HighHeat™ Syringe - Part A

JRP Distribution Ltd

Version No: **3.3**
Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Issue Date: **10/25/2023**
Print Date: **10/25/2023**
S.REACH.GB.EN

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

1.1. Product Identifier

Product name	HighHeat™ Syringe - Part A
Synonyms	50197 (HighHeat™ Syringe) Part A
Other means of identification	Not Available

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

Relevant identified uses	Use according to manufacturer's directions.
Uses advised against	No specific uses advised against are identified.

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**JRP Distribution Ltd**
Address	Unit 10A, Business Park, City Fields Way Tangmere PO20 2FT United Kingdom
Telephone	+44 1903 750355
Fax	Not Available
Website	www.jbweld.com
Email	info@jbweld.com

1.4. Emergency telephone number

Association / Organisation	**Department of Health & Social Care (DHSC)**
Emergency telephone numbers	**112**
Other emergency telephone numbers	**Not Available**

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 [1]	H315 - Skin Corrosion/Irritation Category 2, H317 - Sensitisation (Skin) Category 1A, H319 - Serious Eye Damage/Eye Irritation Category 2
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567*

2.2. Label elements

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

Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

Supplementary statement(s)

Not Applicable

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Precautionary statement(s) Prevention

P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P302+P352	IF ON SKIN: Wash with plenty of water and soap.
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.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

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

2.3. Other hazards

REACH - Art.57-59: The mixture does not contain Substances of Very High Concern (SVHC) at the SDS print date.

SECTION 3 Composition / information on ingredients

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1. CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
1. 9003-36-5* 2.500-006-8 3.Not Available 4.Not Available	70-80	bisphenol F diglycidyl ether copolymer	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1A; H315, H317 [1]	Not Available	Not Available
1. 25068-38-6* 2.500-033-5 3.603-074-00-8 4.Not Available	5-15	bisphenol A diglycidyl ether polymer	Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3 , Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Sensitisation (Skin) Category 1B; H335, H315, H319, H317 [1]	Eye Irrit. 2; H319: C ≥ 5 % | Skin Irrit 2; H315: C ≥ 5 %	Not Available
1. 67762-90-7 2.231-545-4 3.Not Available 4.Not Available	1-5	silica amorphous	Specific Target Organ Toxicity - Repeated Exposure Category 1; H372, EUH210 [3]	Not Available	Not Available
1. 7439-89-6 2.231-096-4 3.Not Available 4.Not Available	1-5	iron	Not Classified [3]	Not Available	Not Available
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties*				

SECTION 4 First aid measures

4.1. Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▸ Wash out immediately with fresh 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. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ 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, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary.
Ingestion	▸ Immediately give a glass of water. ▸ First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

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4.2 Most important symptoms and effects, both acute and delayed

See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

5.1. Extinguishing media

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

5.3. Advice for firefighters

Fire Fighting	• When silica dust is dispersed in air, firefighters should wear inhalation protection as hazardous substances from the fire may be adsorbed on the silica particles. • When heated to extreme temperatures, (>1700 deg.C) amorphous silica can fuse. • Alert Fire Department and tell them location and nature of hazard. • Wear breathing apparatus plus protective gloves in the event of a fire.
Fire/Explosion Hazard	• When silica dust is dispersed in air, firefighters should wear inhalation protection as hazardous substances from the fire may be adsorbed on the silica particles. • When heated to extreme temperatures, (>1700 deg.C) amorphous silica can fuse. • Non combustible. • Not considered a significant fire risk, however containers may burn. Decomposition may produce toxic fumes of: silicon dioxide (SiO2) metal oxides May emit corrosive fumes.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	• Clean up all spills immediately. • Avoid contact with skin and eyes. • Wear impervious gloves and safety goggles.
Major Spills	Minor hazard. • Clear area of personnel. • Alert Fire Brigade and tell them location and nature of hazard.

6.4. Reference to other sections

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

SECTION 7 Handling and storage

7.1. 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.
Fire and explosion protection	See section 5
Other information	• Store in original containers. • Keep containers securely sealed. • Store in a cool, dry, well-ventilated area.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	• Polyethylene or polypropylene container. • Packing as recommended by manufacturer. • Check all containers are clearly labelled and free from leaks.
Storage incompatibility	The substance may be or contains a 'metalloid' The following elements are considered to be metalloids; boron,silicon, germanium, arsenic, antimony, tellurium and (possibly) polonium The electronegativities and ionisation energies of the metalloids are between those of the metals and nonmetals, so the metalloids exhibit

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	characteristics of both classes. The reactivity of the metalloids depends on the element with which they are reacting. For example, boron acts as a nonmetal when reacting with sodium yet as a metal when reacting with fluorine. Silicas: ▸ react with hydrofluoric acid to produce silicon tetrafluoride gas ▸ react with xenon hexafluoride to produce explosive xenon trioxide ▸ reacts exothermically with oxygen difluoride, and explosively with chlorine trifluoride (these halogenated materials are not commonplace industrial materials) and other fluorine-containing compounds ▸ may react with fluorine, chlorates ▸ are incompatible with strong oxidisers, manganese trioxide, chlorine trioxide, strong alkalis, metal oxides, concentrated orthophosphoric acid, vinyl acetate ▸ may react vigorously when heated with alkali carbonates. ▸ Avoid strong acids, bases.
Hazard categories in accordance with Regulation (EC) No 1272/2008	Not Available
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not Available

7.3. Specific end use(s)

See section 1.2

SECTION 8 Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
bisphenol F diglycidyl ether copolymer	Dermal 104.15 mg/kg bw/day (Systemic, Chronic) Inhalation 29.39 mg/m³ (Systemic, Chronic) *Dermal 62.5 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 8.7 mg/m³ (Systemic, Chronic) ** *Oral 6.25 mg/kg bw/day (Systemic, Chronic) **	Not Available
silica amorphous	Inhalation 0.3 mg/m³ (Local, Chronic) Inhalation 15 mg/m³ (Local, Acute) *Oral 3.29 mg/kg bw/day (Systemic, Chronic) **	Not Available
iron	Inhalation 3 mg/m³ (Local, Chronic) *Oral 0.71 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 1.5 mg/m³ (Local, Chronic) **	Not Available

* Values for General Population

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs).	silica amorphous	Diatomaceous earth, natural, respirable dust	1.2 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	silica amorphous	Silica, fused respirable dust	0.08 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	iron	Iron salts (as Fe)	1 mg/m3	2 mg/m3	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
bisphenol A diglycidyl ether polymer	90 mg/m3	990 mg/m3	5,900 mg/m3
silica amorphous	18 mg/m3	200 mg/m3	1,200 mg/m3
silica amorphous	18 mg/m3	100 mg/m3	630 mg/m3
silica amorphous	120 mg/m3	1,300 mg/m3	7,900 mg/m3
silica amorphous	45 mg/m3	500 mg/m3	3,000 mg/m3
silica amorphous	18 mg/m3	740 mg/m3	4,500 mg/m3
iron	3.2 mg/m3	35 mg/m3	150 mg/m3

Ingredient	Original IDLH	Revised IDLH
bisphenol F diglycidyl ether copolymer	Not Available	Not Available
bisphenol A diglycidyl ether polymer	Not Available	Not Available
silica amorphous	3,000 mg/m3	Not Available
iron	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit

Continued...

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
bisphenol F diglycidyl ether copolymer	E	≤ 0.1 ppm
bisphenol A diglycidyl ether polymer	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.*	

8.2. Exposure controls

8.2.1. 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.
8.2.2. 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.
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.

Respiratory protection

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

8.2.3. Environmental exposure controls

See section 12

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Black Paste

Physical state	Free-flowing Paste	**Relative density (Water = 1)**	Not Available
Odor	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
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 Available
Flash point (°C)	Not Available		
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available

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Solubility in water	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10 Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	Product is considered stable and hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Inhaled	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	The material has **NOT** been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.
Eye	This material can cause eye irritation and damage in some persons.
Chronic	Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Amorphous silicas generally are less hazardous than crystalline silicas, but the former can be converted to the latter on heating and subsequent cooling. Inhalation of dusts containing crystalline silicas may lead to silicosis, a disabling lung disease that may take years to develop. Soluble silicates do not exhibit sensitizing potential. Testing in bacterial and animal experiments have not shown any evidence of them causing mutations or birth defects. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment.

HighHeat™ Syringe - Part A	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
bisphenol F diglycidyl ether copolymer	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >400 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	Oral (Rat) LD50: >5000 mg/kg[2]	Skin: adverse effect observed (irritating)[1]
bisphenol A diglycidyl ether polymer	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >1200 mg/kg[2]	Not Available
	Oral (Mouse) LD50; >500 mg/kg[2]	
silica amorphous	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): non-irritating ** [Grace]
	Inhalation(Rat) LC50: >0.09<0.84 mg/l4h[1]	Eye: no adverse effect observed (not irritating)[1]
	Oral (Rat) LD50: >1000 mg/kg[1]	Skin (rabbit): non-irritating *
		Skin: no adverse effect observed (not irritating)[1]

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iron	**TOXICITY** / **IRRITATION** Oral (Rat) LD50: 98600 mg/kg[2] / Not Available
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*

HighHeat™ Syringe - Part A	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.
SILICA AMORPHOUS	Reports indicate high/prolonged exposures to amorphous silicas induced lung fibrosis in experimental animals; in some experiments these effects were reversible. [PATTYS] The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.
HighHeat™ Syringe - Part A & SILICA AMORPHOUS	For silica amorphous: Derived No Adverse Effects Level (NOAEL) in the range of 1000 mg/kg/d. In humans, synthetic amorphous silica (SAS) is essentially non-toxic by mouth, skin or eyes, and by inhalation. Epidemiology studies show little evidence of adverse health effects due to SAS. Repeated exposure (without personal protection) may cause mechanical irritation of the eye and drying/cracking of the skin. When experimental animals inhale synthetic amorphous silica (SAS) dust, it dissolves in the lung fluid and is rapidly eliminated.

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*

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

11.2.2. Other information

See Section 11.1

SECTION 12 Ecological information

12.1. Toxicity

HighHeat™ Syringe - Part A

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

bisphenol F diglycidyl ether copolymer

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

bisphenol A diglycidyl ether polymer

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	48h	Crustacea	~2mg/l	2
EC50(ECx)	24h	Crustacea	3mg/l	Not Available
LC50	96h	Fish	2.4mg/l	Not Available

silica amorphous

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	14.1mg/l	2
EC50	48h	Crustacea	>86mg/l	2
EC50	96h	Algae or other aquatic plants	217.576mg/l	2
LC50	96h	Fish	1033.016mg/l	2
EC0(ECx)	24h	Crustacea	>=10000mg/l	1

iron

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	18mg/l	2
EC50	48h	Crustacea	>100mg/l	2
LC50	96h	Fish	0.00499-0.00819mg/l	4
NOEC(ECx)	48h	Algae or other aquatic plants	0.1-4mg/l	4

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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*

For Amorphous Silica: Amorphous silica is chemically and biologically inert. It is not biodegradable.
Aquatic Fate: Due to its insolubility in water there is a separation at every filtration and sedimentation process.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
silica amorphous	LOW	LOW

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
silica amorphous	LOW (LogKOW = 0.5294)

12.4. Mobility in soil

Ingredient	Mobility
silica amorphous	LOW (KOC = 23.74)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

SECTION 13 Disposal considerations

13.1. Waste treatment methods

Product / Packaging disposal	‣ Containers may still present a chemical hazard/ danger when empty. ‣ Recycle wherever possible or consult manufacturer for recycling options. ‣ Consult State Land Waste Management Authority for disposal. ‣ Bury residue in an authorised landfill.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 Transport information

Note:	For inner packagings not over 5L as manufactured and supplied by J-B Weld, the following exceptions apply: DOT - 49CFR §173.155 (b); IMDG - §2.10.2.7; IATA - Special Provision A197 . For non-exempt packagings, the proper shipping name is UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(EPOXY RESIN), 9, PGIII
HAZCHEM	Not Applicable

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number or ID number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	Class: Not Applicable Subsidiary Hazard: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Hazard identification (Kemler): Not Applicable Classification code: Not Applicable Hazard Label: Not Applicable

Continued...

	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Tunnel Restriction Code	Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	ICAO/IATA Class	Not Applicable
	ICAO / IATA Subsidiary Hazard	Not Applicable
	ERG Code	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Special provisions	Not Applicable
	Cargo Only Packing Instructions	Not Applicable
	Cargo Only Maximum Qty / Pack	Not Applicable
	Passenger and Cargo Packing Instructions	Not Applicable
	Passenger and Cargo Maximum Qty / Pack	Not Applicable
	Passenger and Cargo Limited Quantity Packing Instructions	Not Applicable
	Passenger and Cargo Limited Maximum Qty / Pack	Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	IMDG Class	Not Applicable
	IMDG Subsidiary Hazard	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5 **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	EMS Number	Not Applicable
	Special provisions	Not Applicable
	Limited Quantities	Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	Not Applicable	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Classification code	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Equipment required	Not Applicable
	Fire cones number	Not Applicable

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
bisphenol F diglycidyl ether copolymer	Not Available
bisphenol A diglycidyl ether polymer	Not Available
silica amorphous	Not Available
iron	Not Available

Continued...

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
bisphenol F diglycidyl ether copolymer	Not Available
bisphenol A diglycidyl ether polymer	Not Available
silica amorphous	Not Available
iron	Not Available

SECTION 15 Regulatory information

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

bisphenol F diglycidyl ether copolymer is found on the following regulatory lists

Not Applicable

bisphenol A diglycidyl ether polymer is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
Great Britain GB mandatory classification and labelling list (GB MCL)
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)

silica amorphous is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
Great Britain GB Biocidal Active Substances
Great Britain GB mandatory classification and labelling (GB MCL) technical reports
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
UK Workplace Exposure Limits (WELs).

iron is found on the following regulatory lists

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
UK Workplace Exposure Limits (WELs).

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

Information according to 2012/18/EU (Seveso III):

Seveso Category	Not Available

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (bisphenol F diglycidyl ether copolymer; bisphenol A diglycidyl ether polymer; iron)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (iron)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (bisphenol A diglycidyl ether polymer)
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	10/25/2023
Initial Date	03/27/2021

Full text Risk and Hazard codes

H335	May cause respiratory irritation.
H372	Causes damage to organs through prolonged or repeated exposure.

Continued...

SDS Version Summary

Version	Date of Update	Sections Updated
2.3	10/24/2023	Toxicological information - Acute Health (skin), Toxicological information - Chronic Health, Hazards identification - Classification, Exposure controls / personal protection - Engineering Control, Ecological Information - Environmental, Firefighting measures - Fire Fighter (fire/explosion hazard), Composition / information on ingredients - Ingredients, Exposure controls / personal protection - Personal Protection (other), Accidental release measures - Spills (major), Identification of the substance / mixture and of the company / undertaking - Synonyms, Name

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.
For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Skin Corrosion/Irritation Category 2, H315	Minimum classification
Sensitisation (Skin) Category 1A, H317	Calculation method
Serious Eye Damage/Eye Irritation Category 2, H319	Expert judgement

Powered by AuthorITe, from Chemwatch.

HighHeat™ Syringe - Part B

JRP Distribution Ltd

Version No: **5.18**
Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Issue Date: **10/25/2023**
Print Date: **10/25/2023**
S.REACH.GB.EN

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

1.1. Product Identifier

Product name	HighHeat™ Syringe - Part B
Synonyms	50197 (HighHeat™ Syringe) Part B
Other means of identification	Not Available

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

Relevant identified uses	Use according to manufacturer's directions.
Uses advised against	No specific uses advised against are identified.

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**JRP Distribution Ltd**
Address	Unit 10A, Business Park, City Fields Way Tangmere PO20 2FT United Kingdom
Telephone	+44 1903 750355
Fax	Not Available
Website	www.jbweld.com
Email	info@jbweld.com

1.4. Emergency telephone number

Association / Organisation	**Department of Health & Social Care (DHSC)**
Emergency telephone numbers	**112**
Other emergency telephone numbers	**Not Available**

SECTION 2 Hazards identification

2.1. Classification of the substance or mixture

Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567 [1]	H302 - Acute Toxicity (Oral) Category 4, H315 - Skin Corrosion/Irritation Category 2, H317 - Sensitisation (Skin) Category 1, H318 - Serious Eye Damage/Eye Irritation Category 1, H350i - Carcinogenicity Category 1A, H360F - Reproductive Toxicity Category 1B
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567*

2.2. Label elements

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

Hazard statement(s)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H350i	May cause cancer by inhalation.
H360F	May damage fertility.

Page 1 continued...

Supplementary statement(s)

EUH211	Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P280	Wear protective gloves, protective clothing, eye protection and face protection.
P261	Avoid breathing mist/vapours/spray.
P264	Wash all exposed external body areas thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) 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.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P310	Immediately call a POISON CENTER/doctor/physician/first aider.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physician/first aider if you feel unwell.
P330	Rinse mouth.

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.

2.3. Other hazards

May produce discomfort of the respiratory system*.

May possibly affect fertility*.

bisphenol A	Listed in the European Chemicals Agency (ECHA) Candidate List of Substances of Very High Concern for Authorisation
bisphenol A	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
bisphenol A	Determined to have endocrine-disrupting properties according to Europe Regulation (EU) 528/2012, Europe Regulation (EU) 2017/2100, and Europe Regulation (EU) 2018/605

SECTION 3 Composition / information on ingredients

3.1.Substances

See 'Composition on ingredients' in Section 3.2

3.2.Mixtures

1. CAS No 2.EC No 3.Index No 4.REACH No	**%[weight]**	**Name**	**Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567**	**SCL / M-Factor**	**Nanoform Particle Characteristics**
1. 68410-23-1 2.Not Available 3.Not Available 4.Not Available	45-55	C18 fatty acid dimers/ polyethylenepolyamine polyamides	Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2; H315, H319 [3]	Not Available	Not Available
1. 112-24-3* 2.203-950-6 3.612-059-00-5 4.Not Available	1-5	triethylenetetramine	Skin Corrosion/Irritation Category 1C, Acute Toxicity (Dermal) Category 4, Serious Eye Damage/Eye Irritation Category 1, Acute Toxicity (Oral) Category 4, Sensitisation (Skin) Category 1; H314, H312, H318, H302, H317 [1]	Not Available	Not Available
1. 112-57-2 2.203-986-2 3.612-060-00-0 4.Not Available	1-5	tetraethylenepentamine	Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category 1B, Sensitisation (Skin) Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 2; H302, H312, H314, H317, H411 [2]	Not Available	Not Available
1. 80-05-7 2.201-245-8 3.604-030-00-0 4.Not Available	1-5	bisphenol A **[e] ***	Serious Eye Damage/Eye Irritation Category 1, Sensitisation (Skin) Category 1, Reproductive Toxicity Category 1B, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H318, H317, H360F, H335 [2]	Not Available	Not Available
1. 90-72-2* 2.202-013-9 3.603-069-00-0	5-10	2,4,6-tris[(dimethylamino)methyl]phenol	Skin Corrosion/Irritation Category 1C, Serious Eye Damage/Eye Irritation Category 1; H314, H318 [1]	Not Available	Not Available

Continued...

1. CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
4.Not Available					
1. 68953-36-6* 2.273-201-6 3.Not Available 4.Not Available	20-25	tall oil/ tetraethylenepentamine polyamides	Corrosive to Metals Category 1, Serious Eye Damage/Eye Irritation Category 1, Acute Toxicity (Oral) Category 4, Sensitisation (Skin) Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 1, Skin Corrosion/Irritation Category 1A; H290, H318, H302, H317, H410, H314 [1]	Not Available	Not Available
1. 71074-89-0* 2.275-162-0 3.Not Available 4.Not Available	<1	bis[(dimethylamino)methyl]phenol	Serious Eye Damage/Eye Irritation Category 1; H318 [1]	Not Available	Not Available
1. 7439-89-6 2.231-096-4 3.Not Available 4.Not Available	1-5	iron	Not Classified [3]	Not Available	Not Available
1. 13463-67-7* 2.236-675-5 3.022-006-00-2 4.Not Available	1-5	titanium dioxide	Carcinogenicity Category 1A, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2; H350i, H332, H315, H319 [1]	Not Available	Not Available
1. 3033-62-3* 2.221-220-5 3.Not Available 4.Not Available	<1	bis(2-dimethylaminoethyl)ether	Acute Toxicity (Dermal) Category 3, Skin Corrosion/Irritation Category 1B, Serious Eye Damage/Eye Irritation Category 1, Acute Toxicity (Inhalation) Category 4, Acute Toxicity (Oral) Category 4; H311, H314, H318, H332, H302 [1]	Not Available	Not Available
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties*				

SECTION 4 First aid measures

4.1. 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, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary.
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.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

5.1. Extinguishing media

▸ Foam.

Continued...

- Dry chemical powder.
- BCF (where regulations permit).

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	‣ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

Fire Fighting	‣ Alert Fire Department and tell them location and nature of hazard. ‣ Wear full body protective clothing with breathing apparatus. For amines: ‣ For firefighting, cleaning up large spills, and other emergency operations, workers must wear a self-contained breathing apparatus with full face-piece, operated in a pressure-demand mode. ‣ Airline and air purifying respirators should not be worn for firefighting or other emergency or upset conditions. ‣ Respirators should be used in conjunction with a respiratory protection program, which would include suitable fit testing and medical evaluation of the user.
Fire/Explosion Hazard	‣ Combustible. ‣ Slight fire hazard when exposed to heat or flame. ‣ Heating may cause expansion or decomposition leading to violent rupture of containers. Combustion products include: carbon dioxide (CO_2) nitrogen oxides (NOx) metal oxides other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	‣ Remove all ignition sources. ‣ Clean up all spills immediately. ‣ Avoid breathing vapours and contact with skin and eyes.
Major Spills	Moderate hazard. ‣ Clear area of personnel and move upwind. ‣ Alert Fire Brigade and tell them location and nature of hazard.

6.4. Reference to other sections

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

SECTION 7 Handling and storage

7.1. 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. ‣ **DO NOT** allow clothing wet with material to stay in contact with skin
Fire and explosion protection	See section 5
Other information	‣ Store in original containers. ‣ Keep containers securely sealed. ‣ No smoking, naked lights or ignition sources.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	‣ **DO NOT** use aluminium, galvanised or tin-plated containers ‣ Metal can or drum ‣ Packaging as recommended by manufacturer. ‣ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	Triethylenetetramine (TETA): ‣ aqueous solutions are strong organic bases ‣ reacts with nitrogen containing compounds; may cause violent decomposition ‣ reacts violently with strong oxidisers, nitroparaffins, nitrogen tetroxide, permanganates, peroxides, ammonium persulfate, bromine dioxide, sulfuric acid, nitric acid ‣ is incompatible with organic anhydrides (eg maleic anhydride), acrylates, alcohols, aldehydes, alkylene oxides, substituted allyls, cellulose nitrate, cresols, caprolactam solutions, epichlorohydrin, ethylene dichloride, glycols, halons, halogenated hydrocarbons, isocyanates, ketones, methyl trichloroacetate, nitrates, phenols, urea, vinyl acetate ‣ increases the explosive sensitivity of nitromethane

Continued...

	▸ attacks aluminium, cobalt, copper, lad, nickel, tin zinc, and their alloys, and some plastics, rubber and coatings ▸ reacts with halon fire extinguishers ▸ Avoid strong acids, bases. · Imidazole may be regarded as possessing pyrrole and pyridine like properties and therefore its reactivity might resemble that of the others. In general imidazole, in common with pyrazole, is less reactive than pyrrole and more reactive than benzene. · One peculiarity of imidazole is the impossibility to distinguish the two nitrogen atoms in solution. Secondary amines form salts with strong acids and can be oxidized to the corresponding nitrone using hydrogen peroxide, catalyzed by selenium dioxide Amines are incompatible with: · isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides. · strong reducing agents such as hydrides, due to the liberation of flammable gas. Amines possess a characteristic ammonia smell, liquid amines have a distinctive 'fishy' smell. ▸ Avoid contact with copper, aluminium and their alloys. ▸ Avoid reaction with oxidising agents
Hazard categories in accordance with Regulation (EC) No 1272/2008	Not Available
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not Available

7.3. Specific end use(s)

See section 1.2

SECTION 8 Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
C18 fatty acid dimers/ polyethylenepolyamine polyamides	Dermal 1.1 mg/kg bw/day (Systemic, Chronic) Inhalation 3.9 mg/m³ (Systemic, Chronic) *Dermal 0.56 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 0.97 mg/m³ (Systemic, Chronic) ** *Oral 0.56 mg/kg bw/day (Systemic, Chronic) **	0.004 mg/L (Water (Fresh)) 0.041 mg/L (Water - Intermittent release) 0 mg/L (Water (Marine)) 411.01 mg/kg sediment dw (Sediment (Fresh Water)) 41.1 mg/kg sediment dw (Sediment (Marine)) 82.18 mg/kg soil dw (Soil) 3.14 mg/L (STP)
triethylenetetramine	Dermal 0.57 mg/kg bw/day (Systemic, Chronic) Inhalation 1 mg/m³ (Systemic, Chronic) Dermal 28 µg/cm² (Local, Chronic) Inhalation 5 380 mg/m³ (Systemic, Acute) *Dermal 0.25 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 0.29 mg/m³ (Systemic, Chronic) ** *Oral 0.41 mg/kg bw/day (Systemic, Chronic) ** *Dermal 0.43 mg/cm² (Local, Chronic) ** *Dermal 8 mg/kg bw/day (Systemic, Acute) ** *Inhalation 1 600 mg/m³ (Systemic, Acute) ** *Oral 20 mg/kg bw/day (Systemic, Acute) ** *Dermal 1 mg/cm² (Local, Acute) **	Not Available
bisphenol A	Dermal 1.23 mg/kg bw/day (Systemic, Chronic) Inhalation 2 mg/m³ (Systemic, Chronic) Inhalation 2 mg/m³ (Local, Chronic) Dermal 66 µg/kg bw/day (Systemic, Acute) Inhalation 2 mg/m³ (Systemic, Acute) Inhalation 2 mg/m³ (Local, Acute) *Dermal 24 µg/kg bw/day (Systemic, Chronic) ** *Inhalation 0.452 mg/m³ (Systemic, Chronic) ** *Oral 0.5 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 1 mg/m³ (Local, Chronic) ** *Dermal 24 µg/kg bw/day (Systemic, Acute) ** *Inhalation 1 mg/m³ (Systemic, Acute) ** *Oral 53 µg/kg bw/day (Systemic, Acute) ** *Inhalation 1 mg/m³ (Local, Acute) **	0.023 mg/L (Water (Fresh)) 0.011 mg/L (Water - Intermittent release) 0.019 mg/L (Water (Marine)) 1.2 mg/kg sediment dw (Sediment (Fresh Water)) 0.24 mg/kg sediment dw (Sediment (Marine)) 3.7 mg/kg soil dw (Soil) 320 mg/L (STP)
2,4,6-tris[(dimethylamino)methyl]phenol	Dermal 0.15 mg/kg bw/day (Systemic, Chronic) Inhalation 0.53 mg/m³ (Systemic, Chronic) Dermal 0.6 mg/kg bw/day (Systemic, Acute) Inhalation 2.1 mg/m³ (Systemic, Acute) *Dermal 0.075 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 0.13 mg/m³ (Systemic, Chronic) ** *Oral 0.075 mg/kg bw/day (Systemic, Chronic) ** *Dermal 0.075 mg/kg bw/day (Systemic, Acute) ** *Inhalation 0.13 mg/m³ (Systemic, Acute) **	0.046 mg/L (Water (Fresh)) 0.46 mg/L (Water - Intermittent release) 0.005 mg/L (Water (Marine)) 0.262 mg/kg sediment dw (Sediment (Fresh Water)) 0.026 mg/kg sediment dw (Sediment (Marine)) 0.025 mg/kg soil dw (Soil) 0.2 mg/L (STP)
iron	Inhalation 3 mg/m³ (Local, Chronic) *Oral 0.71 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 1.5 mg/m³ (Local, Chronic) **	Not Available
titanium dioxide	Inhalation 0.8 mg/m³ (Local, Chronic) *Inhalation 28 µg/m³ (Local, Chronic) **	Not Available

Continued...

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
bis(2-dimethylaminoethyl)ether	Inhalation 0.16 mg/m³ (Systemic, Chronic) Inhalation 0.08 mg/m³ (Local, Chronic) *Inhalation 0.041 mg/m³ (Systemic, Chronic) ** *Oral 0.047 mg/kg bw/day (Systemic, Chronic) ** *Inhalation 0.013 mg/m³ (Local, Chronic) **	0.023 mg/L (Water (Fresh)) 0.23 mg/L (Water - Intermittent release) 0.002 mg/L (Water (Marine)) 0.019 mg/kg sediment dw (Sediment (Fresh Water)) 0.002 mg/kg sediment dw (Sediment (Marine)) 0.007 mg/kg soil dw (Soil) 7.2 mg/L (STP)

* Values for General Population

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs).	bisphenol A	Bisphenol A	2 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	iron	Iron salts (as Fe)	1 mg/m3	2 mg/m3	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	titanium dioxide	Titanium dioxide: respirable	4 mg/m3	Not Available	Not Available	Not Available
UK Workplace Exposure Limits (WELs).	titanium dioxide	Titanium dioxide: total inhalable	10 mg/m3	Not Available	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
C18 fatty acid dimers/ polyethylenepolyamine polyamides	30 mg/m3	330 mg/m3	2,000 mg/m3
triethylenetetramine	3 ppm	14 ppm	83 ppm
tetraethylenepentamine	15 mg/m3	130 mg/m3	790 mg/m3
bisphenol A	15 mg/m3	110 mg/m3	650 mg/m3
2,4,6-tris[(dimethylamino)methyl]phenol	6.5 mg/m3	72 mg/m3	430 mg/m3
iron	3.2 mg/m3	35 mg/m3	150 mg/m3
titanium dioxide	30 mg/m3	330 mg/m3	2,000 mg/m3
bis(2-dimethylaminoethyl)ether	0.15 ppm	1.4 ppm	8.4 ppm

Ingredient	Original IDLH	Revised IDLH
C18 fatty acid dimers/ polyethylenepolyamine polyamides	Not Available	Not Available
triethylenetetramine	Not Available	Not Available
tetraethylenepentamine	Not Available	Not Available
bisphenol A	Not Available	Not Available
2,4,6-tris[(dimethylamino)methyl]phenol	Not Available	Not Available
tall oil/ tetraethylenepentamine polyamides	Not Available	Not Available
bis[(dimethylamino)methyl]phenol	Not Available	Not Available
iron	Not Available	Not Available
titanium dioxide	5,000 mg/m3	Not Available
bis(2-dimethylaminoethyl)ether	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
C18 fatty acid dimers/ polyethylenepolyamine polyamides	E	≤ 0.1 ppm
triethylenetetramine	E	≤ 0.1 ppm
tetraethylenepentamine	E	≤ 0.1 ppm
tall oil/ tetraethylenepentamine polyamides	E	≤ 0.1 ppm
bis(2-dimethylaminoethyl)ether	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.*	

8.2. Exposure controls

8.2.1. Appropriate engineering	Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can

Continued...

controls	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.
8.2.2. 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.
Skin protection	See Hand protection below
Hands/feet protection	**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. The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. When handling liquid-grade epoxy resins wear chemically protective gloves , boots and aprons. The performance, based on breakthrough times ,of: · Ethyl Vinyl Alcohol (EVAL laminate) is generally excellent · Butyl Rubber ranges from excellent to good · Nitrile Butyl Rubber (NBR) from excellent to fair. · Neoprene from excellent to fair · Polyvinyl (PVC) from excellent to poor As defined in ASTM F-739-96 · Excellent breakthrough time > 480 min · Good breakthrough time > 20 min · Fair breakthrough time < 20 min · Poor glove material degradation Gloves should be tested against each resin system prior to making a selection of the most suitable type.
Body protection	See Other protection below
Other protection	‣ Overalls. ‣ P.V.C apron. ‣ Barrier cream.

Respiratory protection

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

Where engineering controls are not feasible and work practices do not reduce airborne amine concentrations below recommended exposure limits, appropriate respiratory protection should be used. In such cases, air-purifying respirators equipped with cartridges designed to protect against amines are recommended.

8.2.3. Environmental exposure controls

See section 12

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid

Physical state	Liquid	**Relative density (Water = 1)**	Not Available
Odor	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
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 Available
Flash point (°C)	Not Available		
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available

Continued...

Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10 Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Inhaled	The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Inhalation of epoxy resin amine hardeners (including polyamines and amine adducts) may produce bronchospasm and coughing episodes lasting several days after cessation of the exposure. Even faint traces of these vapours may trigger an intense reaction in individuals showing 'amine asthma'.
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. Concentrated solutions of many cationics may cause corrosive damage to mucous membranes and the oesophagus. Nausea and vomiting (sometimes bloody) may follow ingestion. Ingestion of amine epoxy-curing agents (hardeners) may cause severe abdominal pain, nausea, vomiting or diarrhoea. The vomitus may contain blood and mucous.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. The material may accentuate any pre-existing dermatitis condition Cationic surfactants cause skin irritation, and, in high concentrations, caustic burns. Amine epoxy-curing agents (hardeners) may produce primary skin irritation and sensitisation dermatitis in predisposed individuals. Cutaneous reactions include erythema, intolerable itching and severe facial swelling. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	If applied to the eyes, this material causes severe eye damage. Many cationic surfactants are very irritating to the eyes at low concentration. Concentrated solutions can cause severe burns with permanent clouding.
Chronic	Studies show that inhaling this substance for over a long period (e.g. in an occupational setting) may increase the risk of cancer. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material. Imidazole is structurally related, and has been used to counteract the effects of histamine. Imidazoles have been reported to disrupt male fertility, through disruption of the function of the testes. Bisphenol A may have effects similar to female sex hormones and when administered to pregnant women, may damage the foetus. It may also damage male reproductive organs and sperm. Prolonged or repeated skin contact may cause degreasing, followed by drying, cracking and skin inflammation. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Amine epoxy-curing agents (hardeners) may produce primary skin irritation and sensitisation dermatitis in predisposed individuals. Cutaneous reactions include erythema, intolerable itching and severe facial swelling.

HighHeat™ Syringe - Part B	**TOXICITY**	**IRRITATION**
	Not Available	Not Available

Continued...

C18 fatty acid dimers/ polyethylenepolyamine polyamides

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Not Available
Oral (Rabbit) LD50; 800 mg/kg[2]	

triethylenetetramine

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 805 mg/kg[2]	Not Available
Oral (Rat) LD50: 1591.4 mg/kg[1]	

tetraethylenepentamine

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 660 mg/kg[2]	Eye (rabbit): 100 mg/24h moderate
Oral (Rat) LD50: 3990 mg/kg[2]	Eye (rabbit): 5 mg moderate
	Skin (rabbit): 495 mg SEVERE
	Skin (rabbit): 5 mg/24h SEVERE

bisphenol A

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 3000 mg/kg[2]	Eye (rabbit): 0.25 mg/24h-SEVERE
Oral (Rat) LD50: 1200 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Skin (rabbit): 250 mg open - mild
	Skin (rabbit): 500 mg/24h - mild
	Skin: adverse effect observed (irritating)[1]
	Skin: no adverse effect observed (not irritating)[1]

2,4,6-tris[(dimethylamino)methyl]phenol

TOXICITY	IRRITATION
dermal (rat) LD50: >973 mg/kg[1]	Eye: adverse effect observed (irreversible damage)[1]
Oral (Rat) LD50: 1200 mg/kg[2]	Skin: adverse effect observed (corrosive)[1]

tall oil/ tetraethylenepentamine polyamides

TOXICITY	IRRITATION
Oral (Rat) LD50: >5000 mg/kg[2]	Eyes (rabbit) (-) moderate
	Skin (rabbit) (-) moderate

bis[(dimethylamino)methyl]phenol

TOXICITY	IRRITATION
Not Available	Not Available

iron

TOXICITY	IRRITATION
Oral (Rat) LD50: 98600 mg/kg[2]	Not Available

titanium dioxide

TOXICITY	IRRITATION
Inhalation (Rat)TCLo: 0.04 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
Oral (Mouse)LD50; >10000 mg/kg *[2]	Skin (human): 0.3 mg /3D (int)-mild *
Oral (Mouse)TDLo: 0.0032 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
Oral (Rat)LD50: >20000 mg/kg *[2]	
Oral (Rat)TDLo: 60000 mg/kg[2]	

bis(2-dimethylaminoethyl)ether

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 238 mg/kg[2]	Not Available
Inhalation(Rat) LC50: >2.204 mg/l4h[1]	
Oral (Rat) LD50: 571 mg/kg[2]	

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*

HighHeat™ Syringe - Part B

The various members of the bisphenol family produce hormone like effects, seemingly as a result of binding to estrogen receptor-related receptors (ERRs; not to be confused with estrogen receptors)
A suspected estrogen-related receptors (ERR) binding agent:
Estrogen-related receptors (ERR, oestrogen-related receptors) are so named because of sequence homology with estrogen receptors but do not

Continued...

	appear to bind estrogens or other tested steroid hormones. The ERR family have been demonstrated to control energy homeostasis, oxidative metabolism and mitochondrial biogenesis ,while effecting mammalian physiology in the heart, brown adipose tissue, white adipose tissue, placenta, macrophages, and demonstrated additional roles in diabetes and cancer. ERRs bind enhancers throughout the genome where they exert effects on gene regulation Although their overall functions remain uncertain, they also share DNA-binding sites, co-regulators, and target genes with the conventional estrogen receptors ERalpha and ERbeta and may function to modulate estrogen signaling pathways. · ERR-alpha has wide tissue distribution but it is most highly expressed in tissues that preferentially use fatty acids as energy sources such as kidney, heart, brown adipose tissue, cerebellum, intestine, and skeletal muscle. ERRalpha has been detected in normal adrenal cortex tissues, in which its expression is possibly related to adrenal development, with a possible role in fetal adrenal function, in dehydroepiandrosterone (DHEAS) production in adrenarche, and also in steroid production of post-adrenarche/adult life. DHEA and other adrenal androgens such as androstenedione, although relatively weak androgens, are responsible for the androgenic effects of adrenarche, such as early pubic and axillary hair growth, adult-type body odor, increased oiliness of hair and skin, and mild acne.
C18 FATTY ACID DIMERS/ POLYETHYLENEPOLYAMINE POLYAMIDES	Considered to be a skin sensitiser in the Local Lymph Node Assay (LLNA) conducted according to OECD Test Guideline 429. The substance does not cause effects that meet the criteria for classification for systemic or target organ toxicity after repeated sub-acute exposures. Based on read-across to these findings, Fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines does not meet the criteria for classification for repeated dose toxicity according to Regulation 1272/2008/EC or Directive 67/548/EEC. Genetic toxicity Negative results were obtained in an in vitro study conducted using bacterial cells. Negative results were obtained for the read across substance in vitro studies in mammalian cells. Based on these results,the substance is not predicted to have any genotoxic potential. *REACh Dossier
TETRAETHYLENEPENTAMINE	The material may cause severe 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. Repeated exposures may produce severe ulceration. Triethylenetetramine is a severe irritant to skin and eyes and may induce skin sensitisation. Acute exposure to saturated vapour via inhalation was tolerated without impairment but exposure to aerosol may lead to reversible irritations of the mucous membranes in the airways. Studies done on experimental animals showed that it does not cause cancer or foetal developmental defects.
BISPHENOL A	For bisphenol A (BPA) Following oral administration absorption of BPA is rapid and extensive while dermal absorption is limited. Extensive first pass metabolism occurs following absorption from the gastrointestinal tract with glucuronide conjugation being the major metabolic pathway. Bisphenol A is of low acute toxicity (rodent oral LD50 values from 3300-4100 mg/kg, a rabbit oral LD50 value 2230 mg/kg and a rat acute inhalation 6-hour LC50 value >170 mg/m3).
tall oil/ tetraethylenepentamine polyamides	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 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. Most undiluted cationic surfactants satisfy the criteria for classification as Harmful (Xn) with R22 and as Irritant (Xi) for skin and eyes with R38 and R41.
titanium dioxide	* IUCLID Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation. Exposure to titanium dioxide is via inhalation, swallowing or skin contact. When inhaled, it may deposit in lung tissue and lymph nodes causing dysfunction of the lungs and immune system. Absorption by the stomach and intestines depends on the size of the particle. No significant acute toxicological data identified in literature search. **WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
HighHeat™ Syringe - Part B & C18 FATTY ACID DIMERS/ POLYETHYLENEPOLYAMINE POLYAMIDES & TETRAETHYLENEPENTAMINE & BISPHENOL A & tall oil/ tetraethylenepentamine polyamides	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.
HighHeat™ Syringe - Part B & C18 FATTY ACID DIMERS/ POLYETHYLENEPOLYAMINE POLYAMIDES & tall oil/ tetraethylenepentamine polyamides	Laboratory testing shows that the fatty acid amide, cocoamide DEA, causes occupational allergic contact dermatitis, and that allergy to this substance is becoming more common. Alkanolamides are manufactured by condensation of diethanolamine and the methyl ester of long chain fatty acids. For imidazoline surfactants (amidoamine/ imidazoline - AAIs) All substances within the AAI group show the same reactive groups, show similar composition of amide, imidazoline, and some dimer structures of both, with the length of original EA amines used for production as biggest difference. Inherent reactivity and toxicity is not expected to differ much between these substances. All in vivo skin irritation/corrosion studies performed on AAI substances all indicate them to be corrosive following 4 hour exposure. There do not seem to be big differences in response with the variation on EA length used for the production of the AAI. For quaternary ammonium compounds (QACs): Quaternary ammonium compounds are synthetically made surfactants. Studies show that its solubility, toxicity and irritation depend on chain length and bond type while effect on histamine depends on concentration. QACs may cause muscle paralysis with no brain involvement. The chemicals in the Fatty Nitrogen Derived (FND) Amides are generally similar in terms of physical and chemical properties, environmental fate and toxicity. Its low acute oral toxicity is well established across all subcategories by the available data and show no apparent organ specific toxicity, mutation, reproductive or developmental defects.
HighHeat™ Syringe - Part B & C18 FATTY ACID DIMERS/ POLYETHYLENEPOLYAMINE POLYAMIDES & TETRAETHYLENEPENTAMINE & tall oil/ tetraethylenepentamine polyamides	Ethyleneamines are very reactive and can cause chemical burns, skin rashes and asthma-like symptoms. It is readily absorbed through the skin and may cause eye blindness and irreparable damage. As such, they require careful handling.
HighHeat™ Syringe - Part B & BISPHENOL A	The chemical structure of hydroxylated diphenylalkanes or bisphenols consists of two phenolic rings joined together through a bridging carbon. This class of endocrine disruptors that mimic oestrogens is widely used in industry, particularly in plastics. Bisphenol A (BPA) and some related compounds exhibit oestrogenic activity in human breast cancer cell line MCF-7, but there were remarkable differences in activity. Several derivatives of BPA exhibited significant thyroid hormonal activity towards rat pituitary cell line GH3, which releases growth hormone in a thyroid hormone-dependent manner.

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C18 FATTY ACID DIMERS/ POLYETHYLENEPOLYAMINE POLYAMIDES & TETRAETHYLENEPENTAMINE & tall oil/ tetraethylenepentamine polyamides & titanium dioxide	The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
C18 FATTY ACID DIMERS/ POLYETHYLENEPOLYAMINE POLYAMIDES & TETRAETHYLENEPENTAMINE & BISPHENOL A & tall oil/ tetraethylenepentamine polyamides & titanium dioxide	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.
TETRAETHYLENEPENTAMINE & tall oil/ tetraethylenepentamine polyamides	For alkyl polyamines: The alkyl polyamines cluster consists of two terminal primary and at least one secondary amine groups and are derivatives of low molecular weight ethylenediamine, propylenediamine or hexanediamine. Toxicity depends on route of exposure. Cluster members have been shown to cause skin irritation or sensitisation, eye irritation and genetic defects, but have not been shown to cause cancer. Tetraethylenepentamine (TEPA) has a low acute toxicity when taken orally and a higher toxicity via the dermal route most likely due to the corrosive nature of TEPA to the skin against neutralization by stomach acid. TEPA may be corrosive to the skin and eyes. Long term dermal application may cause thickening of the epidermis and other skin changes.
BISPHENOL A & titanium dioxide	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.

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*

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

Many chemicals may mimic or interfere with the body s hormones, known as the endocrine system. Endocrine disruptors are chemicals that can interfere with endocrine (or hormonal) systems.
Endocrine disruptors interfere with the synthesis, secretion, transport, binding, action, or elimination of natural hormones in the body. Any system in the body controlled by hormones can be derailed by hormone disruptors. Specifically, endocrine disruptors may be associated with the development of learning disabilities, deformations of the body various cancers and sexual development problems.
Endocrine disrupting chemicals cause adverse effects in animals. But limited scientific information exists on potential health problems in humans. Because people are typically exposed to multiple endocrine disruptors at the same time, assessing public health effects is difficult.

11.2.2. Other information

See Section 11.1

SECTION 12 Ecological information

12.1. Toxicity

HighHeat™ Syringe - Part B

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

C18 fatty acid dimers/ polyethylenepolyamine polyamides

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	4.11mg/l	Not Available
EC50	48h	Crustacea	5.19mg/l	Not Available
LC50	96h	Fish	7.07mg/l	Not Available
EC50(ECx)	72h	Algae or other aquatic plants	4.11mg/l	Not Available

triethylenetetramine

Endpoint	Test Duration (hr)	Species	Value	Source
BCF	1008h	Fish	<0.5	7
EC50	72h	Algae or other aquatic plants	2.5mg/l	1
EC50	48h	Crustacea	31.1mg/l	1
EC50	96h	Algae or other aquatic plants	3.7mg/l	4
ErC50	72h	Algae or other aquatic plants	2.5mg/l	1
LC50	96h	Fish	180mg/l	1
EC10(ECx)	72h	Algae or other aquatic plants	0.67mg/l	1

Continued...

tetraethylenepentamine

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	2.1mg/l	1
EC50	48h	Crustacea	24.1mg/l	1
NOEC(ECx)	72h	Algae or other aquatic plants	0.5mg/l	1

bisphenol A

Endpoint	Test Duration (hr)	Species	Value	Source
BCF	1008h	Fish	5.1-13.3	7
EC50	72h	Algae or other aquatic plants	1.25-1.89mg/l	4
EC50	48h	Crustacea	10.2mg/l	1
EC50	96h	Algae or other aquatic plants	1mg/l	1
ErC50	72h	Algae or other aquatic plants	2.7-3.1mg/l	1
NOEC(ECx)	96h	Crustacea	0.51mg/l	1
LC50	96h	Fish	3-5mg/l	2

2,4,6-tris[(dimethylamino)methyl]phenol

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	2.8mg/l	2
EC50	48h	Crustacea	>100mg/l	2
EC50(ECx)	24h	Crustacea	280mg/l	Not Available
LC50	96h	Fish	1000mg/l	Not Available

tall oil/ tetraethylenepentamine polyamides

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

bis[(dimethylamino)methyl]phenol

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

iron

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	18mg/l	2
EC50	48h	Crustacea	>100mg/l	2
LC50	96h	Fish	0.00499-0.00819mg/l	4
NOEC(ECx)	48h	Algae or other aquatic plants	0.1-4mg/l	4

titanium dioxide

Endpoint	Test Duration (hr)	Species	Value	Source
BCF	1008h	Fish	<1.1-9.6	7
EC50	72h	Algae or other aquatic plants	3.75-7.58mg/l	4
EC50	48h	Crustacea	1.9mg/l	2
EC50	96h	Algae or other aquatic plants	179.05mg/l	2
LC50	96h	Fish	1.85-3.06mg/l	4
NOEC(ECx)	672h	Fish	>=0.004mg/L	2

bis(2-dimethylaminoethyl)ether

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	72h	Algae or other aquatic plants	23mg/l	Not Available
EC50	48h	Crustacea	102mg/l	2
LC50	96h	Fish	100-215mg/l	Not Available
EC50(ECx)	72h	Algae or other aquatic plants	23mg/l	Not Available

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*

Harmful 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.
Prevent, by any means available, spillage from entering drains or water courses.
DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
triethylenetetramine	LOW	LOW

Continued...

Ingredient	Persistence: Water/Soil	Persistence: Air
tetraethylenepentamine	LOW	LOW
bisphenol A	HIGH (Half-life = 360 days)	LOW (Half-life = 0.31 days)
2,4,6-tris[(dimethylamino)methyl]phenol	HIGH	HIGH
titanium dioxide	HIGH	HIGH
bis(2-dimethylaminoethyl)ether	HIGH	HIGH

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
triethylenetetramine	LOW (BCF = 5)
tetraethylenepentamine	LOW (LogKOW = -3.1604)
bisphenol A	LOW (BCF = 100)
2,4,6-tris[(dimethylamino)methyl]phenol	LOW (LogKOW = 0.773)
titanium dioxide	LOW (BCF = 10)
bis(2-dimethylaminoethyl)ether	LOW (LogKOW = -0.5386)

12.4. Mobility in soil

Ingredient	Mobility
triethylenetetramine	LOW (KOC = 309.9)
tetraethylenepentamine	LOW (KOC = 1098)
bisphenol A	LOW (KOC = 75190)
2,4,6-tris[(dimethylamino)methyl]phenol	LOW (KOC = 15130)
titanium dioxide	LOW (KOC = 23.74)
bis(2-dimethylaminoethyl)ether	LOW (KOC = 21.85)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine disrupting properties

The evidence linking adverse effects to endocrine disruptors is more compelling in the environment than it is in humans. Endocrine distruptors profoundly alter reproductive physiology of ecosystems and ultimately impact entire populations. Some endocrine-disrupting chemicals are slow to break-down in the environment. That characteristic makes them potentially hazardous over long periods of time. Some well established adverse effects of endocrine disruptors in various wildlife species include; eggshell-thinning, displayed of characteristics of the opposite sex and impaired reproductive development. Other adverse changes in wildlife species that have been suggested, but not proven include; reproductive abnormalities, immune dysfunction and skeletal deformaties.

12.7. Other adverse effects

No evidence of ozone depleting properties were found in the current literature.

SECTION 13 Disposal considerations

13.1. Waste treatment methods

Product / Packaging disposal	▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. Otherwise: ▸ If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. ▸ **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. Removal of bisphenol A (BPA) from aqueous solutions was accomplished by adsorption of enzymatically generated quinone derivatives on chitosan beads. The use of chitosan in the form of beads was found to be more effective because heterogeneous removal of BPA with chitosan beads was much faster than homogeneous removal of BPA with chitosan solutions, and the removal efficiency was enhanced by increasing the amount of chitosan beads dispersed in the BPA solutions and BPA was completely removed by quinone adsorption in the presence of chitosan beads more than 0.10 cm3/cm3. In addition, a variety of bisphenol derivatives were completely or effectively removed by the procedure constructed in this study, although the enzyme dose or the amount of chitosan beads was further increased as necessary for some of the bisphenol derivatives used.

Continued...

	▸ Recycle wherever possible or consult manufacturer for recycling options. ▸ Consult State Land Waste Authority for disposal. ▸ Bury or incinerate residue at an approved site.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 Transport information

Labels Required

HAZCHEM	Not Applicable

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number or ID number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	Class: Not Applicable Subsidiary Hazard: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Hazard identification (Kemler): Not Applicable Classification code: Not Applicable Hazard Label: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Tunnel Restriction Code: Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	ICAO/IATA Class: Not Applicable ICAO / IATA Subsidiary Hazard: Not Applicable ERG Code: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: Not Applicable Cargo Only Packing Instructions: Not Applicable Cargo Only Maximum Qty / Pack: Not Applicable Passenger and Cargo Packing Instructions: Not Applicable Passenger and Cargo Maximum Qty / Pack: Not Applicable Passenger and Cargo Limited Quantity Packing Instructions: Not Applicable Passenger and Cargo Limited Maximum Qty / Pack: Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	IMDG Class: Not Applicable IMDG Subsidiary Hazard: Not Applicable
14.4. **Packing group**	Not Applicable
14.5 **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	EMS Number: Not Applicable Special provisions: Not Applicable Limited Quantities: Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable

Continued...

14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	Not Applicable | Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Classification code: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Equipment required: Not Applicable Fire cones number: Not Applicable

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
C18 fatty acid dimers/ polyethylenepolyamine polyamides	Not Available
triethylenetetramine	Not Available
tetraethylenepentamine	Not Available
bisphenol A	Not Available
2,4,6-tris[(dimethylamino)methyl]phenol	Not Available
tall oil/ tetraethylenepentamine polyamides	Not Available
bis[(dimethylamino)methyl]phenol	Not Available
iron	Not Available
titanium dioxide	Not Available
bis(2-dimethylaminoethyl)ether	Not Available

14.7.3. Transport in bulk in accordance with the IGC Code

Product name	Ship Type
C18 fatty acid dimers/ polyethylenepolyamine polyamides	Not Available
triethylenetetramine	Not Available
tetraethylenepentamine	Not Available
bisphenol A	Not Available
2,4,6-tris[(dimethylamino)methyl]phenol	Not Available
tall oil/ tetraethylenepentamine polyamides	Not Available
bis[(dimethylamino)methyl]phenol	Not Available
iron	Not Available
titanium dioxide	Not Available
bis(2-dimethylaminoethyl)ether	Not Available

SECTION 15 Regulatory information

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

C18 fatty acid dimers/ polyethylenepolyamine polyamides is found on the following regulatory lists

Not Applicable

triethylenetetramine is found on the following regulatory lists

Great Britain GB mandatory classification and labelling list (GB MCL)

tetraethylenepentamine is found on the following regulatory lists

Great Britain GB mandatory classification and labelling list (GB MCL)

bisphenol A is found on the following regulatory lists

Continued...

Chemical Footprint Project - Chemicals of High Concern List
Great Britain GB mandatory classification and labelling (GB MCL) technical reports
Great Britain GB mandatory classification and labelling list (GB MCL)
International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
UK REACH Candidate List of substances of very high concern (SVHC) for Authorisation
UK Workplace Exposure Limits (WELs).

2,4,6-tris[(dimethylamino)methyl]phenol is found on the following regulatory lists

Great Britain GB mandatory classification and labelling list (GB MCL)

tall oil/ tetraethylenepentamine polyamides is found on the following regulatory lists

Not Applicable

bis[(dimethylamino)methyl]phenol is found on the following regulatory lists

Not Applicable

iron is found on the following regulatory lists

International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
UK Workplace Exposure Limits (WELs).

titanium dioxide is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
Great Britain GB mandatory classification and labelling list (GB MCL)
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)
UK Workplace Exposure Limits (WELs).

bis(2-dimethylaminoethyl)ether is found on the following regulatory lists

Not Applicable

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

Information according to 2012/18/EU (Seveso III):

Seveso Category	Not Available

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	No (bis[(dimethylamino)methyl]phenol)
Canada - DSL	No (bis[(dimethylamino)methyl]phenol)
Canada - NDSL	No (C18 fatty acid dimers/ polyethylenepolyamine polyamides; triethylenetetramine; tetraethylenepentamine; bisphenol A; 2,4,6-tris[(dimethylamino)methyl]phenol; tall oil/ tetraethylenepentamine polyamides; bis[(dimethylamino)methyl]phenol; iron; titanium dioxide; bis(2-dimethylaminoethyl)ether)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	No (C18 fatty acid dimers/ polyethylenepolyamine polyamides)
Japan - ENCS	No (tall oil/ tetraethylenepentamine polyamides; iron)
Korea - KECI	No (bis[(dimethylamino)methyl]phenol)
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	No (bis[(dimethylamino)methyl]phenol)
Taiwan - TCSI	Yes
Mexico - INSQ	No (tall oil/ tetraethylenepentamine polyamides; bis[(dimethylamino)methyl]phenol; bis(2-dimethylaminoethyl)ether)
Vietnam - NCI	Yes
Russia - FBEPH	No (C18 fatty acid dimers/ polyethylenepolyamine polyamides; bis[(dimethylamino)methyl]phenol)
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	10/25/2023
Initial Date	03/23/2021

Full text Risk and Hazard codes

H290	May be corrosive to metals.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H319	Causes serious eye irritation.

Continued...

H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

SDS Version Summary

Version	Date of Update	Sections Updated
4.18	10/24/2023	Toxicological information - Chronic Health, Hazards identification - Classification, Ecological Information - Environmental, Exposure controls / personal protection - Exposure Standard, Firefighting measures - Fire Fighter (fire/explosion hazard), Firefighting measures - Fire Fighter (fire fighting), Composition / information on ingredients - Ingredients, Handling and storage - Storage (storage incompatibility)

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.
For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	Classification Procedure
Acute Toxicity (Oral) Category 4, H302	On basis of test data
Skin Corrosion/Irritation Category 2, H315	Calculation method
Sensitisation (Skin) Category 1, H317	Calculation method
Serious Eye Damage/Eye Irritation Category 1, H318	Calculation method
Carcinogenicity Category 1A, H350i	Calculation method
Reproductive Toxicity Category 1B, H360F	Calculation method
, EUH211	Calculation method

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