Lead-Free Solder Paste, SN100C, WS353, Water Soluble

Chemtools Pty Ltd

Chemwatch Hazard Alert Code: **3**

Chemwatch: **5660-70**
Version No: **3.1**
Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements
Safety Data Sheet according to the Health and Safety at Work (Hazardous Substances) Regulations 2017

Issue Date: **27/03/2024**
Print Date: **02/04/2024**
S.GHS.AUS/NZ.EN.E

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

Product Identifier

Product name	Lead-Free Solder Paste, SN100C, WS353, Water Soluble
Chemical Name	Not Applicable
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains tin)
Chemical formula	Not Applicable
Other means of identification	Not Available

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

Relevant identified uses	Solder paste. Use according to manufacturer's directions.

Details of the manufacturer or supplier of the safety data sheet

Registered company name	**Chemtools Pty Ltd**	**Chemtools Ltd**
Address	Unit 2, 14 - 16 Lee Holm Road St Marys NSW 2760 Australia	15/62 Factory Road Belfast Christchurch 8051 New Zealand
Telephone	1300 738 250, +61 2 9833 9766	+64 3 323 4177
Fax	+61 2 9623 3670	+61 2 9623 3670
Website	www.chemtools.com.au	www.chemtools.co.nz
Email	sales@chemtools.com.au	sales@chemtools.com.au

Emergency telephone number

Association / Organisation	**Poisons Information Centre**	**National Poisons Centre**
Emergency telephone numbers	**13 11 26**	**0800 764 766**
Other emergency telephone numbers	**Not Available**	**Not Available**

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

Poisons Schedule	Not Applicable
Classification [1]	Acute Toxicity (Oral) Category 3, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 1, Germ Cell Mutagenicity Category 1A, Reproductive Toxicity Category 1A, Specific Target Organ Toxicity - Repeated Exposure Category 2, Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 3
Legend:	***1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI***

Label elements

Page 1 continued...

Hazard pictogram(s)	
Signal word	**Danger**

Hazard statement(s)

H301	Toxic if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H340	May cause genetic defects.
H360D	May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P273	Avoid release to the environment.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P330	Rinse mouth.
P391	Collect spillage.
P302+P352	IF ON SKIN: Wash with plenty of water.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Precautionary statement(s) Storage

P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation.
Classified as Dangerous Goods for transport purposes.

NFPA 704 diamond

Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

Classification [1]	Acute Toxicity (Oral) Category 3, Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 1, Germ Cell Mutagenicity Category 1, Reproductive Toxicity Category 1, Specific Target Organ Toxicity - Repeated Exposure Category 2, Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 1
Legend:	***1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI***
Determined by Chemwatch	6.1C (oral), 6.3A, 8.3A, 6.5B (contact), 6.6A, 6.8A, 6.9B, 9.1A

Continued...

using GHS/HSNO criteria	

Label elements

Hazard pictogram(s)	
Signal word	**Danger**

Hazard statement(s)

H301	Toxic if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H340	May cause genetic defects.
H360	May damage fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P260	Do not breathe mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P273	Avoid release to the environment.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

Precautionary statement(s) Storage

P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7440-31-5	<=90	tin

Continued...

CAS No	%[weight]	Name
9004-99-3	<=3	stearic acid ethoxylated
872-50-4	<=3	N-methyl-2-pyrrolidone
61790-85-0	<=3	N-(tallow alkyl)-1,3-diaminopropane, ethoxylated
111-42-2	<=3	diethanolamine
7440-50-8	<1	copper
7440-02-0	<0.1	nickel

Legend:	***1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; * EU IOELVs available***

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Immediately hold eyelids apart and flush the eye continuously with running water. ▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▸ Transport to hospital or doctor without delay. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	▸ If fumes or combustion products are inhaled remove from contaminated area. ▸ Lay patient down. Keep warm and rested. ▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▸ Transport to hospital, or doctor, without delay.
Ingestion	▸ **IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.** ▸ For advice, contact a Poisons Information Centre or a doctor. ▸ Urgent hospital treatment is likely to be needed. ▸ In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. ▸ If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. ▸ If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. **Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:** ▸ **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. **NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

- Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
- Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.
- Although mildly elevated urinary levels of heavy metal may occur they do not correlate with clinical effects.
- The general approach to treatment is recognition of the disease, supportive care and prevention of exposure.
- Seriously symptomatic patients should receive chest x-rays, have arterial blood gases determined and be observed for the development of tracheobronchitis and pulmonary edema.

[Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 Firefighting measures

Continued...

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

Special hazards arising from the substrate or mixture

Fire Incompatibility	▸ Reacts with acids producing flammable / explosive hydrogen (H2) gas ▸ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves in the event of a fire. ▸ Prevent, by any means available, spillage from entering drains or water courses. ▸ Use fire fighting procedures suitable for surrounding area. ▸ **DO NOT** approach containers suspected to be hot. ▸ Cool fire exposed containers with water spray from a protected location. ▸ If safe to do so, remove containers from path of fire. ▸ Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge. ▸ Non combustible. ▸ Not considered to be a significant fire risk. ▸ Expansion or decomposition on heating may lead to violent rupture of containers. ▸ Decomposes on heating and may produce toxic fumes of carbon monoxide (CO). ▸ May emit acrid smoke. Decomposition may produce toxic fumes of: carbon dioxide (CO_2) nitrogen oxides (NOx) metal oxides other pyrolysis products typical of burning organic material.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	Environmental hazard - contain spillage. ▸ Clean up all spills immediately. ▸ Avoid contact with skin and eyes. ▸ Wear impervious gloves and safety goggles. ▸ Trowel up/scrape up. ▸ Place spilled material in clean, dry, sealed container. ▸ Flush spill area with water.
Major Spills	Environmental hazard - contain spillage. Minor hazard. ▸ Clear area of personnel. ▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Control personal contact with the substance, by using protective equipment as required. ▸ Prevent spillage from entering drains or water ways. ▸ Contain spill with sand, earth or vermiculite. ▸ Collect recoverable product into labelled containers for recycling. ▸ Absorb remaining product with sand, earth or vermiculite and place in appropriate containers for disposal. ▸ Wash area and prevent runoff into drains or waterways. ▸ If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	▸ Avoid all personal contact, including inhalation. ▸ Wear protective clothing when risk of exposure occurs. ▸ Use in a well-ventilated area.

Continued...

	▸ Prevent concentration in hollows and sumps. ▸ **DO NOT** enter confined spaces until atmosphere has been checked. ▸ **DO NOT** allow material to contact humans, exposed food or food utensils. ▸ Avoid contact with incompatible materials. ▸ When handling, **DO NOT** eat, drink or smoke. ▸ Keep containers securely sealed when not in use. ▸ Avoid physical damage to containers. ▸ Always wash hands with soap and water after handling. ▸ Work clothes should be laundered separately. Launder contaminated clothing before re-use. ▸ Use good occupational work practice. ▸ Observe manufacturer's storage and handling recommendations contained within this SDS. ▸ Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
Other information	▸ **DO NOT** store near acids, or oxidising agents ▸ Store in original containers. ▸ Keep containers securely sealed. ▸ Store in a cool, dry, well-ventilated area. ▸ Store away from incompatible materials and foodstuff containers. ▸ Protect containers against physical damage and check regularly for leaks. ▸ Observe manufacturer's storage and handling recommendations contained within this SDS.

Conditions for safe storage, including any incompatibilities

Suitable container	▸ Metal can or drum ▸ Packaging as recommended by manufacturer. ▸ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Chips, fines and dust are considerably more reactive in the presence of: ▸ Water - slowly generates flammable/explosive hydrogen gas and heat (generation rate is greatly increased with smaller particles (e.g., fines and dusts). ▸ Heat - oxidise at a rate dependent upon temperature and particle size. ▸ Strong oxidisers - violent reaction with considerable heat generation; an react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) when heated or molten. ▸ Acids and alkalis - reacts to generate flammable/explosive hydrogen gas; generation rate is greatly increased with smaller particles (e.g., fines and dusts). ▸ Halogenated compounds including halogenated fire extinguishing agents, which may react violently with finely divided or molten metals ▸ Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides) which may produce a violent thermit reaction, initiated by a weak ignition source, generating considerable heat.. ▸ Iron powder and water which may react explosively forming hydrogen gas when heated above 800 degrees C (1470 deg F). Finely divided metals (e.g., powders or wire) may have enough surface oxide to produce thermit reactions/explosions ▸ Avoid reaction with oxidising agents ▸ Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.

+	x	o	x	+	+	o

X — *Must not be stored together*
0 — *May be stored together with specific preventions*
\+ — *May be stored together*

Note: Depending on other risk factors, compatibility assessment based on the table above may not be relevant to storage situations, particularly where large volumes of dangerous goods are stored and handled. Reference should be made to the Safety Data Sheets for each substance or article and risks assessed accordingly.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	tin	Tin, metal	2 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	tin	Respirable dust (not otherwise classified)	3 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	tin	Inhalable dust (not otherwise classified)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	stearic acid ethoxylated	Inhalable dust (not otherwise classified)	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace	stearic acid	Respirable dust (not	3 mg/m3	Not	Not	Not Available

Continued...

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Exposure Standards (WES)	ethoxylated	otherwise classified)		Available	Available	
Australia Exposure Standards	N-methyl-2-pyrrolidone	1-Methyl-2-pyrrolidone	25 ppm / 103 mg/m3	309 mg/m3 / 75 ppm	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	N-methyl-2-pyrrolidone	1-Methyl-2-pyrrolidone	10 ppm / 40 mg/m3	80 mg/m3 / 20 ppm	Not Available	(skin) - Skin absorption
Australia Exposure Standards	diethanolamine	Diethanolamine	3 ppm / 13 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	diethanolamine	Diethanolamine	3 ppm / 13 mg/m3	Not Available	Not Available	(skin) - Skin absorption
Australia Exposure Standards	copper	Copper (fume)	0.2 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	copper	Copper, dusts & mists (as Cu)	1 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	copper	Copper and its inorganic compounds, as Cu respirable dust	0.01 mg/m3	Not Available	Not Available	(dsen) - Dermal sensitiser
New Zealand Workplace Exposure Standards (WES)	copper	Respirable dust (not otherwise classified)	3 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	copper	Inhalable dust (not otherwise classified)	10 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	nickel	Nickel, metal	1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	nickel	Nickel, powder	1 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	nickel	Nickel, elemental or metallic respirable dust	0.005 mg/m3	Not Available	Not Available	carcinogen category 2 - Suspected human carcinogen (sen) - Sensitiser

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
tin	6 mg/m3	67 mg/m3	400 mg/m3
N-methyl-2-pyrrolidone	30 ppm	32 ppm	190 ppm
diethanolamine	3 mg/m3	28 mg/m3	130 mg/m3
copper	3 mg/m3	33 mg/m3	200 mg/m3
nickel	4.5 mg/m3	50 mg/m3	99 mg/m3

Ingredient	Original IDLH	Revised IDLH
tin	Not Available	Not Available
stearic acid ethoxylated	Not Available	Not Available
N-methyl-2-pyrrolidone	Not Available	Not Available
N-(tallow alkyl)-1,3-diaminopropane, ethoxylated	Not Available	Not Available
diethanolamine	Not Available	Not Available
copper	100 mg/m3	Not Available
nickel	10 mg/m3	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
N-(tallow alkyl)-1,3-diaminopropane, ethoxylated	E	≤ 0.1 ppm
Notes:	***Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.***	

Exposure controls

Appropriate engineering controls	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are: Process controls which involve changing the way a job activity or process is done to reduce the risk.

Continued...

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use. Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Individual protection measures, such as personal protective equipment

Eye and face protection

- Safety glasses with side shields.
- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

Skin protection

See Hand protection below

Hands/feet protection

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

Body protection

See Other protection below

Other protection

- Overalls.
- P.V.C apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
Lead-Free Solder Paste, SN100C, WS353, Water Soluble

Respiratory protection

Type AK-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Continued...

Material	CPI
BUTYL	A
NATURAL RUBBER	B
NATURAL+NEOPRENE	C
NEOPRENE	C
NITRILE	C
PE/EVAL/PE	C
PVA	C
PVC	C
TEFLON	C
VITON	C

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Ansell Glove Selection

Glove — *In order of recommendation*
AlphaTec 02-100
MICROFLEX® 93-260
AlphaTec® 38-612
MICROFLEX® 63-864
MICROFLEX® Diamond Grip® MF-300
TouchNTuff® 83-500
AlphaTec® 53-001
AlphaTec® 58-005
AlphaTec® Solvex® 37-175
BioClean™ Emerald BENS

The suggested gloves for use should be confirmed with the glove supplier.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	AK-AUS P2	-	AK-PAPR-AUS / Class 1 P2
up to 50 x ES	-	AK-AUS / Class 1 P2	-
up to 100 x ES	-	AK-2 P2	AK-PAPR-2 P2 ^

^ - Full-face
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Solder paste.

Physical state	Non Slump Paste	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Applicable
pH (as supplied)	Not Available	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Applicable
Flash point (°C)	Not Applicable	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	Not Available

Continued...

Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Not Available	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

Information on toxicological effects

Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. Component metals which form part of massive metals and their alloys are “locked” into a metal lattice, and as a result they are not easily absorbed following inhalation. Secondary processes (for example, a change in pH or the action of bacteria in the gut) may allow certain substances to be released in low concentrations. Inhalation of high vapour concentrations of N-methyl-2-pyrrolidone (NMP) may produce mucous membrane irritation, headache, giddiness, mental confusion and nausea. Fatalities were not recorded following inhalation of 180-200 mg/m3 for 2 hours by mice and following a 6 hour exposure to saturated vapours by rats. Laboratory animals exposed to concentrations of 50 ppm for 8 hours daily for 20 days or 370 ppm for 6 hours daily for 10 days showed no gross or histopathological abnormalities The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness. Headache, nausea and vomiting, fever or chills, restlessness, sweating, diarrhoea, excessive urination and prostration may also occur.
Ingestion	Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Poorly absorbed from the gut, tin salts are most likely to cause poisoning if injected. Tin is **highly toxic**, producing diarrhoea, muscle paralysis, twitching and nervous damage. Tin salts are not very toxic. However, at high concentration, nausea, vomiting and diarrhoea can occur.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Particles and foreign bodies produced by high speed processes may penetrate the skin. Even after the wound heals, persons with retained foreign bodies may experience sharp pain with movement or pressure over the site. Discolouration or a visible mass under the epidermis may be obvious. A foreign body pressing against nerves may result in numbness or tingling (“pins and needles”), with decreased sensation. Persons with diabetes, or a history of vascular problems, have a higher potential to acquire an infection. Prolonged contact with N-methyl-2-pyrrolidone (NMP) reportedly causes severe irritation and dermatitis with redness, cracking, swelling, blisters and oedema. Latex gloves are not sufficiently protective. Open cuts, abraded or irritated skin should not be exposed to this material
Eye	If applied to the eyes, this material causes severe eye damage. Contact with the eye by metal dusts may cause scratching on the cornea and other injuries, which are usually minor. However, foreign body penetration of the eyeball may cause infection or result in permanent loss of vision. High-speed machines (such as drills and saws) can produce white-hot particles of metal that resemble sparks. Any of these white-hot particles can enter the unprotected eye, and become embedded deep within it. Foreign bodies that penetrate the inside of the eye can cause infection (endophthalmitis). During the first hours after injury, symptoms of foreign bodies within the eye may be similar to those of scratching of the cornea. However, people with foreign bodies within the eye may also have a noticeable loss of vision. Fluid may leak from the eye, although this may not be noticeable if the foreign body is small. Pain may also increase after the first few hours. Direct contact with liquid N-methyl-2-pyrrolidone (NMP) may produce painful burning or stinging of the eyes and lids, watering and inflammation of the conjunctiva and temporary clouding of the cornea. Scratches of the cornea, caused by particles and foreign bodies, usually cause pain, tearing, and a feeling that there is something in the eye. They may also cause redness (due to inflamed blood vessels on the surface of the eye), or occasionally, a swelling of the eye and eyelid. Vision may become blurred. Light may be a source of irritation or may cause the muscle that constructs the pupil to undergo a painful spasm. Injuries that penetrate the eye may cause similar symptoms. If a foreign object penetrates the inside of the eye, fluid may leak out.
Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

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	Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. There is ample evidence to presume that exposure to this material can cause genetic defects that can be inherited. Based on experiments and other information, there is ample evidence to presume that exposure to this material can cause genetic defects that can be inherited. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Ample evidence exists that developmental disorders are directly caused by human exposure to the material. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Metallic dusts generated by the industrial process give rise to a number of potential health problems. The larger particles, above 5 micron, are nose and throat irritants. In animal testing, N-methyl-2-pyrrolidone (NMP) has not been shown to cause cancer. There is no evidence of it being toxic to the kidney. In animals, reproductive effects have been reported, and very high doses are toxic to the embryo. Chronic exposure to tin dusts and fume can result in substantial amounts being deposited in the lungs and result in reduced lung function and difficulty breathing.

	TOXICITY	IRRITATION
Lead-Free Solder Paste, SN100C, WS353, Water Soluble	Not Available	Not Available
tin	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Eye: no adverse effect observed (not irritating)[1]
	Inhalation (Rat) LC50: >4.75 mg/l4h[1]	Skin: no adverse effect observed (not irritating)[1]
	Oral (Rat) LD50: >2000 mg/kg[1]	
stearic acid ethoxylated	**TOXICITY**	**IRRITATION**
	Oral (Rat) LD50: >25000 mg/kg[2]	Not Available
N-methyl-2-pyrrolidone	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 8000 mg/kg[2]	Eye (rabbit): 100 mg - moderate *[Manufacturer]
	Inhalation (Rat) LC50: 3.1-8.8 mg/l4h[2]	
	Oral (Rat) LD50: 3914 mg/kg[2]	
N-(tallow alkyl)-1,3-diaminopropane, ethoxylated	**TOXICITY**	**IRRITATION**
	Oral (Rat) LD50: 770 mg/kg[2]	Not Available
diethanolamine	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 12200 mg/kg[2]	Eye (rabbit): 5500 mg - SEVERE
	Oral (Rat) LD50: 710 mg/kg[2]	Eye (rabbit):0.75 mg/24 hr SEVERE
		Eye: adverse effect observed (irritating)[1]
		Skin (rabbit): 50 mg (open)-mild
		Skin (rabbit): 500 mg/24 hr-mild
		Skin: adverse effect observed (irritating)[1]
copper	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Eye: no adverse effect observed (not irritating)[1]
	Inhalation (Rat) LC50: 0.733 mg/l4h[1]	Skin: no adverse effect observed (not irritating)[1]
	Oral (Mouse) LD50; 0.7 mg/kg[2]	
nickel	**TOXICITY**	**IRRITATION**
	Oral (Rat) LD50: 5000 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
		Skin: no adverse effect observed (not irritating)[1]
Legend:	***1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances***	

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TIN	No significant acute toxicological data identified in literature search.
STEARIC ACID ETHOXYLATED	Aliphatic Esters Panel, Group C substances are comprised of an acid and an alcohol. They are relatively non-volatile, with high boiling and low water solubility. They are useful lubricants and solvents. They have a low degree oral and skin toxicity level in both acute and chronic settings. There is inadequate toxicity data to date, but evidence suggests that it does not cause reproductive, developmental or genetic damage.
N-METHYL-2-PYRROLIDONE	For N-methyl-2-pyrrolidone (NMP): Acute toxicity: Animal testing shows NMP is quickly absorbed after inhalation, swallowing and administration on skin, distributed throughout the body, and eliminated mostly by hydroxylation to polar compounds, which are excreted in the urine. In animal testing NMP has a low potential for skin irritation and a moderate potential for eye irritation. Repeated daily doses of high amounts on the skin have caused severe, painful bleeding and eschar formation. In general, animal testing suggests NMP has low acute toxicity. Exposure to toxic amounts caused functional disturbances and depression of the central nervous system. Local irritation of the airway occurred after inhalation, and irritation of the gastrointestinal tract occurred after swallowing in animals. Repeat dose toxicity: There is no clear toxicity profile for NMP after multiple administration. In animal testing, shrinking of the testes and thymus gland were observed, together with an increase in red blood cells, after exposure to high amounts. There is no data for humans after repeated-dose exposure. Cancer-causing potential: NMP did not show any clear evidence for cancer-causing ability in an animal test for inhalation. Genetic toxicity: The potential for NMP to cause mutations is rare. Tests do reveal that NMP may cause chromosome aberrations with bacteria and yeast. No tests involving human cells are available. Reproductive toxicity: In animal tests, exposure to NMP resulted in a decrease in foetal weight. Developmental toxicity: Animal testing showed that NMP can result in decreased foetal weights and delayed bone development. A substance (or part of a group of chemical substances) of very high concern (SVHC) - or product containing an SVHC: It is proposed that use within the European Union be subject to authorisation under the REACH Regulation.Indeed, listing of a substance as an SVHC by the European Chemicals Agency (ECHA) is the first step in the procedure for authorisation or restriction of use of a chemical. The criteria are given in article 57 of the REACH Regulation. A substance may be proposed as an SVHC if it meets one or more of the following criteria: ▸ it is carcinogenic *; ▸ it is mutagenic *; ▸ it is toxic for reproduction *; ▸ it is persistent, bioaccumulative and toxic (PBT substances); ▸ it is very persistent and very bioaccumulative (vPvB substances); ▸ there is "scientific evidence of probable serious effects to human health or the environment which give rise to an equivalent level of concern"; such substances are identified on a case-by-case basis. * Collectively described as CMR substances The "equivalent concern" criterion is significant because it is this classification which allows substances which are, for example, neurotoxic, endocrine-disrupting or otherwise present an unanticipated environmental health risk to be regulated under REACH] Simply because a substance meets one or more of the criteria does not necessarily mean that it will be proposed as an SVHC. Many such substances are already subject to restrictions on their use within the European Union, such as those in Annex XVII of the REACH Regulation SVHCs are substances for which the current restrictions on use (where these exist) might be insufficient. There are three priority groups for assessment: ▸ PBT substances and vPvB substances; ▸ substances which are widely dispersed during use; ▸ substances which are used in large quantities.
N-(TALLOW ALKYL)-1,3-DIAMINOPROPANE, ETHOXYLATED	for similar product: The test substance, tris (2-hydroxyethyl) tallow diaminopropane, CAS 90367-27-4 (recently redefined as amines, N-(C16-18 (even numbered) and C18-unsatd. alkyl) trimethylenedi-, ethoxylated (NLP), CAS 1290049-56-7), also referred to as tallowdiamine 3EO, has a molecular weight range of 426-454 g/mol and is an amber coloured liquid at 23 deg C. The substance has a measured melting point of 19 C, a measured boiling point of 300 deg C at 1013 hPa and a vapour pressure 0.0015 Pa at 20 C. The octanol-water partition coefficient (log Kow) is2.8 at 25 deg C (OECD 123) and as the substance forms micelles in water the water solubility is expressed as the critical micelle concentration (CMC, a solubility limit) at 19 mg/L at pH 7 and 23 deg C. In physiological circumstances the nitrogens can become positively charged, resulting to a cationic surfactant structure which leads to high adsorptive properties to negatively charged surfaces as cellular membranes. At pH below 7.2 more than 99.9% of the substance has at least one positively charged nitrogen. The apolar tails easily dissolve in the membranes, whereas the polar head causes disruption and leakage of the membranes leading to cell damage or lysis of the cell content. As a consequence, the whole molecule will not easily pass membrane structures. Cytotoxicity at the local site of contact through disruption of cell membrane will is considered the most prominent mechanism of action for toxic effects. Acute toxicity data was evaluated in an Acute Toxic Class (ATC, OECD 423) study on tallowdiamine 3EO, indicating a LD50 in the range of 50 - 300 mg/kg bw, with a LD50 cut-off of 500 mg/kg bw. A second, older study on tallowdiamine 3EO confirms these results with an LD50 that was calculated to be 770 mg/kg bw. Tallowdiamine 3EO is severely corrosive (Classification Cat. 1B) to the skin and is not expected to easily pass the skin in view of its ionised form at physiological conditions. However, as this is not quantitatively evaluated, 100% dermal absorption is considered as worst case assumption. There is only one study available of high quality, in which tallowdiamine 3EO has been evaluated for acute dermal irritation/corrosion in rabbits according to OECD 404 and in compliance to GLP. Results after a 3-min exposure: No cutaneous reactions were observed at the 1-hour reading. A severe erythema and a severe oedema, together with cutaneous necrosis, were noted on days 2 and 3. After a 4 -hour exposure: A well-defined erythema and a slight oedema were observed at the 1-hour reading. A severe erythema and a severe oedema, together with cutaneous necrosis, were noted on days 2 and 3. Based on the results of this study, Tallowdiamine 3EO is considered to be severe corrosive to the skin. The product was tested for eye irritation in rabbit eyes. The method was performed according to Draize. 8 rabbits were exposed to 1 ml of a 5% solution of the product. The product was applied to the right eye of the animal. In 4 animals the product was rinsed from the eye after 1 minute, in the other 4 animals the product was left. None of the animals showed reactions of the eye or relating membranes. Also, no immunoresponses were noted. Classification according to GHS is not possible, as the study does not allow this on the basis of results presented. Based on the findings, this 5% solution of the test substance does not give indications for eye irritation. A recent GLP Guinea pig study following the Magnusson and Kligman Maximisation Method according to OECD guidelines indicated that tallowdiamine 3EO was mildly sensitising to skin, but does not need classification. An additional also recent GLP Maximisation has shown oleyldiamine 3EO not to be sensitising to skin.. Data from repeated dose toxicity studies STOT-RE Cat,1 is required in case of significant toxicity at levels at levels = 10 mg/kgbw/d in 90-day studies or = 30 mg/kgbw/d in case of 28-day studies. For Cat.2 classification levels up to 10 times higher apply.

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Evaluation for classification cannot be based on the available 28-day study on oleyldiamine 3EO (CAS RN: 1268344-02-0) as the highest dose level involved 25 mg/kg bw. However, cross-reading to alkyl-diamine data is justified, and classification therefore is based on the results from an available 28-day study on oleyldiamine and a 90-day study on the C12-14-diamine. The available data from C12-14-diamine and oleyldiamine indicate that these substances should be classified Cat.1 for STOT-RE: Cat-1 90-day study on C12-14-diamine: This study showed significant toxicity at the highest tested dose of 6 mg/ kgbw/ day based on mortality observed in the highest dose group. This is below 10 mg/kg bw and therefore also results to classification STOT-RE Cat.1. 28-day study on oleyldiamine: This resulted to significant toxicity (mortality) at the highest dose of 20 mg/kgbw/day with effects on weight of body and organs without histological changes. This is below 30 mg/kg bw and therefore also results to classification STOT-RE Cat.1. Consequently, as cross-reading is appropriate, tallowdiamine 3EO should be classified for GHS as STOT-RE 1, H372: Causes damage to organs (morbidity or death) through prolonged or repeated exposure. Oral: Repeated dose toxicity data was evaluated in a Combined 28-day repeated dose toxicity study with the reproduction/developmental toxicity screening test (OECD 422) on the comparable substance oleyldiamine 3EO. The difference between both substances is a slightly lower average alkyl chain for the tallow as it contains some C16-alkyl chains and a higher level of unsaturation of the C18 alkyl chain for the oleyl. For further information use is made of cross-reading to various results obtained on non-ethoxylated alkyl amines. The most significant treatment-related changes in all studies are increased WBC (neutrophils) at higher dose levels combined with changes in body weight gain. The critical effects are histopathological test item-related effects on the small intestine and mesenteric lymph nodes, which only partially regressed during the recovery period. A relatively strong inflammatory reaction is also observed. These effects have consistently been observed with these sort of substances (Fatty amine derived substances), which support the current approach of grouping of substances and read-across of data. When taking into consideration the relatively strong corrosive effects of these substances and the route of administration, it cannot be excluded that the overall toxicity reflects a point-of-first-contact effect. A mode of action has not been established but it is possible to suspect the known corrosivity to be at least partially involved. The observed effects of foamy macrophages are local and are by some interpreted as phospholipidosis (PLDsis), something which is commonly observed following treatment with cationic amphiphiolic drugs and considered to be non-adverse. Also the further studies on C12-14-diamine show the same toxicological responses. The results from C12-14-diamine are considered to represent a worst case situation for oleyldiamine (and thus also for oleyldiamine 3EO),as both substances share the same molecular structure, but due to its overall smaller alkyl chain length, its solubility and potential to pass cell-membranes is expected to be possibly somewhat higher than that of oleyldiamine 3EO. This is expected to lead to the relative highest absorption. Therefore, any inherent hazards for systemic toxicity are more likely to be expressed when testing with C12-14-diamine than with oleyldiamine All findings observed in the 90-day repeated dose toxicity study are comparable with the 28-day repeated dose toxicity study performed with C12-14-diamine, which indicates that duration has no great impact on the NOEAL. Small intestinal and mesenteric lymph node lesions show only slowly reversible. The effects were not reversible during the 28-day recovery period, but had partially regressed after the 90-day recovery period. Other effects seen at higher dose levels as spleen, bone marrow and tracheal changes had completely regressed after the 28-day and 90-day recovery period. Although based on a summary and therefore information of low validity, the reported results from the tallowdiamine 3EO based 90-day dietary study in rats perfectly agrees with the information as presented by the repeated dose studies on oleyldiamine 3EO, oleyldiamine and C12-14-diamine, thus supporting the acceptability of this cross-reading from these substances to tallowdiamine 3EO. An additional observation is that for risk assessment derivation of DNELs from the 90-day study on C12-14-diamine (NOAEL 0.4 mg/kg) and from the 28-day study on Oleyl-diamine3EO (NOAEL 1 mg/kg) leads to the same results. This is base on the considerations for assessment factors used for extrapolation for study duration: C12-14-diamine, NOAEL from 90 day: Default assessment factor 2 for sub-chronic to chronic. Oleyldiamine 3EO, NOEAL from OECD 422: The guidance indicates that for sub-acute to chronic a factor 6 should be applied. However, we know that the dose levels of the NOAEL for this effect of foamy macrophages in mesenteric lymph nodes is not influenced by the duration of the study. Besides, the females have been dosed for 43-52 days rather than 28 days (Males 29 days). Therefore a factor 5 is considered sufficient. When comparing the 28-day results on oleyldiamine 3EO (OECD 422) with the 28-day study on oleyldiamine clearly shows a comparable toxicological profile.For both studies the effects observed, as well as the levels of the effects are very similar resulting to the same NOAEL of 1 mg/kg bw for oleyldiamine 3EO and 1.25 for oleyldiamine (differences are related to dose selection per study rather than actual differences in response). This can be explained on the basis of their comparable structure leading to comparable properties and toxicological behaviour, and the notion that these substances do not undergo important phase-one metabolism leading to different structures and toxicity. Inhalation: Tallowdiamine 3EO is a viscous liquid/paste with bp 300 C and has a vapour pressure below 0.0015 Pa at 20 C. Its use is limited to industrial and professional users and does not involve the forming of aerosols, particles or droplets of an inhalable size. So exposure to humans via the inhalation route will be unlikely to occur. Dermal: There is an illegible copy of an old report of a repeated dose study by dermal route on tallowdiamine 3EO. Rabbits were percutaneously dosed with 0, 0.77 or 7.7 mg/kg/day for 91 days. Treatment with the test material resulted in slight to moderate skin irritation in both dose groups. Besides irritation, also foamy macrophages in mesenteric lymph nodes were noted in 2/6 animals treated at 7.7 mg/kg. No other effects other effects were observed. As these effects are local reactions following the route of absorption, it is most likely that this is most likely a consequence following oral uptake from grooming. Tallowdiamine 3EO is severely corrosive to the skin and is not expected to easily pass the skin in view of its ionised form at physiological conditions. The dermal route is therefore not a preferred route for dosing when evaluating repeated dose toxicity. In addition, there is no consumer exposure to tallowdiamine 3EO. Further, manufacture and use are highly controlled. Its use is limited to industrial and professional users where following its severe corrosive properties the applied protection measures will provide for sufficient protection to prevent exposure. Absorption, distribution, metabolism, excretion There are no specific studies available that study Absorption, distribution, metabolism or excretion of ethoxylated diamines. It is expected that tallowdiamine 3EO when administered orally is not extensively absorbed, due to its low solubility and CMC formation. The effects of the diamines and the ethoxylated diamines on which the NOAEL?s are based in the 28 and 90-day repeated dose toxicity studies, concern effects in the small intestinal and mesenteric lymph node lesions intestines. As these indicate local effects they can probably be considered local NOAEL?s. The available repeated dose studies show that the NOAEL does not change with increasing study duration from 28-day to 90-days. This is an indication for lack of bioaccumulating potential. Dermal absorption: At this stage no data are available on dermal absorption. Based on the severe corrosive properties of tallowdiamine 3EO, dermal absorption as a consequence of facilitated penetration through damaged skin can be anticipated. Dependent on the solvent and concentration, up to 60% dermal absorption may be taken as a worst case for assessment purposes (value taken from the existing EU risk assessment on primary alkylamines). Due to the lack of quantitative absorption data, 100% absorption is taken as a conservative approach. Genetic toxicity in vitro The following studies are available tallowdiamine 3EO and cocodiamine 3EO for the assessment of genetic toxicity. Al tests are performed to current OECD/EU protocols and in compliance to GLP. In conclusion, both studies evaluating the possible clastogenicity and aneugenicity properties of cocodiamine 3EO and tallowdiamine 3EO in an in vitro micronucleus assay in cultured peripheral human lymphocytes show consistent results that can, on overall be characterised as inconsistent, possibly weakly positive responses at cytotoxic levels. Reprotoxicity: Available data from a reproduction screening study (OECD 422) with oleyldiamine 3EO showed

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	no effects on reproduction parameters. Also cross-reading from a developmental toxicity(OECD 414) with oleyldiamine indicate no concerns for developmental toxicity. In both studies the lack of developmental effects at the highest dose levels tested of 25 resp. 20 mg/ kg bw/ day is in large contrast with the NOAELs obtained for parental toxicity of 1 resp. 5 mg/kg bw. Also information from a developmental study of Tallow-diamine3EO in rabbits showed no concerns for reproduction toxicity. In conclusion, the available data do not indicate a concern for reproductive health. REACh Dossier (CAS RN: 1290049-56-7) The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function. Tallow derivatives used in the manufacture of cosmetic products are safe for consumption when it undergoes- transesterification or hydrolysis at 200 C, under pressure for 20 minutes (for glycerol, fatty acids and esters) ; saponification with 12 M of NaOH (for glycerol and soap) at 95 C for 3 hours; continuous process at 140 C, for about 8 minutes or its equivalent.
DIETHANOLAMINE	DEA has low acute toxicity if ingested orally or applied on the skin. It can cause moderate skin irritation and severe eye irritation. It may affect sperm production, cause anaemia and damage the liver and kidney. It has not been shown to cause cancer in humans; though there is evidence that it may cause cancer in mice, and damage to the foetus at levels toxic to the mother.
COPPER	WARNING: Inhalation of high concentrations of copper fume may cause "metal fume fever", an acute industrial disease of short duration. Symptoms are tiredness, influenza like respiratory tract irritation with fever. for copper and its compounds (typically copper chloride): **Acute toxicity:** There are no reliable acute oral toxicity results available. In an acute dermal toxicity study (OECD TG 402), one group of 5 male rats and 5 groups of 5 female rats received doses of 1000, 1500 and 2000 mg/kg bw via dermal application for 24 hours. The LD50 values of copper monochloride were 2,000 mg/kg bw or greater for male (no deaths observed) and 1,224 mg/kg bw for female. Four females died at both 1500 and 2000 mg/kg bw, and one at 1,000 mg/kg bw. Symptom of the hardness of skin, an exudation of hardness site, the formation of scar and reddish changes were observed on application sites in all treated animals. Skin inflammation and injury were also noted. In addition, a reddish or black urine was observed in females at 2,000, 1,500 and 1,000 mg/kg bw. Female rats appeared to be more sensitive than male based on mortality and clinical signs. No reliable skin/eye irritation studies were available. The acute dermal study with copper monochloride suggests that it has a potential to cause skin irritation. **Repeat dose toxicity:** In repeated dose toxicity study performed according to OECD TG 422, copper monochloride was given orally (gavage) to Sprague-Dawley rats for 30 days to males and for 39 - 51 days to females at concentrations of 0, 1.3, 5.0, 20, and 80 mg/kg bw/day. The NOAEL value was 5 and 1.3 mg/kg bw/day for male and female rats, respectively. No deaths were observed in male rats. One treatment-related death was observed in female rats in the high dose group. Erythropoietic toxicity (anaemia) was seen in both sexes at the 80 mg/kg bw/day. The frequency of squamous cell hyperplasia of the forestomach was increased in a dose-dependent manner in male and female rats at all treatment groups, and was statistically significant in males at doses of =20 mg/kg bw/day and in females at doses of =5 mg/kg bw/day doses. The observed effects are considered to be local, non-systemic effect on the forestomach which result from oral (gavage) administration of copper monochloride. **Genotoxicity:** An in vitro genotoxicity study with copper monochloride showed negative results in a bacterial reverse mutation test with Salmonella typhimurium strains (TA 98, TA 100, TA 1535, and TA 1537) with and without S9 mix at concentrations of up to 1,000 ug/plate. An in vitro test for chromosome aberration in Chinese hamster lung (CHL) cells showed that copper monochloride induced structural and numerical aberrations at the concentration of 50, 70 and 100 ug/mL without S9 mix. In the presence of the metabolic activation system, significant increases of structural aberrations were observed at 50 and 70 ug/mL and significant increases of numerical aberrations were observed at 70 ug/mL. In an in vivo mammalian erythrocyte micronucleus assay, all animals dosed (15 - 60 mg/kg bw) with copper monochloride exhibited similar PCE/(PCE+NCE) ratios and MNPCE frequencies compared to those of the negative control animals. Therefore copper monochloride is not an in vivo mutagen. **Carcinogenicity:** there was insufficient information to evaluate the carcinogenic activity of copper monochloride. Reproductive and developmental toxicity: In the combined repeated dose toxicity study with the reproduction/developmental toxicity screening test (OECD TG 422), copper monochloride was given orally (gavage) to Sprague-Dawley rats for 30 days to males and for 39-51 days to females at concentrations of 0, 1.3, 5.0, 20, and 80 mg/kg bw/day. The NOAEL of copper monochloride for fertility toxicity was 80 mg/kg bw/day for the parental animals. No treatment-related effects were observed on the reproductive organs and the fertility parameters assessed. For developmental toxicity the NOAEL was 20 mg/kg bw/day. Three of 120 pups appeared to have icterus at birth; 4 of 120 pups appeared runted at the highest dose tested (80 mg/kg bw/day).
NICKEL	Oral (rat) TDLo: 500 mg/kg/5D-I Inhalation (rat) TCLo: 0.1 mg/m3/24H/17W-C Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [***National Toxicology Program: U.S. Dep. of Health & Human Services 2002***]
STEARIC ACID ETHOXYLATED & N-(TALLOW ALKYL)-1,3-DIAMINOPROPANE, ETHOXYLATED	Polyethers (such as ethoxylated surfactants and polyethylene glycols) are highly susceptible to being oxidized in the air. They then form complex mixtures of oxidation products. Animal testing reveals that whole the pure, non-oxidised surfactant is non-sensitizing, many of the oxidation products are sensitisers. The oxidization products also cause irritation.
N-METHYL-2-PYRROLIDONE & N-(TALLOW ALKYL)-1,3-DIAMINOPROPANE, ETHOXYLATED & DIETHANOLAMINE	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.
N-(TALLOW ALKYL)-1,3-DIAMINOPROPANE, ETHOXYLATED & DIETHANOLAMINE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Overexposure to most of these materials may cause adverse health effects. Many amine-based compounds can cause release of histamines, which, in turn, can trigger allergic and other physiological effects, including constriction of the bronchi or asthma and inflammation of the cavity of the nose. Whole-body symptoms include

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	headache, nausea, faintness, anxiety, a decrease in blood pressure, rapid heartbeat, itching, reddening of the skin, urticaria (hives) and swelling of the face, which are usually transient. There are generally four routes of possible or potential exposure: inhalation, skin contact, eye contact, and swallowing. Inhalation: Inhaling vapours may result in moderate to severe irritation of the tissues of the nose and throat and can irritate the lungs. Higher concentrations of certain amines can produce severe respiratory irritation, characterized by discharge from the nose, coughing, difficulty in breathing and chest pain. Chronic exposure via inhalation may cause headache, nausea, vomiting, drowsiness, sore throat, inflammation of the bronchi and lungs, and possible lung damage. Repeated and/or prolonged exposure to some amines may result in liver disorders, jaundice and liver enlargement. Some amines have been shown to cause kidney, blood and central nervous system disorders in animal studies. While most polyurethane amine catalysts are not sensitisers, some certain individuals may also become sensitized to amines and my experience distress while breathing, including asthma-like attacks, whenever they are subsequently exposed to even very small amounts of vapours. Once sensitized, these individuals must avoid any further exposure to amines. Chronic overexposure may lead to permanent lung injury, including reduction in lung function, breathlessness, chronic inflammation of the bronchi, and immunologic lung disease. Products with higher vapour pressures may reach higher concentrations in the air, and this increases the likelihood of worker exposure. Inhalation hazards are increased when exposure to amine catalysts occurs in situations that produce aerosols, mists or heated vapours. Such situations include leaks in fitting or transfer lines. Medical conditions generally aggravated by inhalation exposure include asthma, bronchitis and emphysema. Skin contact: Skin contact with amine catalysts poses a number of concerns. Direct skin contact can cause moderate to severe irritation and injury, from simple redness and swelling to painful blistering, ulceration, and chemical burns. Repeated or prolonged exposure may also result in severe cumulative skin inflammation. Skin contact with some amines may result in allergic sensitization. Sensitised persons should avoid all contact with amine catalysts. Whole-body effects resulting from the absorption of the amines though skin exposure may include headaches, nausea, faintness, anxiety, decrease in blood pressure, reddening of the skin, hives, and facial swelling. These symptoms may be related to the pharmacological action of the amines, and they are usually temporary. Eye contact: Amine catalysts are alkaline and their vapours are irritating to the eyes, even at low concentrations. Direct contact with liquid amine may cause severe irritation and tissue injury, and the “burning” may lead to blindness. Contact with solid products may result in mechanical irritation, pain and corneal injury. Exposed persons may experience excessive tearing, burning, inflammation of the conjunctiva, and swelling of the cornea, which manifests as a blurred or foggy vision with a blue tint, and sometimes a halo phenomenon around lights. These symptoms are temporary and usually disappear when exposure ends. Some people may experience this effect even when exposed to concentrations that do not cause respiratory irritation. Ingestion: Amine catalysts have moderate to severe toxicity if swallowed. Some amines can cause severe irritation, ulcers and burns of the mouth, throat, gullet and gastrointestinal tract. Material aspirated due to vomiting can damage the bronchial tubes and the lungs. Affected people may also experience pain in the chest or abdomen, nausea, bleeding of the throat and gastrointestinal tract, diarrhea, dizziness, drowsiness, thirst, collapse of circulation, coma and even death.
DIETHANOLAMINE & NICKEL	**WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
COPPER & NICKEL	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.

Acute Toxicity	✔	**Carcinogenicity**	✘
Skin Irritation/Corrosion	✔	**Reproductivity**	✔
Serious Eye Damage/Irritation	✘	**STOT - Single Exposure**	✘
Respiratory or Skin sensitisation	✘	**STOT - Repeated Exposure**	✘
Mutagenicity	✔	**Aspiration Hazard**	✘

Legend: ✘ ***– Data either not available or does not fill the criteria for classification***
✔ ***– Data available to make classification***

SECTION 12 Ecological information

Toxicity

Lead-Free Solder Paste, SN100C, WS353, Water Soluble

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

tin

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	>0.019mg/L	2
NOEC(ECx)	168h	Crustacea	<0.005mg/L	2
LC50	96h	Fish	>0.012mg/L	2

Continued...

stearic acid ethoxylated	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	Not Available	Not Available	Not Available	Not Available	Not Available
N-methyl-2-pyrrolidone	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	EC50	48h	Crustacea	ca.4897mg/l	1
	EC50	72h	Algae or other aquatic plants	>500mg/l	1
	NOEC(ECx)	504h	Crustacea	12.5mg/l	2
	LC50	96h	Fish	464mg/l	1
N-(tallow alkyl)-1,3-diaminopropane, ethoxylated	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	EC50	48h	Crustacea	1-10mg/l	Not Available
	EC50(ECx)	48h	Crustacea	1-10mg/l	Not Available
	LC50	96h	Fish	1-10mg/l	Not Available
diethanolamine	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	EC50	96h	Algae or other aquatic plants	0.86-3.5mg/l	4
	EC50	48h	Crustacea	28.8mg/l	1
	EC50	72h	Algae or other aquatic plants	2.7mg/l	2
	NOEC(ECx)	72h	Algae or other aquatic plants	0.6mg/l	2
	LC50	96h	Fish	>100mg/l	4
copper	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	EC50	48h	Crustacea	0.0006-0.0017mg/l	4
	EC50	96h	Algae or other aquatic plants	0.03-0.058mg/l	4
	EC50	72h	Algae or other aquatic plants	0.011-0.017mg/L	4
	NOEC(ECx)	48h	Fish	0.00009mg/l	4
	LC50	96h	Fish	0.003mg/L	2
nickel	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	EC50	48h	Crustacea	>100mg/l	1
	EC50	96h	Algae or other aquatic plants	0.174-0.311mg/l	4
	EC50	72h	Algae or other aquatic plants	0.18mg/l	1
	EC50(ECx)	72h	Algae or other aquatic plants	0.18mg/l	1
	LC50	96h	Fish	0.06mg/l	4
Legend:	***Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data***				

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.
Wastes resulting from use of the product must be disposed of on site or at approved waste sites.
DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
stearic acid ethoxylated	LOW	LOW
N-methyl-2-pyrrolidone	LOW	LOW
diethanolamine	LOW (Half-life = 14 days)	LOW (Half-life = 0.3 days)

Bioaccumulative potential

Continued...

Ingredient	Bioaccumulation
stearic acid ethoxylated	LOW (LogKOW = 7.257)
N-methyl-2-pyrrolidone	LOW (BCF = 0.16)
diethanolamine	LOW (BCF = 1)

Mobility in soil

Ingredient	Mobility
stearic acid ethoxylated	LOW (Log KOC = 6425)
N-methyl-2-pyrrolidone	LOW (Log KOC = 20.94)
diethanolamine	HIGH (Log KOC = 1)

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site. ▸ Recycle containers if possible, or dispose of in an authorised landfill. ▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ▸ It may be necessary to collect all wash water for treatment before disposal. ▸ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▸ Where in doubt contact the responsible authority.

Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.
The hazardous substance must only be disposed if it has been treated by a method that changed the characteristics or composition of the substance and it is no longer hazardous.
Only dispose to the environment if a tolerable exposure limit has been set for the substance.
Only deposit the hazardous substance into or onto a landfill or sewage facility or incinerator, where the hazardous substance can be handled and treated appropriately.

SECTION 14 Transport information

Labels Required

	
Marine Pollutant	
HAZCHEM	•3Z

Land transport (ADG)

14.1. **UN number or ID number**	3082
14.2. **UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains tin)
14.3. **Transport hazard class(es)**	Class: 9 Subsidiary Hazard: Not Applicable
14.4. **Packing group**	III
14.5. **Environmental hazard**	Environmentally hazardous
14.6. **Special precautions for user**	Special provisions: 274 331 335 375 AU01

Continued...

	Limited quantity	5 L

Land transport (UN)

14.1. **UN number or ID number**	3082
14.2. **UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains tin)
14.3. **Transport hazard class(es)**	Class: 9 Subsidiary Hazard: Not Applicable
14.4. **Packing group**	III
14.5. **Environmental hazard**	Environmentally hazardous
14.6. **Special precautions for user**	Special provisions: 274; 331; 335; 375 Limited quantity: 5 L

Air transport (ICAO-IATA / DGR)

14.1. **UN number**	3082
14.2. **UN proper shipping name**	Environmentally hazardous substance, liquid, n.o.s. (contains tin)
14.3. **Transport hazard class(es)**	ICAO/IATA Class: 9 ICAO / IATA Subsidiary Hazard: Not Applicable ERG Code: 9L
14.4. **Packing group**	III
14.5. **Environmental hazard**	Environmentally hazardous
14.6. **Special precautions for user**	Special provisions: A97 A158 A197 A215 Cargo Only Packing Instructions: 964 Cargo Only Maximum Qty / Pack: 450 L Passenger and Cargo Packing Instructions: 964 Passenger and Cargo Maximum Qty / Pack: 450 L Passenger and Cargo Limited Quantity Packing Instructions: Y964 Passenger and Cargo Limited Maximum Qty / Pack: 30 kg G

Sea transport (IMDG-Code / GGVSee)

14.1. **UN number**	3082
14.2. **UN proper shipping name**	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains tin)
14.3. **Transport hazard class(es)**	IMDG Class: 9 IMDG Subsidiary Hazard: Not Applicable
14.4. **Packing group**	III
14.5 **Environmental hazard**	Marine Pollutant
14.6. **Special precautions for user**	EMS Number: F-A , S-F Special provisions: 274 335 969 Limited Quantities: 5 L

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
tin	Not Available
stearic acid ethoxylated	Not Available

Continued...

Product name	Group
N-methyl-2-pyrrolidone	Not Available
N-(tallow alkyl)-1,3-diaminopropane, ethoxylated	Not Available
diethanolamine	Not Available
copper	Not Available
nickel	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
tin	Not Available
stearic acid ethoxylated	Not Available
N-methyl-2-pyrrolidone	Not Available
N-(tallow alkyl)-1,3-diaminopropane, ethoxylated	Not Available
diethanolamine	Not Available
copper	Not Available
nickel	Not Available

SECTION 15 Regulatory information

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

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR002508	Additives Process Chemicals and Raw Materials Acutely Toxic Group Standard 2020
HSR002614	Metal Industry Products Acutely Toxic Group Standard 2020
HSR002645	Polymers Acutely Toxic Group Standard 2020
HSR002654	Solvents Acutely Toxic Group Standard 2020
HSR002675	Surface Coatings and Colourants Acutely Toxic Group Standard 2020
HSR002685	Water Treatment Chemicals Acutely Toxic Group Standard 2020
HSR100425	Pharmaceutical Active Ingredients Group Standard 2020
HSR002550	Corrosion Inhibitors Acutely Toxic Group Standard 2020
HSR002572	Fertilisers Acutely Toxic Group Standard 2020
HSR002593	Industrial and Institutional Cleaning Products Acutely Toxic Group Standard 2020
HSR100757	Veterinary Medicines Limited Pack Size Finished Dose Group Standard 2020
HSR100758	Veterinary Medicines Non dispersive Closed System Application Group Standard 2020
HSR100759	Veterinary Medicines Non dispersive Open System Application Group Standard 2020
HSR100756	Active Ingredients for Use in the Manufacture of Agricultural Compounds Group Standard 2020

Please refer to Section 8 of the SDS for any applicable tolerable exposure limit or Section 12 for environmental exposure limit.

tin is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Land Transport Rule: Dangerous Goods 2005 - Schedule 1 Quantity limits for dangerous goods
New Zealand Workplace Exposure Standards (WES)

stearic acid ethoxylated is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

N-methyl-2-pyrrolidone is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5

Continued...

Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

N-(tallow alkyl)-1,3-diaminopropane, ethoxylated is found on the following regulatory lists

Australian Inventory of Industrial Chemicals (AIIC)
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

diethanolamine is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

copper is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
Australian Inventory of Industrial Chemicals (AIIC)
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Land Transport Rule: Dangerous Goods 2005 - Schedule 1 Quantity limits for dangerous goods
New Zealand Workplace Exposure Standards (WES)

nickel is found on the following regulatory lists

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals
Australian Inventory of Industrial Chemicals (AIIC)
Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

Additional Regulatory Information

Not Applicable

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantity (Compliance Certificate)	Quantity (Compliance Certificate - Farms >4 ha)
6.1C	1000 kg or 1000 L	3500 kg or 3500 L

Certified Handler

Continued...

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Maximum quantities of certain hazardous substances permitted on passenger service vehicles

Subject to Regulation 13.14 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Gas (aggregate water capacity in mL)	Liquid (L)	Solid (kg)	Maximum quantity per package for each classification
6.1C	120	1	3	
6.5A or 6.5B	120	1	3	

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (tin; stearic acid ethoxylated; N-methyl-2-pyrrolidone; N-(tallow alkyl)-1,3-diaminopropane, ethoxylated; diethanolamine; copper; nickel)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	No (stearic acid ethoxylated)
Japan - ENCS	No (tin; N-(tallow alkyl)-1,3-diaminopropane, ethoxylated; copper; nickel)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	Yes
Legend:	***Yes = All CAS declared ingredients are on the inventory*** ***No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.***

SECTION 16 Other information

Revision Date	27/03/2024
Initial Date	26/03/2024

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Continued...

end of SDS