Your Dreams, Our Challenge

Safety Data Sheet

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

1.1 Product identifier

Product Name • **N4000-13 EP Copper Clad Laminate**

Synonyms • N4000-13 EP SI® Copper Clad 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

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

1.4 Emergency telephone number

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

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%
Calcium sulfate, Anhydrous	**CAS:**7778-18-9 **EC Number:**231-900-3	<2%
Cured Epoxy resin mixture	**CAS:**NA **EC Number:**NA	15% TO 35%
Glass, oxide, chemicals	**CAS:**65997-17-3 **EC Number:**266-046-0	15% TO 35%
Copper	**CAS:**7440-50-8 **EC Number:**231-159-6	30% TO 70%

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 77ºF 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/m3 STEL	Not established	750 ppm STEL; 1800 mg/m3 STEL	500 ppm STEL
	TWAs	500 ppm TWA	500 ppm TWA; 1185 mg/m3 TWA	780 ppm TWA LT; 1870 mg/m3 TWA LT	500 ppm TWA; 1200 mg/m3 TWA	250 ppm TWA
Formamide, N,N-dimethyl- (68-12-2)	TWAs	10 ppm TWA	10 ppm TWA; 30 mg/m3 TWA	8 ppm TWA LT; 24 mg/m3 TWA LT	10 ppm TWA; 30 mg/m3 TWA	10 ppm TWA
2-Butanone (78-93-3)	STELs	300 ppm STEL	300 ppm STEL; 890 mg/m3 STEL	Not established	300 ppm STEL; 885 mg/m3 STEL	100 ppm STEL
	TWAs	200 ppm TWA	150 ppm TWA; 445 mg/m3 TWA	155 ppm TWA LT; 460 mg/m3 TWA LT	200 ppm TWA; 590 mg/m3 TWA	50 ppm TWA
Calcium sulfate (7778-18-9)	TWAs	10 mg/m3 TWA	10 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) *as Glass wool fiber*	0.5 fibre/mL TWA (listed under Synthetic mineral fibres) *as Glass wool fiber*	Not established	1 fiber/cm3 TWA *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 under Synthetic vitreous fibers) *as Glass wool fiber*
Copper as Copper compounds	TWAs	0.2 mg/m3 TWA (fume)	1 mg/m3 TWA (dust and mist); 0.2 mg/m3 TWA (fume)		0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)	1 mg/m3 TWA (dust and mist); 0.2 mg/m3 TWA (fume)

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/m3 STEL	1250 ppm STEL; 2970 mg/m3 STEL	750 ppm STEL	1250 ppm STEL; 2970 mg/m3 STEL
	TWAs	500 ppm TWA	500 ppm TWA; 1188 mg/m3 TWA	1000 ppm TWA; 2370 mg/m3 TWA	500 ppm TWA	1000 ppm TWA; 2370 mg/m3 TWA
Formamide, N,N-dimethyl-	TWAs	10 ppm TWA	10 ppm TWA; 30 mg/m3 TWA	10 ppm TWA; 30 mg/m3 TWA	10 ppm TWA	10 ppm TWA; 30 mg/m3 TWA

(68-12-2)	STELs	Not established	Not established	20 ppm STEL; 60 mg/m3 STEL	Not established	20 ppm STEL; 60 mg/m3 STEL
2-Butanone (78-93-3)	STELs	300 ppm STEL	300 ppm STEL; 885 mg/m3 STEL	300 ppm STEL; 885 mg/m3 STEL	300 ppm STEL	300 ppm STEL; 885 mg/m3 STEL
	TWAs	200 ppm TWA	200 ppm TWA; 590 mg/m3 TWA	200 ppm TWA; 590 mg/m3 TWA	200 ppm TWA	200 ppm TWA; 590 mg/m3 TWA
Calcium sulfate (7778-18-9)	TWAs					
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) *as Glass wool fiber*	1 fiber/cm3 TWA (fibers >5 µm with a diameter of <3 µm, aspect ratio >5:1) *as Glass wool fiber*	3 fiber/cm3 TWA (with a diameter of <=3.5 µm and a length >=10 µm); 5 mg/m3 TWA (total mass) *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 under Synthetic vitreous fibers) *as Glass wool fiber*	3 fiber/cm3 TWA (with a diameter of <=3.5 µm and a length >=10 µm); 5 mg/m3 TWA (total mass) *as Glass wool fiber*
Copper as Copper compounds	TWAs	0.2 mg/m3 TWA (fume)	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)	0.2 mg/m3 TWA (fume)	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)
	STELs	Not established	Not established	0.6 mg/m3 STEL (fume); 2 mg/m3 STEL (dust and mist)	Not established	0.6 mg/m3 STEL (fume); 2 mg/m3 STEL (dust and mist)

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
Calcium sulfate (7778-18-9)	TWAs	10 mg/m3 TWA	10 mg/m3 TWA; 5 mg/m3 TWA respirable			
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	1 fibre/cm3 TWAEV (respirable, listed under Fibres-Artificial Vitreous Mineral Fibres) *as Glass wool fiber*	1 fiber/cm3 TWA (respirable fibers, listed under Synthetic vitreous fibers) *as Glass wool fiber*	30 mppcf TWA (dust or fiberous); 10 mg/m3 TWA (dust or fiberous) *as Glass wool fiber*	Not established

		phase-contrast illumination, listed under Synthetic vitreous fibers) *as Glass wool fiber*				
Copper as Copper compounds	STELs	Not established	Not established	Not established	Not established	2.5 mg/m3 STEL (dust); 0.6 mg/m3 STEL (fume)
	TWAs	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)	0.2 mg/m3 TWAEV (fume); 1 mg/m3 TWAEV (dust and mist)	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)	1 mg/m3 TWA (dust); 0.2 mg/m3 TWA (fume)
	Ceilings	Not established	Not established	Not established	Not established	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 MAK; 1200 mg/m3 TWA MAK	Not established
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
Calcium sulfate (7778-18-9)	TWAs			10 mg/m3 TWA	1.5 mg/m3 MAK; 4 mg/m3 TWA MAK	6 mg/m3 TWA respirable
Glass, oxide, chemicals as Glass wool fiber	TWAs	Not established	1 fiber/cm3 TWA *as Glass wool fiber*	Not established	Not established	Not established
Copper as Copper compounds	STELs	Not established	Not established	2 mg/m3 STEL [VLCT] (dust, as Cu)	Not established	Not established
	TWAs	1 mg/m3 TWA (dust); 0.1 mg/m3 TWA (fume)	1.0 mg/m3 TWA (dust and powder); 0.1 mg/m3 TWA (fume)	0.2 mg/m3 TWA [VME] (fume); 1 mg/m3 TWA [VME] (dust as Cu)	Not established	Not established
	Ceilings	2 mg/m3 Ceiling (dust); 0.2 mg/m3 Ceiling (fume)	Not established	Not established	0.02 mg/m3 Peak (respirable fraction)	Not established
	MAKs	Not established	Not established	Not established	0.01 mg/m3 TWA MAK (including inorganic copper compounds, respirable fraction)	Not established

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-	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

(68-12-2)	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
Calcium sulfate (7778-18-9)	TWAs					
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*
Copper as Copper compounds	TWAs	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust)	0.2 mg/m3 TWA (fume)	0.2 mg/m3 TWA (fume)	Not established	Not established
	STELs	2 mg/m3 STEL (dust)	Not established	Not established	Not established	Not established

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
Calcium sulfate (7778-18-9)	TWAs	10 mg/m3 TWA	10 mg/m3 TWA		10 mg/m3 TWA total dust; 5 mg/m3 TWA repsirable	15 mg/m3 TWA total dust; 5 mg/m3 TWA respirable.
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	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)	Not established

			magnification [4-mm objective], using phase-contrast illumination, listed under Synthetic vitreous fibers) *as Glass wool fiber*		*as Glass wool fiber*	
Copper as Copper compounds	TWAs	1 mg/m3 TWA (dust and mist, as Cu, Serial No. 010); 0.1 mg/m3 TWA (fume, as Cu, Serial No. 011)	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)	0.1 mg/m3 TWA (inhalable fraction)	1 mg/m3 TWA (dust and mist); 0.1 mg/m3 TWA (fume)	0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)
	STELs	2 mg/m3 STEL (dust and mist, as Cu, Serial No. 010)	Not established	Not established	Not established	Not established

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)
Calcium sulfate (7778-18-9)	TWAs	10 mg/m3 TWA		10 mg/m3 TWA [VLA-ED]
Glass, oxide, chemicals	TWAs	10 mg/m3 PEL *as Glass wool fiber*	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) *as Glass wool fiber*
Copper as Copper compounds	TWAs	0.2 mg/m3 PEL (fume); 1 mg/m3 PEL (dust and mist)	0.2 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist, as Cu)	0.2 mg/m3 TWA [VLA-ED] (fume); 1 mg/m3 TWA [VLA-ED] (dust and mist, as Cu)
	STELs	Not established	2 mg/m3 STEL (dust and mist, as Cu)	Not established

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

•Copper (7440-50-8): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)

•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

•Copper (7440-50-8): **TLV Basis-Critical Effects:** (metal fume fever (fume))

•Copper as Copper compounds: **TLV Basis-Critical Effects:** (gastrointestinal (dust and mist); irritation (dust and mist))

•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: prior to last 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	1.5 to 2.5	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, NOx, HBr, HCN

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Formamide, N,N-dimethyl- (<0.1%)	68-12-2	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 2000 mg/kg; Inhalation-Rat LC50 • 1948 ppm 4 Hour(s); Skin-Rabbit LD50 • 4720 mg/kg; **Irritation:** Eye-Rabbit • 100 mg-Rinse • Severe irritation; Skin-Human • 100 % 24 Hour(s) • Mild irritation; **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**; **Mutagen:** Cytogenetic analysis • Inhalation-Human • 12300 µg/m³ 1 Year(s); **Reproductive:** Inhalation-Rat TCLo • 4 mg/m³ 4 Hour(s)(1-19D preg); *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**; **Tumorigen / Carcinogen:** Inhalation-Rat TCLo • 200 ppm 6 Hour(s) 104 Week(s)-Intermittent; *Liver*:**Tumors**; *Tumorigenic*:**Neoplastic by RTECS criteria**
2-Butanone (< 0.1%)	78-93-3	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 2737 mg/kg; Inhalation-Rat LC50 • 23500 mg/m³ 8 Hour(s); Inhalation-Human TCLo • 1000 mg/m³; *Sense Organs and Special Senses:Eye*:**Conjunctive irritation**; *Lungs, Thorax, or Respiration*:**Cough**; Skin-Rabbit LD50 • 6480 mg/kg; **Irritation:** Eye-Human • 350 ppm; Skin-Rabbit • 500 mg 24 Hour(s) • Moderate irritation; **Reproductive:** Inhalation-Rat TCLo • 1000 ppm 7 Hour(s)(6-15D preg); *Reproductive Effects:Effects on Embryo or Fetus*:**Fetotoxicity (except death, e.g., stunted fetus)**; *Reproductive Effects:Specific Developmental Abnormalities*:**Musculoskeletal system**

Acetone (< 0.1%)	67-64-1	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 5800 mg/kg; *Behavioral*:**Altered sleep time (including change in righting reflex)**; *Behavioral*:**Tremor**; Inhalation-Rat LC50 • 50100 mg/m³ 8 Hour(s); **Irritation:** Eye-Rabbit • 20 mg 24 Hour(s) • Moderate irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Mild irritation; **Mutagen:** Sex chromosome loss & nondisjunction • Inhalation-Mouse • 12 g/L; **Reproductive:** Ingestion/Oral-Rat TDLo • 273 g/kg (13W male); *Reproductive Effects:Paternal Effects*:**Spermatogenesis**; Inhalation-Rat TCLo • 11000 ppm (6-19D preg); *Reproductive Effects:Specific Developmental Abnormalities*:**Other developmental abnormalities**
Glass, oxide, chemicals (15% TO 35%)	65997-17-3	**Multi-dose Toxicity:** Inhalation-Rat TCLo • 16 mg/m³ 6 Hour(s) 13 Week(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Other changes**

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 (Immediate)
- May cause mild irritation.

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
Calcium sulfate	7778-18-9	Yes	No	Yes
Glass, oxide, chemicals	65997-17-3	Yes	No	Yes
Copper	7440-50-8	Yes	Yes	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
Calcium sulfate	7778-18-9	Yes	No	Yes	Yes	No
Glass, oxide, chemicals	65997-17-3	Yes	No	Yes	Yes	No
Copper	7440-50-8	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
Calcium sulfate	7778-18-9	Yes	Yes	Yes
Glass, oxide, chemicals	65997-17-3	Yes	Yes	Yes
Copper	7440-50-8	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
•Copper	7440-50-8	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
•Copper	7440-50-8	

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
•Copper	7440-50-8	Self classification required (dust, fume, and mist)

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
•Copper	7440-50-8	10 tonne/yr Threshold category 1 (Copper and compounds); 2000 tonne/yr Threshold category 2b (Copper and compounds); 60000 MWH Threshold category 2b (Copper and compounds); 20 MW Threshold category 2b (Copper and compounds)

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
•Copper	7440-50-8	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
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	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)
•Copper	7440-50-8	Uncontrolled product according to WHMIS classification criteria

Canada - WHMIS - Ingredient Disclosure List

•Formamide, N,N-dimethyl-	68-12-2	1 %
•2-Butanone	78-93-3	1 %
•Acetone	67-64-1	1 %
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	1 %

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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Copper	7440-50-8	Inorganic dust Substance: 5.2.2, Class III

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
•Copper	7440-50-8	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
•Copper	7440-50-8	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
•Copper	7440-50-8	5 g/h Mass flow (Class III); 1 mg/m3 Mass concentration (Class III)

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
•Copper	7440-50-8	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
•Copper	7440-50-8	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
•Copper	7440-50-8	ID Number 1443, not considered hazardous to water
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
•Copper	7440-50-8	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
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		(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)
•Copper	7440-50-8	Not Listed

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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)
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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	1.0 % de minimis concentration
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

•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•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	
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Copper	7440-50-8	(total)
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	
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	(total)
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)
•Calcium sulfate	7778-18-9	Not Listed
•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	
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Copper	7440-50-8	(total)
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)
•Calcium sulfate	7778-18-9	Not Listed

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
•Calcium sulfate	7778-18-9	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)
•Copper	7440-50-8	Not Listed
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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Calcium sulfate	7778-18-9	Not Listed
•Glass, oxide, chemicals	65997-17-3	Not Listed
•Glass, oxide, chemicals as Glass wool fiber		Not Listed
•Copper	7440-50-8	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
•Copper	7440-50-8	(dust and fume)
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
•Copper	7440-50-8	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.