <i>as Glass wool fiber</i> | 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, listed under Synthetic vitreous fibers) <i>as Glass wool fiber</i> | of <=3.5 µm and a length >=10 µm); 5 mg/m3 TWA (total mass) <i>as Glass wool fiber</i> |
|------------|--|--|---|--|--|---|

Exposure Limits/Guidelines (Con't.)

| | Result | Canada Ontario | Canada Quebec | Canada Saskatchewan | Canada Yukon | China |
|---|--------|--|--|---|--|-----------------|
| Acetone (67-64-1) | STELs | 750 ppm STEL | 1000 ppm STEV; 2380 mg/m3 STEV | 750 ppm STEL | 1250 ppm STEL; 3000 mg/m3 STEL | 450 mg/m3 STEL |
| | TWAs | 500 ppm TWA | 500 ppm TWAEV; 1190 mg/m3 TWAEV | 500 ppm TWA | 1000 ppm TWA; 2400 mg/m3 TWA | 300 mg/m3 TWA |
| Formamide, N,N-dimethyl- (68-12-2) | STELs | Not established | Not established | 15 ppm STEL | 20 ppm STEL; 60 mg/m3 STEL | 40 mg/m3 STEL |
| | TWAs | 10 ppm TWA | 10 ppm TWAEV; 30 mg/m3 TWAEV | 10 ppm TWA | 10 ppm TWA; 30 mg/m3 TWA | 20 mg/m3 TWA |
| 2-Butanone (78-93-3) | STELs | 300 ppm STEL | 100 ppm STEV; 300 mg/m3 STEV | 300 ppm STEL | 250 ppm STEL; 740 mg/m3 STEL | 600 mg/m3 STEL |
| | TWAs | 200 ppm TWA | 50 ppm TWAEV; 150 mg/m3 TWAEV | 200 ppm TWA | 200 ppm TWA; 590 mg/m3 TWA | 300 mg/m3 TWA |
| Glass, oxide, chemicals as Glass wool fiber | TWAs | 1 fiber/cm3 TWA (respirable fibers: 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, listed under Synthetic vitreous fibers) <i>as Glass wool fiber</i> | 1 fibre/cm3 TWAEV (respirable, listed under Fibres-Artificial Vitreous Mineral Fibres) <i>as Glass wool fiber</i> | 1 fiber/cm3 TWA (respirable fibers, listed under Synthetic vitreous fibers) <i>as Glass wool fiber</i> | 30 mppcf TWA (dust or fibrous); 10 mg/m3 TWA (dust or fibrous) <i>as Glass wool fiber</i> | Not established |

Exposure Limits/Guidelines (Con't.)

| | Result | Czech Republic | Denmark | France | Germany DFG | Germany TRGS |
|-------------------|----------|--------------------|----------------------------|--|--------------------------------|---|
| Acetone (67-64-1) | Ceilings | 1500 mg/m3 Ceiling | Not established | Not established | 1000 ppm Peak; 2400 mg/m3 Peak | Not established |
| | TWAs | 800 mg/m3 TWA | 250 ppm TWA; 600 mg/m3 TWA | 500 ppm TWA [VME] (restrictive limit); 1210 mg/m3 TWA [VME] (restrictive limit) | Not established | 500 ppm TWA AGW (exposure factor 2); 1200 mg/m3 TWA AGW (exposure factor 2) |
| | STELs | Not established | Not established | 1000 ppm STEL [VLCT] (restrictive limit); 2420 mg/m3 STEL [VLCT] (restrictive limit) | Not established | Not established |
| | MAKs | Not established | Not established | Not established | 500 ppm TWA | Not established |

| | | | | | | |
|---------------------------------------|----------|-------------------|---------------------------|--|------------------------------------|---|
| | | | | | MAK; 1200 mg/m3 TWA MAK | |
| Formamide, N,N-dimethyl- (68-12-2) | Ceilings | 30 mg/m3 Ceiling | Not established | Not established | 10 ppm Peak; 30 mg/m3 Peak | Not established |
| | TWAs | 15 mg/m3 TWA | 5 ppm TWA; 15 mg/m3 TWA | 5 ppm TWA [VME] (restrictive limit); 15 mg/m3 TWA [VME] (restrictive limit) | Not established | 5 ppm TWA AGW (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed, exposure factor 2); 15 mg/m3 TWA AGW (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed, exposure factor 2) |
| | STELs | Not established | Not established | 30 mg/m3 STEL [VLCT] (restrictive limit); 10 ppm STEL [VLCT] (restrictive limit) | Not established | Not established |
| | MAKs | Not established | Not established | Not established | 5 ppm TWA MAK; 15 mg/m3 TWA MAK | Not established |
| 2-Butanone (78-93-3) | Ceilings | 900 mg/m3 Ceiling | Not established | Not established | 200 ppm Peak; 600 mg/m3 Peak | Not established |
| | TWAs | 600 mg/m3 TWA | 50 ppm TWA; 145 mg/m3 TWA | 200 ppm TWA [VME] (restrictive limit); 600 mg/m3 TWA [VME] (restrictive limit) | Not established | 200 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1); 600 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1) |
| | STELs | Not established | Not established | 300 ppm STEL [VLCT] (restrictive limit); 900 mg/m3 STEL [VLCT] (restrictive limit) | Not established | Not established |
| | MAKs | Not established | Not established | Not established | 200 ppm TWA MAK; 600 mg/m3 TWA MAK | Not established |
| Glass, oxide, | TWAs | Not established | 1 fiber/cm3 TWA | Not established | Not established | Not established |

| chemicals as Glass wool fiber | | | as Glass wool fiber | | | |
|---|---------------|---|---|--|---|--|
| Exposure Limits/Guidelines (Con't.) | | | | | | |
| | Result | Greece | India | Israel | Italy | Japan |
| Acetone (67-64-1) | TWAs | 1780 mg/m3 TWA | 750 ppm TWA; 1780 mg/m3 TWA | 500 ppm TWA | 500 ppm TWA; 1210 mg/m3 TWA | 200 ppm OEL; 470 mg/m3 OEL |
| | STELs | 3560 mg/m3 STEL | 1000 ppm STEL; 2375 mg/m3 STEL | 750 ppm STEL | Not established | Not established |
| Formamide, N,N-dimethyl- (68-12-2) | TWAs | 5 ppm TWA; 15 mg/m3 TWA | Not established | 10 ppm TWA | 5 ppm TWA; 15 mg/m3 TWA | 10 ppm OEL; 30 mg/m3 OEL |
| | STELs | 10 ppm STEL; 30 mg/m3 STEL | Not established | Not established | 10 ppm STEL Breve termine; 30 mg/m3 STEL Breve termine | Not established |
| 2-Butanone (78-93-3) | TWAs | 200 ppm TWA; 600 mg/m3 TWA | 200 ppm TWA; 590 mg/m3 TWA | 200 ppm TWA | 200 ppm TWA; 600 mg/m3 TWA | 200 ppm OEL; 590 mg/m3 OEL |
| | STELs | 300 ppm STEL; 900 mg/m3 STEL | 300 ppm STEL; 885 mg/m3 STEL | 300 ppm STEL | 300 ppm STEL Breve termine; 900 mg/m3 STEL Breve termine | Not established |
| Glass, oxide, chemicals as Glass wool fiber | TWAs | Not established | Not established | 1 fiber/cm3 TWA (respirable fibers: length >5 µm, aspect ratio >=3:1, except asbestiform minerals, listed under Synthetic vitreous fibers) as Glass wool fiber | Not established | 1 fiber/cm3 OEL as Glass wool fiber |
| Exposure Limits/Guidelines (Con't.) | | | | | | |
| | Result | Korea | Malaysia | Netherlands | NIOSH | OSHA |
| Acetone (67-64-1) | TWAs | 500 ppm TWA (Serial No. 354); 1188 mg/m3 TWA (Serial No. 354) | 500 ppm TWA; 1187 mg/m3 TWA | 1210 mg/m3 TWA | 250 ppm TWA; 590 mg/m3 TWA | 1000 ppm TWA; 2400 mg/m3 TWA |
| | STELs | 750 ppm STEL (Serial No. 354); 1782 mg/m3 STEL (Serial No. 354) | Not established | 2420 mg/m3 STEL | Not established | Not established |
| Formamide, N,N-dimethyl- (68-12-2) | TWAs | 10 ppm TWA (Serial No. 077); 30 mg/m3 TWA (Serial No. 077) | 10 ppm TWA; 30 mg/m3 TWA | 15 mg/m3 TWA | 10 ppm TWA; 30 mg/m3 TWA | 10 ppm TWA; 30 mg/m3 TWA |
| | STELs | Not established | Not established | 30 mg/m3 STEL | Not established | Not established |
| 2-Butanone (78-93-3) | TWAs | 200 ppm TWA (Serial No. 228); 590 mg/m3 TWA (Serial No. 228) | 200 ppm TWA; 590 mg/m3 TWA | 590 mg/m3 TWA | 200 ppm TWA; 590 mg/m3 TWA | 200 ppm TWA; 590 mg/m3 TWA |
| | STELs | 300 ppm STEL (Serial No. 228); 885 mg/m3 STEL (Serial No. 228) | Not established | 900 mg/m3 STEL | 300 ppm STEL; 885 mg/m3 STEL | Not established |
| Glass, oxide, chemicals | TWAs | 10 mg/m3 TWA (Serial No. 007) as Glass wool fiber | 1 fiber/cm3 TWA (respirable fibers: 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, listed | 2 fibers/cm3 MAC-TGG as Glass wool fiber | 3 fiber/cm3 TWA (fibers <= 3.5 µm in diameter and >= 10 µm in length); 5 mg/m3 TWA (total) as Glass wool fiber | Not established |

| | | | under Synthetic vitreous fibers) <i>as Glass wool fiber</i> | | |
|---------------------------------------|-------------------------------|--|--|---|--|
| Exposure Limits/Guidelines (Con't.) | | | | | |
| | Result | Singapore | South Africa | Spain | |
| Acetone (67-64-1) | STELs | 1000 ppm STEL; 2380 mg/m3 STEL | 1500 ppm STEL; 3560 mg/m3 STEL | Not established | |
| | TWAs | 750 ppm PEL; 1780 mg/m3 PEL | 750 ppm TWA; 1780 mg/m3 TWA | 500 ppm TWA [VLA-ED] (indicative limit value); 1210 mg/m3 TWA [VLA-ED] (indicative limit value) | |
| | Biological Limit Values (BLV) | Not established | Not established | 50 mg/L urine end of shift Acetone (2) | |
| Formamide, N,N-dimethyl- (68-12-2) | TWAs | 10 ppm PEL; 30 mg/m3 PEL | 10 ppm TWA; 30 mg/m3 TWA | 5 ppm TWA [VLA-ED] (indicative limit value); 15 mg/m3 TWA [VLA-ED] (indicative limit value) | |
| | STELs | Not established | 20 ppm STEL; 60 mg/m3 STEL | 10 ppm STEL [VLA-EC]; 30 mg/m3 STEL [VLA-EC] | |
| | Biological Limit Values (BLV) | Not established | Not established | 15 mg/L urine end of shift N-Methylformamide (2); 40 mg/L urine start of last shift of workweek N-Acetyl-S-(N-methylcarbamoyl) cysteine (5,S) | |
| 2-Butanone (78-93-3) | STELs | 300 ppm STEL; 885 mg/m3 STEL | 300 ppm STEL; 885 mg/m3 STEL | 300 ppm STEL [VLA-EC]; 900 mg/m3 STEL [VLA-EC] | |
| | TWAs | 200 ppm PEL; 590 mg/m3 PEL | 200 ppm TWA; 590 mg/m3 TWA | 200 ppm TWA [VLA-ED] (indicative limit value); 600 mg/m3 TWA [VLA-ED] (indicative limit value) | |
| Glass, oxide, chemicals | TWAs | 10 mg/m3 PEL <i>as Glass wool fiber</i> | Not established | 1 fiber/cm3 TWA [VLA-ED] (Fibers with a random orientation, with a content in Alkaline and Alkali-earth oxide [Na2O+K2O+CaO+MgO+BaO] above 18% in weight; manufacturing, commercialization, and use restrictions under REACH. Respirable fibers: 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, listed under Synthetic vitreous fibers) <i>as Glass wool fiber</i> | |

Exposure Control Notations

China

•Formamide, N,N-dimethyl- (68-12-2): **Skin:** (Skin notation)

Czech Republic

•Formamide, N,N-dimethyl- (68-12-2): **Skin:** (Potential for cutaneous absorption)

Denmark

•Formamide, N,N-dimethyl- (68-12-2): **Skin Notations:** (Potential for cutaneous absorption)

•2-Butanone (78-93-3): **Skin Notations:** (Potential for cutaneous absorption)

Greece

•Formamide, N,N-dimethyl- (68-12-2): **Skin:** (skin - potential for cutaneous absorption)

Italy

- Formamide, N,N-dimethyl- (68-12-2): **Skin:** (skin - potential for cutaneous absorption)

Netherlands

- Formamide, N,N-dimethyl- (68-12-2): **Skin:** (skin notation)
- 2-Butanone (78-93-3): **Skin:** (skin notation)

Canada Ontario

- Formamide, N,N-dimethyl- (68-12-2): **Skin:** (Absorption through skin, eyes, or mucous membranes)

Canada Quebec

- Formamide, N,N-dimethyl- (68-12-2): **Skin:** (Skin designation)

France

- Formamide, N,N-dimethyl- (68-12-2): **Reproductive Toxins:** (Reproductive Toxin category 1B)

Spain

- Formamide, N,N-dimethyl- (68-12-2): **Reproductive Toxins:** (known or suspected human reproductive toxin with classification from animal data) | **Skin:** (skin - potential for cutaneous exposure)

ACGIH

- Formamide, N,N-dimethyl- (68-12-2): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen) | **Skin:** (Skin - potential significant contribution to overall exposure by the cutaneous route)
- Acetone (67-64-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

Germany TRGS

- Formamide, N,N-dimethyl- (68-12-2): **Skin:** (skin notation)
- 2-Butanone (78-93-3): **Skin:** (skin notation)

Germany DFG

- Formamide, N,N-dimethyl- (68-12-2): **Pregnancy:** (risk to embryo/fetus probable) | **Skin:** (skin notation)
- Acetone (67-64-1): **Pregnancy:** (risk to embryo/fetus probable by exposure at exposure limit level)
- 2-Butanone (78-93-3): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to) | **Skin:** (skin notation)

Exposure Limits Supplemental**Czech Republic**

- Formamide, N,N-dimethyl- (68-12-2): **Substances with Potential Chronic Health Effects:** (Potential chronic health effects)

OSHA

- N/A

ACGIH

- Formamide, N,N-dimethyl- (68-12-2): **BEIs:** (15 mg/L Medium: urine Time: end of shift Parameter: N-Methylformamide; 40 mg/L Medium: urine Time: end of shift of workweek Parameter: N-Acetyl-S-(N-methylcarbamoyl) cysteine (semi-quantitative)) | **TLV Basis - Critical Effects:** (liver damage)
- Acetone (67-64-1): **BEIs:** (50 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)) | **TLV Basis - Critical Effects:** (CNS impairment; eye and upper respiratory tract irritation; hematologic effects) | **Notice of Intended Changes (BEIs):** (25 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)) | **Notice of Intended Changes (TLVs):** (250 ppm TWA; 500 ppm STEL; A4 - not classifiable as a human carcinogen; BEI; TLV basis: CNS impairment, eye and upper respiratory tract irritation)
- 2-Butanone (78-93-3): **BEIs:** (2 mg/L Medium: urine Time: end of shift Parameter: MEK (nonspecific)) | **TLV Basis - Critical Effects:** (CNS and PNS impairment; upper respiratory tract irritation)

Germany TRGS

- Formamide, N,N-dimethyl- (68-12-2): **BELs:** (35 mg/L Medium: urine Time: end of shift Parameter: N,N-Methylformamide plus N-Hydroxymethyl-N-methylformamide)
- Acetone (67-64-1): **BELs:** (80 mg/L Medium: urine Time: end of shift Parameter: Acetone)
- 2-Butanone (78-93-3): **BELs:** (5 mg/L Medium: urine Time: end of shift Parameter: 2-Butanone)

8.2 Exposure controls**Engineering****Measures/Controls**

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment**Respiratory**

- In case of insufficient ventilation, wear suitable respiratory equipment. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear chemical splash safety goggles.

Skin/Body

- Wear appropriate gloves. Wear long sleeves and/or protective coveralls.

Environmental**Exposure Controls**

- Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

BEI = Biological Exposure Indices

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Level determined by the Occupational Safety and Health Administration (OSHA)

STEL = Short Term Exposure Limits are based on 15-minute exposures

STEV = Short Term Exposure Value

TLV = Threshold Limit Value determined by the American Conference of Governmental Industrial Hygienists (ACGIH)

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

TWAEV = Time-Weighted Average Exposure Value

Section 9 - Physical and Chemical Properties**9.1 Information on Physical and Chemical Properties**

| Material Description | | | |
|-------------------------------------|---------------------|------------------------|---------------------------------|
| Physical Form | Solid | Appearance/Description | Tan or light yellow solid sheet |
| Color | Tan or light yellow | Odor | None |
| Odor Threshold | Data lacking | | |
| General Properties | | | |
| Boiling Point | Not relevant | Melting Point | Data lacking |
| Decomposition Temperature | >200 C(392 F) | pH | Not relevant |
| Specific Gravity/Relative Density | 1.2 to 2 | Water Solubility | Negligible < 0.1 % |
| Viscosity | Data lacking | Explosive Properties | Data lacking |
| Oxidizing Properties: | Data lacking | | |
| Volatility | | | |
| Vapor Pressure | Not relevant | Vapor Density | Not relevant |
| Evaporation Rate | Not relevant | VOC (Wt.) | <0.2% |
| VOC (Vol.) | <0.2% | Volatiles (Wt.) | <0.2% |
| Volatiles (Vol.) | <0.2% | | |
| Flammability | | | |
| Flash Point | Not relevant | UEL | Data lacking |
| LEL | Data lacking | Autoignition | Data lacking |
| Flammability (solid, gas) | Data lacking | | |
| Environmental | | | |
| Octanol/Water Partition coefficient | Data lacking | | |

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity**10.1 Reactivity**

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous decomposition will occur at elevated temperatures.

10.4 Conditions to avoid

- Avoid exposure to excessive heat and flames, sparks, or other ignition sources.

10.5 Incompatible materials

- Strong acids, strong bases, strong oxidizers, amines.

10.6 Hazardous decomposition products

- Acrid vapors and fumes, aliphatic and aromatic hydrocarbons of variable composition, CO, CO₂, NO_x, HBr, HCN

Section 11 - Toxicological Information

11.1 Information on toxicological effects

| Components | | |
|--------------------------------------|------------|---|
| Formamide, N,N-dimethyl- (< 0.1%) | 68-12-2 | <p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 2000 mg/kg; Inhalation-Rat LC50 • 1948 ppm 4 Hour(s); Skin-Rabbit LD50 • 4720 mg/kg;</p> <p>Irritation: Eye-Rabbit • 100 mg-Rinse • Severe irritation; Skin-Human • 100 % 24 Hour(s) • Mild irritation;</p> <p>Multi-dose Toxicity: Ingestion/Oral-Rat TDLo • 9 mL/kg 12 Week(s)-Intermittent; Liver:Hepatitis (hepatocellular necrosis), diffuse; Liver:Changes in liver weight; Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Phosphatases;</p> <p>Mutagen: Cytogenetic analysis • Inhalation-Human • 12300 µg/m³ 1 Year(s);</p> <p>Reproductive: Inhalation-Rat TCLo • 4 mg/m³ 4 Hour(s)(1-19D preg); <i>Reproductive Effects:Effects on Fertility:Pre-implantation mortality; Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); Reproductive Effects:Effects on Embryo or Fetus:Fetal death;</i></p> <p>Tumorigen / Carcinogen: Inhalation-Rat TCLo • 200 ppm 6 Hour(s) 104 Week(s)-Intermittent; Liver:Tumors; Tumorigenic:Neoplastic by RTECS criteria</p> |
| 2-Butanone (< 0.1%) | 78-93-3 | <p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 2737 mg/kg; Inhalation-Rat LC50 • 23500 mg/m³ 8 Hour(s); Inhalation-Human TCLo • 1000 mg/m³; <i>Sense Organs and Special Senses:Eye:Conjunctive irritation; Lungs, Thorax, or Respiration:Cough;</i> Skin-Rabbit LD50 • 6480 mg/kg;</p> <p>Irritation: Eye-Human • 350 ppm; Skin-Rabbit • 500 mg 24 Hour(s) • Moderate irritation;</p> <p>Reproductive: Inhalation-Rat TCLo • 1000 ppm 7 Hour(s)(6-15D preg); <i>Reproductive Effects:Effects on Embryo or Fetus:Fetotoxicity (except death, e.g., stunted fetus); Reproductive Effects:Specific Developmental Abnormalities:Musculoskeletal system</i></p> |
| Acetone (< 0.1%) | 67-64-1 | <p>Acute Toxicity: Ingestion/Oral-Rat LD50 • 5800 mg/kg; <i>Behavioral:Altered sleep time (including change in righting reflex); Behavioral:Tremor;</i> Inhalation-Rat LC50 • 50100 mg/m³ 8 Hour(s);</p> <p>Irritation: Eye-Rabbit • 20 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation;</p> <p>Mutagen: Sex chromosome loss & nondisjunction • Inhalation-Mouse • 12 g/L;</p> <p>Reproductive: Ingestion/Oral-Rat TDLo • 273 g/kg (13W male); <i>Reproductive Effects:Paternal Effects:Spermatogenesis; Inhalation-Rat TCLo • 11000 ppm (6-19D preg); Reproductive Effects:Specific Developmental Abnormalities:Other developmental abnormalities</i></p> |
| Glass, oxide, chemicals (30% TO 65%) | 65997-17-3 | <p>Multi-dose Toxicity: Inhalation-Rat TCLo • 16 mg/m³ 6 Hour(s) 13 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Other changes</i></p> |

Potential Health Effects

Inhalation

Acute (Immediate)

- Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

Chronic (Delayed)

- No data available.

Skin

Acute

- May cause mild irritation.

(Immediate)

Chronic (Delayed) • No data available.

Eye

Acute (Immediate) • May cause mild eye irritation (dust).

Chronic (Delayed) • No data available.

Ingestion

Acute (Immediate) • No data available.

Chronic (Delayed) • No data available.

Mutagenic Effects • No data available.

Carcinogenic Effects • This product contains fibrous glass. Following a thorough review of all the medical-scientific data available at a meeting in October 2001, the IARC panel lowered the classification for fibrous glass from a Group 2B classification ("possibly carcinogenic to humans") to a Group 3 classification ("not classifiable as to carcinogenicity to humans"). According to IARC, there is "no evidence of increased risks of lung cancer from occupational exposures during manufacturing of these materials, and inadequate evidence overall of any cancer risk.

Reproductive Effects • No data available.

Key to abbreviations

LC = Lethal Concentration

LD = Lethal Dose

TC = Toxic Concentration

TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

- Not expected to be harmful to aquatic life.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

- Product waste**
- 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. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION 3: Composition Information. For UNUSED & UNCONTAMINATED PRODUCT, the preferred disposal option includes sending to a licensed, permitted waste handler and disposing with incinerator or other thermal destruction device.
- Packaging waste**
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

| | 14.1 UN number | 14.2 UN proper shipping name | 14.3 Transport hazard class(es) | 14.4 Packing group | 14.5 Environmental hazards |
|-----------|----------------|------------------------------|---------------------------------|--------------------|----------------------------|
| DOT | NA | Not Regulated | NA | NA | NDA |
| TDG | NA | Not Regulated | NA | NA | NDA |
| IMO/IMDG | NA | Not Regulated | NA | NA | NDA |
| IATA/ICAO | NA | Not Regulated | NA | NA | NDA |

14.6 Special precautions for user

- None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Material not supplied in bulk form.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Chronic

| State Right To Know | | | | | |
|--------------------------|------------|-----|-----|-----|--|
| Component | CAS | MA | NJ | PA | |
| 2-Butanone | 78-93-3 | Yes | Yes | Yes | |
| Formamide, N,N-dimethyl- | 68-12-2 | Yes | Yes | Yes | |
| Acetone | 67-64-1 | Yes | Yes | Yes | |
| Glass, oxide, chemicals | 65997-17-3 | Yes | No | Yes | |

| Inventory | | | | | | |
|--------------------------|---------|------------|-------------|-------|-----------|-----------|
| Component | CAS | Canada DSL | Canada NDSL | China | EU EINECS | EU ELNICS |
| 2-Butanone | 78-93-3 | Yes | No | Yes | Yes | No |
| Formamide, N,N-dimethyl- | 68-12-2 | Yes | No | Yes | Yes | No |
| Acetone | 67-64-1 | Yes | No | Yes | Yes | No |

| Glass, oxide, chemicals | 65997-17-3 | Yes | No | Yes | Yes | No |
|--------------------------|------------|------------|----|------------|-----|------|
| Inventory (Con't.) | | | | | | |
| Component | CAS | Japan ENCS | | Korea KECL | | TSCA |
| 2-Butanone | 78-93-3 | Yes | | Yes | | Yes |
| Formamide, N,N-dimethyl- | 68-12-2 | Yes | | Yes | | Yes |
| Acetone | 67-64-1 | Yes | | Yes | | Yes |
| Glass, oxide, chemicals | 65997-17-3 | Yes | | Yes | | Yes |

Australia

Labor

Australia - Work Health and Safety Regulations - Hazardous Substances Requiring Health Monitoring

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Australia - High Volume Industrial Chemicals List

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | |
| •Acetone | 67-64-1 | |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Australia - List of Designated Hazardous Substances - Classification

| | | |
|--|------------|------------------------------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Xn, Xi Repr.Cat.2 R61, R20/21, R36 |
| •2-Butanone | 78-93-3 | F, Xi R11, R36, R66, R67 |
| •Acetone | 67-64-1 | F, Xi R11, R36, R66, R67 |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Environment

Australia - National Pollutant Inventory (NPI) Substance List

| | | |
|--|------------|----------------------------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | 10 tonne/yr Threshold category 1 |
| •Acetone | 67-64-1 | 10 tonne/yr Threshold category 1 |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Australia - Ozone Protection Act - Scheduled Substances

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Australia - Priority Existing Chemical Program

| | | |
|--|------------|--------------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Candidate chemical |
| •2-Butanone | 78-93-3 | Candidate chemical |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Canada

Labor

Canada - WHMIS - Classifications of Substances

| | | |
|---------------------------|---------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
|---------------------------|---------|------------|

| | | |
|--|------------|--|
| •2-Butanone | 78-93-3 | B2, D2B |
| •Acetone | 67-64-1 | B2, D2B |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Uncontrolled product according to WHMIS classification criteria (listed under Glass wool); D2A (listed under Mineral wool fiber) |

Canada - WHMIS - Ingredient Disclosure List

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | 1 % |
| •2-Butanone | 78-93-3 | 1 % |
| •Acetone | 67-64-1 | 1 % |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Environment

Canada - CEPA - Priority Substances List

| | | |
|--|------------|--|
| •Formamide, N,N-dimethyl- | 68-12-2 | Priority Substance List 2 (substance not considered toxic) |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

| | | |
|--|------------|------------------------------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Xn; R20/21 Xi; R36 Repr.Cat.2; R61 |
| •2-Butanone | 78-93-3 | F; R11 Xi; R36 R66 R67 |
| •Acetone | 67-64-1 | F; R11 Xi; R36 R66 R67 |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Labelling

| | | |
|--|------------|----------------------------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | T R:61-20/21-36 S:53-45 |
| •2-Butanone | 78-93-3 | F Xi R:11-36-66-67 S:(2)-9-16 |
| •Acetone | 67-64-1 | F Xi R:11-36-66-67 S:(2)-9-16-26 |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | E |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Safety Phrases

| | | |
|---------------------------|---------|---------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | S:53-45 |
| •2-Butanone | 78-93-3 | S:(2)-9-16 |
| •Acetone | 67-64-1 | S:(2)-9-16-26 |

| | | |
|--|------------|------------|
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany

Environment

Germany - TA Luft - Types and Classes

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - TA Luft - Emission Limits for Carcinogenic Substances

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - TA Luft - Emission Limits for Fibers

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - TA Luft - Emission Limits for Inorganic Dusts

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - TA Luft - Emission Limits for Inorganic Gases

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - TA Luft - Emission Limits for Organic Substances

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - Water Classification (VwVwS) - Annex 1

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

| | | |
|--|------------|--|
| •Formamide, N,N-dimethyl- | 68-12-2 | ID Number 83, hazard class 1 - low hazard to waters |
| •2-Butanone | 78-93-3 | ID Number 150, hazard class 1 - low hazard to waters |
| •Acetone | 67-64-1 | ID Number 6, hazard class 1 - low hazard to waters |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Germany - Water Classification (VwVwS) - Annex 3

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

U.S. - OSHA - Specifically Regulated Chemicals

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

| | | |
|--|------------|--|
| •Formamide, N,N-dimethyl- | 68-12-2 | (listed under Dimethyl formamide) |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| | | (including mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers [or other mineral derived fibers] of average diameter 1 µm or less) |
| •Glass, oxide, chemicals as Glass wool fiber | | |

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

| | | |
|--|------------|------------------------------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | 100 lb final RQ; 45.4 kg final RQ |
| •2-Butanone | 78-93-3 | 5000 lb final RQ; 2270 kg final RQ |
| •Acetone | 67-64-1 | 5000 lb final RQ; 2270 kg final RQ |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

| | | |
|--|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

| | | |
|---------------------------|---------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |

| | | |
|--|------------|---|
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - CERCLA/SARA - Section 313 - Emission Reporting | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | 1.0 % de minimis concentration |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Included in waste streams: F005, F039 |
| •Acetone | 67-64-1 | Included in waste stream: F039 |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | |
| •Acetone | 67-64-1 | |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | |
| •Acetone | 67-64-1 | |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | 0.28 mg/L (wastewater); 36 mg/kg (nonwastewater) |
| •Acetone | 67-64-1 | 0.28 mg/L (wastewater); 160 mg/kg (nonwastewater) |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | |
| •Acetone | 67-64-1 | |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | waste number U159 (Ignitable waste, Toxic waste) |
| •Acetone | 67-64-1 | waste number U002 (Ignitable waste) |

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

| | | |
|---------------------------|---------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
|---------------------------|---------|------------|

| | | |
|--|------------|---|
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | carcinogen, initial date 7/1/90 (inhalable and biopersistent) |
| U.S. - California - Proposition 65 - Developmental Toxicity | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL) | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL) | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male | | |
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |
| •Glass, oxide, chemicals as Glass wool fiber | | Not Listed |

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

| | | |
|---------------------------|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | |
| •Acetone | 67-64-1 | |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

| | | |
|---------------------------|------------|------------|
| •Formamide, N,N-dimethyl- | 68-12-2 | Not Listed |
| •2-Butanone | 78-93-3 | Not Listed |
| •Acetone | 67-64-1 | Not Listed |
| •Glass, oxide, chemicals | 65997-17-3 | Not Listed |

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

15.3 Other Information

WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects, or other reproductive harm.

Section 16 - Other Information**Relevant Phrases (code & full text)**

- H226 - Flammable liquid and vapour
- H312 - Harmful in contact with skin
- H332 - Harmful if inhaled
- R10 - Flammable.
- R20/21 - Harmful by inhalation and in contact with skin.

Last Revision Date

- 12/July/2021

Preparation Date

- 27/May/2015

Disclaimer/Statement of Liability

- The information and recommendations contained in this Safety Data Sheet (SDS) are supplied pursuant to the Occupational Safety and Health Administration's Hazard Communication Standard as promulgated under 29 CFR 1910.1200 and the United States Environmental Protection Agency's Supplier Notification Rule as promulgated under 40 CFR 372.45. This document is intended only as a guide to the appropriate precautionary handling of the material by a person trained in the proper procedures of safe chemical handling. The information contained herein is provided in good faith with no representation as to its comprehensiveness or accuracy. No representations or warranties, either express or implied, of merchantability, or fitness for a particular purpose or of any nature are made with respect to the material described in this Safety Data Sheet. Chemical additions or processing or otherwise altering this material may make the safety information presented in this Safety Data Sheet incomplete, inaccurate or otherwise inappropriate. The information listed above does not include all state, federal, and international regulations. The regulatory information supplied may change from time to time. It is the user's responsibility to keep advised of all applicable regulatory requirements.