Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
3M Scotch-Weld™ 2214 HT/NF (3491)

Product Identification Numbers
FS-9000-1665-0

7000079791

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

Identified uses
Adhesive

1.3. Details of the supplier of the safety data sheet

Address:	3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone:	+44 (0)1344 858 000
E Mail:	tox.uk@mmm.com
Website:	www.3M.com/uk

1.4. Emergency telephone number
+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
CLP REGULATION (EC) No 1272/2008

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.

CLASSIFICATION:
Self-Heating Substance or Mixture, Category 1 - Self-heat. 1; H251
Serious Eye Damage/Eye Irritation, Category 2 - Eye Irrit. 2; H319

Skin Corrosion/Irritation, Category 2 - Skin Irrit. 2; H315
Skin Sensitization, Category 1 - Skin Sens. 1; H317
Carcinogenicity, Category 2 - Carc. 2; H351
Hazardous to the Aquatic Environment (Chronic), Category 1 - Aquatic Chronic 1; H410

For full text of H phrases, see Section 16.

2.2. Label elements
CLP REGULATION (EC) No 1272/2008

SIGNAL WORD
DANGER.

Symbols:
GHS02 (Flame) |GHS07 (Exclamation mark) | GHS08 (Health Hazard) |GHS09 (Environment) |

Pictograms

Ingredients:

Ingredient	CAS Nbr	EC No.	% by Wt
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	216-823-5	30 - 60
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4		5 - 10
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	239-841-5	< 2.5

HAZARD STATEMENTS:

H251	Self-heating; may catch fire.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

Prevention:

P280E	Wear protective gloves.
P273	Avoid release to the environment.

Response:

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Storage:

P413	Store bulk masses greater than 1 kg/2.2 lbs at temperatures
P413A	not exceeding 5C/40F.

Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

5% of the mixture consists of components of unknown acute oral toxicity.

Contains 9% of components with unknown hazards to the aquatic environment.

Notes on labelling

The epoxy resin is resistant to reaction with water and the aluminum is embedded in the resin so Water-react. 2, H261 is not applicable.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	216-823-5		30 - 60	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317 Aquatic Chronic 2, H411
Aluminium	7429-90-5	231-072-3		30 - 60	Flam. Sol. 1, H228; Water-react. 2, H261 - Nota T
Silicon	7440-21-3	231-130-8		< 10	Substance with an occupational exposure limit
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4			5 - 10	Skin Sens. 1, H317; Aquatic Chronic 2, H411
Calcium Carbonate	471-34-1	207-439-9		1 - 5	Substance with an occupational exposure limit
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7			1 - 5	Substance with an occupational exposure limit
copper flakes (coated with aliphatic acid)	7440-50-8	231-159-6		< 3	Aquatic Chronic 1, H410,M=100
MAGNESIUM POWDER (PYROPHORIC) (F; R:15-17)	7439-95-4	231-104-6		< 3	Pyr. Sol. 1, H250; Water-react. 1, H260 - Nota T
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	239-841-5		< 2.5	Skin Sens. 1, H317; Carc. 2, H351; Aquatic Acute 1, H400,M=10; Aquatic Chronic 1, H410,M=10

Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye contact
Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If swallowed
Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1 Information on toxicological effects

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Extinguishing media
In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture
Closed containers exposed to heat from fire may build pressure and explode.

Hazardous Decomposition or By-Products

Substance	Condition
Aldehydes.	During combustion.
Hydrocarbons.	During combustion.
Carbon monoxide	During combustion.
Carbon dioxide.	During combustion.
Hydrogen Chloride	During combustion.
Irritant vapours or gases.	During combustion.
Ketones.	During combustion.

5.3. Advice for fire-fighters
Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate area. Eliminate all ignition sources if safe to do so. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapours, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections
Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid skin contact with hot material. For industrial/occupational use only. Not for consumer sale or use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidising agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (eg. gloves, respirators…) as required.

7.2. Conditions for safe storage including any incompatibilities
Keep cool. Protect from sunlight. Store away from heat. Store bulk masses greater than 1 kg/2.2 lbs at temperatures not exceeding -20C/-4F. Maintain air gap between stacks/pallets. Store away from acids. Store away from strong bases. Store away from oxidising agents. Store away from other materials. Store away from amines.

7.3. Specific end use(s)
See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits
If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
Nickel, water-soluble inorganic compounds, except nickel carbonyl	15751-00-5	UK HSC	TWA(as Ni):0.1 mg/m3	SKIN; Resp Sensitizer
Limestone	471-34-1	UK HSC	TWA(respirable):4 mg/m3;TWA(as respirable dust):4 mg/m3;TWA(Inhalable):10 mg/m3;TWA(as inhalable dust):10 mg/m3	
Silicon dioxide	67762-90-7	UK HSC	TWA(as respirable dust):2.4 mg/m3;TWA(as inhalable dust):6 mg/m3	
Aluminium	7429-90-5	UK HSC	TWA(as respirable dust):4 mg/m3;TWA(as inhalable dust):10 mg/m3	
Silicon	7440-21-3	UK HSC	TWA(as respirable dust):4 mg/m3;TWA(as inhalable dust):10 mg/m3	
copper flakes (coated with aliphatic acid)	7440-50-8	UK HSC	TWA(as fume):0.2 mg/m3;TWA(as Cu, inhalable dusts/mists):1 mg/m3;STEL(as Cu, inhalable dusts/mists):2 mg/m3	

UK HSC : UK Health and Safety Commission
TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values
No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Derived no effect level (DNEL)

Ingredient	Degradation Product	Population	Human exposure pattern	DNEL
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Worker	Dermal, Long-term exposure (8 hours), Systemic effects	8.3 mg/kg bw/d
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Worker	Dermal, Short-term exposure, Systemic effects	8.3 mg/kg bw/d
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Worker	Inhalation, Long-term exposure (8 hours), Systemic effects	12.3 mg/m³
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Worker	Inhalation, Short-term exposure, Systemic effects	12.3 mg/m³

Predicted no effect concentrations (PNEC)

Ingredient	Degradation Product	Compartment	PNEC
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Freshwater	0.003 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Freshwater sediments	0.5 mg/kg d.w.
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Intermittent releases to water	0.013 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Marine water	0.0003 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Marine water sediments	0.5 mg/kg d.w.
bis-[4-(2,3-epoxipropoxi)phenyl]propane		Sewage Treatment Plant	10 mg/l

Recommended monitoring procedures: Information on recommended monitoring procedures can be obtained from UK HSC

8.2. Exposure controls

In addition, refer to the annex for more information.

8.2.1. Engineering controls
Provide appropriate local exhaust ventilation for cutting, grinding, sanding or machining. Provide ventilated enclosure for heat curing. Curing enclosures must be exhausted to outdoors or to a suitable emission control device. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Indirect vented goggles.

Applicable Norms/Standards
Use eye protection conforming to EN 166

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended:

Material	Thickness (mm)	Breakthrough Time
Polymer laminate	No data available	No data available

Applicable Norms/Standards
Use gloves tested to EN 374

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

Applicable Norms/Standards
Use a respirator conforming to EN 140 or EN 136: filter types A & P

Thermal hazards
Wear heat insulating gloves when handling hot material to prevent thermal burns.

Applicable Norms/Standards
Use gloves tested to EN 407

8.2.3. Environmental exposure controls
Refer to Annex

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Appearance

Physical state	Solid.
Colour	Off-White
Specific Physical Form:	Paste
Odor	Epoxy
Odour threshold	*No data available.*
pH	*Not applicable.*
Boiling point/boiling range	>=200 ºC
Melting point	*No data available.*
Flammability (solid, gas)	Self-Heating: Category 1.
Explosive properties	Not classified
Oxidising properties	Not classified
Flash point	>=150 ºC [*Test Method:*Closed Cup]
Autoignition temperature	*No data available.*
Flammable Limits(LEL)	*No data available.*
Flammable Limits(UEL)	*No data available.*
Vapour pressure	*Not applicable.*
Relative density	1.59 - 1.66 [*Ref Std:*WATER=1]
Water solubility	Nil
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Evaporation rate	*Not applicable.*
Vapour density	*Not applicable.*
Decomposition temperature	*No data available.*
Viscosity	>=800,000 mPa-s [@ 23 ºC]
Density	1.65 g/ml

9.2. Other information

EU Volatile Organic Compounds	*No data available.*
Percent volatile	0 %

SECTION 10: Stability and reactivity

10.1 Reactivity
This material may be reactive with certain agents under certain conditions - see the remaining headings in this section

10.2 Chemical stability
Stable.

10.3 Possibility of hazardous reactions
Hazardous polymerisation may occur. Exothermic reaction may occur if the product is heated .

10.4 Conditions to avoid
Avoid curing large quantities of material to prevent a premature reaction (exotherm) with production of intense heat and smoke.
Heat.

10.5 Incompatible materials
Amines.
Strong acids.
Strong bases.
Strong oxidising agents.

10.6 Hazardous decomposition products

Substance	Condition

None known.

Refer to section 5.2 for hazardous decomposition products during combustion.

SECTION 11: Toxicological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from 3M assessments.

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. May cause additional health effects (see below).

Skin contact
Mild Skin Irritation: Signs/symptoms may include localised redness, swelling, itching, and dryness. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye contact
Moderate eye irritation: Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Ingestion
Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. May cause additional health effects (see below).

Additional Health Effects:

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Toxicological Data
If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Aluminium	Dermal		LD50 estimated to be > 5,000 mg/kg
Aluminium	Ingestion		LD50 estimated to be > 5,000 mg/kg
Aluminium	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.888 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	Rat	LD50 > 1,600 mg/kg
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Rat	LD50 > 1,000 mg/kg
Silicon	Dermal	Rabbit	LD50 > 5,000 mg/kg
Silicon	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 2.08 mg/l
Silicon	Ingestion	Rat	LD50 3,160 mg/kg

Phenol-formaldehyde polymer, glycidyl ether	Dermal	Rabbit	LD50 > 6,000 mg/kg
Phenol-formaldehyde polymer, glycidyl ether	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 1.7 mg/l
Phenol-formaldehyde polymer, glycidyl ether	Ingestion	Rat	LD50 > 4,000 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Dermal	Rabbit	LD50 > 5,000 mg/kg
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Rat	LD50 > 5,110 mg/kg
Calcium Carbonate	Dermal	Rat	LD50 > 2,000 mg/kg
Calcium Carbonate	Inhalation-Dust/Mist (4 hours)	Rat	LC50 3 mg/l
Calcium Carbonate	Ingestion	Rat	LD50 6,450 mg/kg
copper flakes (coated with aliphatic acid)	Dermal	Rat	LD50 > 2,000 mg/kg
copper flakes (coated with aliphatic acid)	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 5.11 mg/l
copper flakes (coated with aliphatic acid)	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Aluminium	Rabbit	No significant irritation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Rabbit	Mild irritant
Silicon	Rabbit	No significant irritation
Phenol-formaldehyde polymer, glycidyl ether	Rabbit	Minimal irritation
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
Calcium Carbonate	Rabbit	No significant irritation
copper flakes (coated with aliphatic acid)	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Aluminium	Rabbit	No significant irritation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Rabbit	Moderate irritant
Silicon	Rabbit	Mild irritant
Phenol-formaldehyde polymer, glycidyl ether	Rabbit	Mild irritant
Siloxanes and Silicones, di-Me, reaction products with silica	Rabbit	No significant irritation
Calcium Carbonate	Rabbit	No significant irritation
copper flakes (coated with aliphatic acid)	Rabbit	Mild irritant

Skin Sensitisation

Name	Species	Value
Aluminium	Guinea pig	Not classified
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Human and animal	Sensitising
Phenol-formaldehyde polymer, glycidyl ether	Human and animal	Sensitising
Siloxanes and Silicones, di-Me, reaction products with silica	Human and animal	Not classified
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	similar compounds	Sensitising

Respiratory Sensitisation

Name	Species	Value
Aluminium	Human	Not classified
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
Aluminium	In Vitro	Not mutagenic
bis-[4-(2,3-epoxipropoxi)phenyl]propane	In vivo	Not mutagenic
bis-[4-(2,3-epoxipropoxi)phenyl]propane	In Vitro	Some positive data exist, but the data are not sufficient for classification
Phenol-formaldehyde polymer, glycidyl ether	In Vitro	Some positive data exist, but the data are not sufficient for classification
Siloxanes and Silicones, di-Me, reaction products with silica	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
Siloxanes and Silicones, di-Me, reaction products with silica	Not specified.	Mouse	Some positive data exist, but the data are not sufficient for classification
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	Not specified.	similar compounds	Carcinogenic.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Not classified for female reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Not classified for male reproduction	Rat	NOAEL 750 mg/kg/day	2 generation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	Not classified for development	Rabbit	NOAEL 300 mg/kg/day	during organogenesis
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	Not classified for development	Rat	NOAEL 750 mg/kg/day	2 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Siloxanes and Silicones, di-Me, reaction products with silica	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis
Calcium Carbonate	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	premating & during gestation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Calcium Carbonate	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Aluminium	Inhalation	nervous system | respiratory system	Not classified	Human	NOAEL Not available	occupational exposure

bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	liver	Not classified	Rat	NOAEL 1,000 mg/kg/day	2 years
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Dermal	nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	13 weeks
bis-[4-(2,3-epoxipropoxi)phenyl]propane	Ingestion	auditory system | heart | endocrine system | hematopoietic system | liver | eyes | kidney and/or bladder	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
Siloxanes and Silicones, di-Me, reaction products with silica	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure
Calcium Carbonate	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure

Aspiration Hazard
For the component/components, either no data is currently available or the data is not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Aluminium	7429-90-5	Fish other	Experimental	96 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Green Algae	Experimental	72 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Water flea	Experimental	48 hours	No tox obs at lmt of water sol	>100 mg/l
Aluminium	7429-90-5	Green Algae	Experimental	72 hours	No tox obs at lmt of water sol	100 mg/l
Aluminium	7429-90-5	Water flea	Experimental	21 days	NOEC	0.076 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Rainbow trout	Estimated	96 hours	LC50	2 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Water flea	Estimated	48 hours	EC50	1.8 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Green Algae	Experimental	72 hours	EC50	>11 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Green Algae	Experimental	72 hours	NOEC	4.2 mg/l
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Water flea	Experimental	21 days	NOEC	0.3 mg/l

Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Golden Orfe	Experimental	96 hours	LC50	5.7 mg/l
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Water flea	Experimental	48 hours	EC50	3.5 mg/l
Silicon	7440-21-3	Green Algae	Estimated	72 hours	EC50	250 mg/l
Silicon	7440-21-3	Green Algae	Estimated	72 hours	Effect Concentration 10%	228 mg/l
Calcium Carbonate	471-34-1	Green algae	Experimental	72 hours	EC50	>100 mg/l
Calcium Carbonate	471-34-1	Rainbow trout	Experimental	96 hours	LC50	>100 mg/l
Calcium Carbonate	471-34-1	Water flea	Experimental	48 hours	EC50	>100 mg/l
Calcium Carbonate	471-34-1	Green algae	Experimental	72 hours	Effect Concentration 10%	>100 mg/l
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7		Data not available or insufficient for classification			
copper flakes (coated with aliphatic acid)	7440-50-8	Green Algae	Experimental	72 hours	NOEC	0.0003 mg/l
MAGNESIUM POWDER (PYROPHORIC) (F; R:15-17)	7439-95-4	Fathead minnow	Estimated	96 hours	LC50	541 mg/l
MAGNESIUM POWDER (PYROPHORIC) (F; R:15-17)	7439-95-4	Water flea	Estimated	48 hours	LC50	140 mg/l
MAGNESIUM POWDER (PYROPHORIC) (F; R:15-17)	7439-95-4	Green algae	Estimated	72 hours	NOEC	>=12 mg/l
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	Common Carp	Experimental	96 hours	LC50	12 mg/l
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	Green Algae	Experimental	96 hours	EC50	0.06 mg/l
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	Water flea	Experimental	48 hours	EC50	0.12 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Aluminium	7429-90-5	Data not availbl-insufficient			N/A	
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Experimental Hydrolysis		Hydrolytic half-life	117 hours (t 1/2)	Other methods
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Experimental Biodegradation	28 days	BOD	5 %BOD/COD	OECD 301F - Manometric respirometry
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Laboratory Biodegradation	28 days	CO2 evolution	10-16 %CO2 evolution/THCO2 evolution (does not pass 10-day window)	OECD 301B - Modified sturm or CO2
Silicon	7440-21-3	Data not availbl-insufficient			N/A	
Calcium Carbonate	471-34-1	Data not availbl-insufficient			N/A	
Siloxanes and Silicones, di-Me, reaction products with	67762-90-7	Data not availbl-insufficient			N/A	

silica						
copper flakes (coated with aliphatic acid)	7440-50-8	Data not availbl-insufficient			N/A	
MAGNESIUM POWDER (PYROPHORIC) (F; R:15-17)	7439-95-4	Data not availbl-insufficient			N/A	
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	Data not availbl-insufficient			N/A	

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Aluminium	7429-90-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Experimental Bioconcentration		Log Kow	3.242	Other methods
Phenol-formaldehyde polymer, glycidyl ether	28064-14-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Silicon	7440-21-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Calcium Carbonate	471-34-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Siloxanes and Silicones, di-Me, reaction products with silica	67762-90-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
copper flakes (coated with aliphatic acid)	7440-50-8	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
MAGNESIUM POWDER (PYROPHORIC) (F; R:15-17)	7439-95-4	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil
Please contact manufacturer for more details

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Other adverse effects
No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the

available treatment and disposal facilities.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)

08 04 09*	Waste adhesives and sealants containing organic solvents or other dangerous substances
20 01 27*	Paint, inks, adhesives and resins containing dangerous substances

SECTION 14: Transportation information

FS-9000-1665-0

Component 1
ADR/RID: UN3088, SELF-HEATING SOLID, ORGANIC, N.O.S., (CONTAINS NICKEL SALT), 4.2, II , (D/E), ADR Classification Code: S2.
IMDG-CODE: UN3088, SELF-HEATING SOLID, ORGANIC, N.O.S., (CONTAINS NICKEL SALT), 4.2, II , IMDG-Code segregation code: NONE, EMS: FA,SJ.
ICAO/IATA: UN3088, SELF-HEATING SOLID, ORGANIC, N.O.S., (CONTAINS NICKEL SALT), 4.2, II .

Component 2
ADR/RID: UN1845, CARBON DIOXID, SOLID, AS COOLANT, --.
IMDG-CODE: UN1845, CARBON DIOXIDE, SOLID, (DRY ICE), AS COOLANT(FORBIDDEN FOR SEA EXCEPT FOR SHORT EUROPEAN FERRYCROSSINGS), 9., IMDG-Code segregation code: NONE, longer distance allowed in Reefer Container, EMS: FC,SV.
ICAO/IATA: UN1845, CARBON DIOXIDE, SOLID, 9..

SECTION 15: Regulatory information

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

Carcinogenicity

Ingredient	CAS Nbr	Classification	Regulation
bis-[4-(2,3-epoxipropoxi)phenyl]propane	1675-54-3	Gr. 3: Not classifiable	International Agency for Research on Cancer
Hexakis(1H-imidazole-N3)nickel(2+) dichloride	15751-00-5	Carc. 2	3M classified according to Regulation (EC) No 1272/2008

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

H228	Flammable solid.
H250	Catches fire spontaneously if exposed to air.
H251	Self-heating; may catch fire.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H261	In contact with water releases flammable gas.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Revision information:
Industrial Mixing and Application: Section 16: Annex information was modified.
Industrial Transfer: Section 16: Annex information was modified.
CLP: Ingredient table information was modified.
Label: CLP Classification information was modified.
Label: CLP Percent Unknown information was modified.
Label: CLP Precautionary - Prevention information was modified.
Section 3: Composition/ Information of ingredients table information was modified.
Section 5: Hazardous combustion products table information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Appropriate Engineering controls information information was modified.
Section 8: DNEL table row information was modified.
Section 8: Occupational exposure limit table information was modified.
Section 8: Personal Protection - Respiratory Information information was modified.
Section 8: PNEC table row information was modified.
Section 09: Color information was added.
Section 9: Flash point information information was modified.
Section 09: Odor information was added.
Sections 3 and 9: Odour, colour, grade information information was deleted.
Section 10: Hazardous decomposition or by-products table information was modified.
Section 11: Acute Toxicity table information was modified.
Section 11: Carcinogenicity Table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Reproductive and/or Developmental Effects text information was deleted.
Section 11: Reproductive Toxicity Table information was modified.
Section 11: Respiratory Sensitization Table information was modified.
Section 11: Serious Eye Damage/Irritation Table information was modified.
Section 11: Skin Corrosion/Irritation Table information was modified.
Section 11: Skin Sensitization Table information was modified.
Section 11: Target Organs - Repeated Table information was modified.
Section 12: Component ecotoxicity information information was modified.
Section 12: No PBT/vPvB information available warning information was modified.
Section 12: Persistence and Degradability information information was modified.
Section 12:Bioccumulative potential information information was modified.
Section 13: 13.1. Waste disposal note information was modified.
Section 15: Carcinogenicity information information was modified.
Section 15: Chemical Safety Assessment information was modified.
Section 15: Regulations - Inventories information was deleted.
Two-column table displaying the unique list of H Codes and statements (std phrases) for all components of the given material. information was modified.
Sectio 16: UK disclaimer information was deleted.

Annex

1. Title	
Substance identification	
Exposure Scenario Name	Industrial Mixing and Application
Lifecycle Stage	Use at industrial sites
Contributing activities	PROC 05 -Mixing or blending in batch processes PROC 13 -Treatment of articles by dipping and pouring ERC 05 -Use at industrial site leading to inclusion into/onto article
Processes, tasks and activities covered	Application of product with applicator gun. Mixing operations (open systems).
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Duration of exposure per day at workplace [for one worker]: 8 hours/day; Emission days per year: 220 days per year; Local freshwater dilution factor: 10 ; Local marine water dilution factor: 100 ; Used amount or applied quantity per task/application by worker: 3,550 kg per day;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:** **Human health:** Provide extract ventilation to points where emissions occur; Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Refer to Section 8 of the SDS for specific glove material.; **Environmental:** None needed;
Waste management measures	Discharge to aquatic environment is restricted; Do not apply industrial sludge to natural soils; Prevent discharge of undissolved substance to or recover from wastewater; Sludge should be incinerated, contained or reclaimed;
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

1. Title	
Substance identification	
Exposure Scenario Name	Industrial Transfer
Lifecycle Stage	Use at industrial sites
Contributing activities	PROC 09 -Transfer of substance or mixture into small containers (dedicated filling line, including weighing) ERC 02 -Formulation into mixture
Processes, tasks and activities covered	Transfer of substances/mixtures into small containers e.g. tubes , bottles or small reservoirs.
2. Operational conditions and risk management measures	
Operating Conditions	**Physical state:**Liquid. **General operating conditions:** Continuous release; Duration of exposure per day at workplace [for one worker]: 8 hours/day; Emission days per year: 225 days per year; Local freshwater dilution factor: 10 ; Local marine water dilution factor: 100 ;
Risk management measures	Under the operational conditions described above the following risk management measures apply: **General risk management measures:**

	Human health: Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Refer to Section 8 of the SDS for specific glove material.; **Environmental:** None needed;
Waste management measures	Discharge to aquatic environment is restricted; Do not apply industrial sludge to natural soils; Sludge should be incinerated, contained or reclaimed;
3. Prediction of exposure	
Prediction of exposure	Human and environmental exposures are not expected to exceed the DNELs and PNECs when the identified risk management measures are adopted.

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