

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

### 1.1. Product identifier

Product Name	Epoxy Resin ER1448, Part A
Product Code(s)	ER1448A, EER1448RP250G, EER1448K5K, EER1448AB200K, ZE
Safety data sheet number	01696
Unique Formula Identifier (UFI)	3KP4-R09S-A006-XJYC
Pure substance/mixture	Mixture

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

Recommended use	Resin
Uses advised against	No specific uses advised against are identified

### 1.3. Details of the supplier of the safety data sheet

<u>Manufacturer</u>	<u>Supplier</u>
ELECTROLUBE MacDermid Alpha Electronics Solutions ASHBY PARK, COALFIELD WAY, ASHBY DE LA ZOUCH, LEICESTERSHIRE LE65 1JR UNITED KINGDOM	HK WENTWORTH LIMITED 32 RUE DE TOURNENFILS 91540 MENNECY FRANCE
+44 (0)1530 419600 +44 (0)1530 416640 info@electrolube.com	+33 (0) 1 82 88 47 94 info@electrolube.com

For further information, please contact

**E-mail address** info@electrolube.com

### 1.4. Emergency telephone number

Emergency Telephone	POISON INFORMATION CENTRE (Beaumont Hospital, Republic of Ireland only) +353 (0)1 809 2166 (08:00 - 22:00)
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**Emergency Telephone - IN CASE OF EMERGENCY CALL: +44 1865 407333 (24hr, Provided by Carechem 24)**

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to

Regulation (EC) No. 1272/2008 [CLP]

<b>Skin corrosion/irritation</b>	Category 2 - (H315)
<b>Serious eye damage/eye irritation</b>	Category 2 - (H319)
<b>Skin sensitisation</b>	Category 1 - (H317)
<b>Chronic aquatic toxicity</b>	Category 2 - (H411)

## 2.2. Label elements

Contains Reaction product: bisphenol-A-(epichlorohydrin) epoxy resin (number average molecular weight  $\leq 700$ ), Oxirane, (chloromethyl)-, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)), 1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane, formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol, oxirane, mono[(C12-14-alkyloxy)methyl] derivs.



### Signal word

Warning

### Hazard statements

H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H411 - Toxic to aquatic life with long lasting effects

### Precautionary Statements - EU (§28, 1272/2008)

P261 - Avoid breathing vapours/spray.  
P273 - Avoid release to the environment.  
P280 - Wear protective gloves and eye/face protection.  
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.

## 2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) 25068-38-6	30-60	01-2119456619-26-0000	500-033-5	Aquatic Chronic 2 (H411) Skin Sens. 1 (H317) Eye Irrit. 2 (H319) Skin Irrit. 2 (H315)	Eye Irrit. 2 :: C>=5% Skin Irrit. 2 :: C>=5%	-	-
Oxirane, (chloromethyl)-, polymer with .alpha.-hydro-.omega.a.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) 9072-62-2	10-30	No data available	618-635-2	Aquatic Chronic 3 (H412) Skin Sens. 1 (H317) Eye Irrit. 2 (H319) Skin Irrit. 2 (H315)	-	-	-
1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane 17557-23-2	10-30	No data available	241-536-7	Skin Sens. 1 (H317) Skin Irrit. 2 (H315)	-	-	-
formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropene and phenol 9003-36-5	1-5	01-2119454392-40-0000	500-006-8	Aquatic Chronic 2 (H411) Skin Sens. 1 (H317) Skin Irrit. 2 (H315)	-	-	-
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	0.1-1	01-2119485289-22-0000	271-846-8	Skin Sens. 1 (H317) Skin Irrit. 2 (H315)	-	-	-
Cyclohexanone 108-94-1	<0.1	01-2119453616-35-0000	203-631-1	Flam. Liq. 3 (H226) Acute Tox. 4 (H332)	-	-	-

**Full text of H- and EUH-phrases: see section 16**

Acute Toxicity Estimate

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) 25068-38-6	11400	No data available	No data available	No data available	No data available
1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane 17557-23-2	4500	2000	No data available	No data available	No data available
formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropene and phenol 9003-36-5	2000	No data available	No data available	No data available	No data available
oxirane, mono[(C12-14-alkyloxy)	17100	3987	No data available	No data available	No data available

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
methyl] derivs. 68609-97-2					
Cyclohexanone 108-94-1	1544	947	6.2	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>General advice</b>	Show this safety data sheet to the doctor in attendance.
<b>Inhalation</b>	Remove to fresh air. Get medical attention immediately if symptoms occur.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
<b>Skin contact</b>	May cause an allergic skin reaction. In the case of skin irritation or allergic reactions see a doctor. Wash off immediately with soap and plenty of water for at least 15 minutes.
<b>Ingestion</b>	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a doctor.
<b>Self-protection of the first aider</b>	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

### 4.2. Most important symptoms and effects, both acute and delayed

<b>Symptoms</b>	Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation.
<b>Effects of Exposure</b>	No information available.

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

<b>Note to doctors</b>	May cause sensitisation in susceptible persons. Treat symptomatically.
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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Large Fire</b>	CAUTION: Use of water spray when fighting fire may be inefficient.
<b>Unsuitable extinguishing media</b>	Do not scatter spilled material with high pressure water streams.

### 5.2. Special hazards arising from the substance or mixture

<b>Specific hazards arising from the</b>	Product is or contains a sensitiser. May cause sensitisation by skin contact.
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chemical

### 5.3. Advice for firefighters

**Special protective equipment and precautions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## **SECTION 6: Accidental release measures**

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

**Environmental precautions** Prevent further leakage or spillage if safe to do so.

### 6.3. Methods and material for containment and cleaning up

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Take up mechanically, placing in appropriate containers for disposal.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

**Reference to other sections** See section 8 for more information. See section 13 for more information.

## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.

**General hygiene considerations** Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure Limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700) 25068-38-6	-	-	-	TWA: 1.0 mg/m <sup>3</sup>	-
Cyclohexanone 108-94-1	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> *	TWA: 5 ppm TWA: 20 mg/m <sup>3</sup> STEL 20 ppm STEL 80 mg/m <sup>3</sup> H*	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> D*	STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> K*	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> *
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich 68515-49-1	-	-	TWA: 3 mg/m <sup>3</sup> STEL: 6 mg/m <sup>3</sup> esters, not specified elsewhere in the list	TWA: 3 mg/m <sup>3</sup> STEL: 5 mg/m <sup>3</sup>	-
Cyclohexanone 108-94-1	STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup>	TWA: 40 mg/m <sup>3</sup> Ceiling: 80 mg/m <sup>3</sup> D*	TWA: 10 ppm TWA: 41 mg/m <sup>3</sup> H* STEL: 81.6 mg/m <sup>3</sup> STEL: 20 ppm	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> A*	TWA: 10 ppm TWA: 41 mg/m <sup>3</sup> STEL: 20 ppm STEL: 82 mg/m <sup>3</sup> iho*
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Cyclohexanone 108-94-1	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup>	TWA: 20 ppm TWA: 80 mg/m <sup>3</sup> H*	*	TWA: 50 ppm TWA: 200 mg/m <sup>3</sup> STEL: 100 ppm STEL: 400 mg/m <sup>3</sup> *	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> b*
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich 68515-49-1	-	-	-	-	STEL: 5 mg/m <sup>3</sup> TWA: 3 mg/m <sup>3</sup>
Cyclohexanone 108-94-1	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> Sk*	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> cute*	TWA: 20 ppm TWA: 80 mg/m <sup>3</sup> STEL: 50 ppm STEL: 201 mg/m <sup>3</sup> cute*	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> Ada*	STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> O*
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Cyclohexanone 108-94-1	STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> Peau*	STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup> skin* TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup>	STEL: 12.3 ppm STEL: 50 mg/m <sup>3</sup> H*	TWA: 10 ppm TWA: 40 mg/m <sup>3</sup> STEL: 20 ppm STEL: 80 mg/m <sup>3</sup> H*	STEL: 80 mg/m <sup>3</sup> TWA: 40 mg/m <sup>3</sup> skóra*
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Cyclohexanone 108-94-1	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 41 mg/m <sup>3</sup> K* Ceiling: 82 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 40.8 mg/m <sup>3</sup> STEL: 20 ppm STEL: 81.6 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 41 mg/m <sup>3</sup> STEL: 20 ppm STEL: 82 mg/m <sup>3</sup>

	Cutânea*	P*		K*	vía dérmica*
Chemical name	Sweden		Switzerland		United Kingdom
1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich 68515-49-1	NGV: 3 mg/m <sup>3</sup>		-		-
Cyclohexanone 108-94-1	Bindande KGV: 20 ppm Bindande KGV: 81 mg/m <sup>3</sup> NGV: 10 ppm NGV: 41 mg/m <sup>3</sup> H*		TWA: 25 ppm TWA: 100 mg/m <sup>3</sup> STEL: 50 ppm STEL: 200 mg/m <sup>3</sup> H*		TWA: 10 ppm TWA: 41 mg/m <sup>3</sup> STEL: 20 ppm STEL: 82 mg/m <sup>3</sup> Sk*

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Cyclohexanone 108-94-1	-	-	-	-	0.049 µmol/mmol Creatinine (urine - 1,2-Cyclohexanediol end of shift at end of workweek) 50 mg/g Creatinine (urine - 1,2-Cyclohexanediol end of shift at end of workweek)
Chemical name	Denmark	Finland	France	Germany DFG	Germany TRGS
Cyclohexanone 108-94-1	-	-	-	50 mg/L - (long-term exposure: at the end of the shift after several shifts) - urine 100 mg/L - (long-term exposure: at the end of the shift after several shifts) - urine 250 mg/L - (long-term exposure: at the end of the shift after several shifts) - urine 6 mg/L - (end of exposure or end of shift) - urine 12 mg/L - (end of exposure or end of shift) - urine 30 mg/L - (end of exposure or end of shift) - urine	-
Chemical name	Hungary	Ireland	Italy MDLPS	Italy AIDII	
Cyclohexanone 108-94-1	-	8 mg/L (urine - Cyclohexanol end of shift) 80 mg/L (urine - 1,2-Cyclohexanediol end of shift)	-	80 mg/L - urine (1,2-Cyclohexanediol (with hydrolysis)) - end of shift at end of workweek 8 mg/L - urine (Cyclohexanol (with	

Chemical name	Slovenia	Spain	Switzerland	hydrolysis)) - end of shift United Kingdom
Cyclohexanone 108-94-1	-	80 mg/L (urine - 1,2-Cyclohexanodiol (with hydrolysis) end of workweek) 8 mg/L (urine - Cyclohexanol (with hydrolysis) end of shift)	100 mg/L (urine - total 1,2-Cyclohexanediol end of shift, and after several shifts (for long-term exposures)) 0.86 mmol/L (urine - total 1,2-Cyclohexanediol end of shift, and after several shifts (for long-term exposures)) 12 mg/L (urine - total-Cyclohexanol end of shift, and after several shifts (for long-term exposures)) 0.12 mmol/L (urine - total-Cyclohexanol end of shift, and after several shifts (for long-term exposures))	2 mmol/mol creatinine - urine (Cyclohexanol) - post shift

**Derived No Effect Level (DNEL) - Workers**

Chemical name	Oral	Dermal	Inhalation
1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich 68515-49-1	-	41.67 mg/kg bw/day [4] [6]	5.29 mg/m <sup>3</sup> [4] [6]
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	-	1 mg/kg bw/day [4] [6]	3.6 mg/m <sup>3</sup> [4] [6]
Cyclohexanone 108-94-1	-	4 mg/kg bw/day [4] [6] 4 mg/kg bw/day [4] [7]	40 mg/m <sup>3</sup> [4] [6] 80 mg/m <sup>3</sup> [4] [7] 40 mg/m <sup>3</sup> [5] [6] 80 mg/m <sup>3</sup> [5] [7]

**Derived No Effect Level (DNEL) - General Public**

Chemical name	Oral	Dermal	Inhalation
1,2-Benzenedicarboxylic acid, di-C9-11-branched alkyl esters, C10-rich 68515-49-1	0.75 mg/kg bw/day [4] [6]	-	1.3 mg/m <sup>3</sup> [4] [6]
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. 68609-97-2	0.5 mg/kg bw/day [4] [6]	-	0.87 mg/m <sup>3</sup> [4] [6]
Cyclohexanone 108-94-1	1.5 mg/kg bw/day [4] [6] 1.5 mg/kg bw/day [4] [7]	1 mg/kg bw/day [4] [6] 1 mg/kg bw/day [4] [7]	10 mg/m <sup>3</sup> [4] [6] 20 mg/m <sup>3</sup> [4] [7] 20 mg/m <sup>3</sup> [5] [6] 40 mg/m <sup>3</sup> [5] [7]



**Predicted No Effect Concentration (PNEC)**

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
oxirane, mono[(C12-14-alkyloxy)me thyl] derivs. 68609-97-2	0.1058 mg/L	0.072 mg/L	0.01058 mg/L	-	-
[3-(2,3-epoxypropoxy)prop yl]trimethoxysilane 2530-83-8	0.45 mg/L	0.45 mg/L	0.045 mg/L	-	-
Cyclohexanone 108-94-1	0.0329 mg/L	0.329 mg/L	0.00329 mg/L	-	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
oxirane, mono[(C12-14-alkyloxy)me thyl] derivs. 68609-97-2	307.16 mg/kg sediment dw	30.72 mg/kg sediment dw	10 mg/L	1.234 mg/kg soil dw	-
[3-(2,3-epoxypropoxy)prop yl]trimethoxysilane 2530-83-8	1.6 mg/kg sediment dw	0.16 mg/kg sediment dw	8.2 mg/L	0.063 mg/kg soil dw	-
Cyclohexanone 108-94-1	0.249 mg/kg sediment dw	0.0249 mg/kg sediment dw	10 mg/L	0.0304 mg/kg soil dw	-

**8.2. Exposure controls**

<b>Engineering controls</b>	Ensure adequate ventilation, especially in confined areas.
<b>Personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles).
<b>Hand protection</b>	Wear suitable gloves. Impervious gloves.
<b>Skin and body protection</b>	Wear suitable protective clothing. Long sleeved clothing.
<b>Respiratory protection</b>	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
<b>General hygiene considerations</b>	Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.
<b>Environmental exposure controls</b>	No information available.

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid
<b>Appearance</b>	Liquid

Colour black  
 Odour No information available.  
 Odour threshold No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
pH	No data available	None known
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	200 mPa s @ 23°C/73.4°F	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Vapour pressure	No data available	None known
Relative density	No data available	None known
Bulk density	1.09 kg/l	
Liquid Density	No data available	
Relative vapour density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	

## 9.2. Other information

9.2.1. Information with regards to physical hazard classes

Explosive properties Not considered to be explosive.  
 Oxidising properties Does not meet the criteria for classification as oxidizing.

9.2.2. Other safety characteristics  
 No information available

## **SECTION 10: Stability and reactivity**

### 10.1. Reactivity

Reactivity No information available.

### 10.2. Chemical stability

Stability Stable under normal conditions.

#### Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

#### 10.4. Conditions to avoid

**Conditions to avoid** None known based on information supplied.

#### 10.5. Incompatible materials

**Incompatible materials** Strong acids. Strong bases. Strong oxidising agents.

#### 10.6. Hazardous decomposition products

**Hazardous decomposition products** None known based on information supplied.

### **SECTION 11: Toxicological information**

#### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

##### Information on likely routes of exposure

##### **Product Information**

<b>Inhalation</b>	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.
<b>Skin contact</b>	May cause sensitisation by skin contact. Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. (based on components). Causes skin irritation.
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

##### Symptoms related to the physical, chemical and toxicological characteristics

**Symptoms** Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes.

##### Acute toxicity

##### **Numerical measures of toxicity**

No information available

##### **The following values are calculated based on chapter 3.1 of the GHS document**

<b>ATEmix (oral)</b>	9,437.00 mg/kg
<b>ATEmix (dermal)</b>	3,699.80 mg/kg
<b>ATEmix (inhalation-gas)</b>	99,999.00 ppm
<b>ATEmix (inhalation-vapour)</b>	99,999.00 mg/l
<b>ATEmix (inhalation-dust/mist)</b>	99,999.00 mg/l

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)	= 11400 mg/kg ( Rat )	-	-
1,3-bis(2,3-epoxypropoxy)-2,2-d imethylpropane	= 4500 mg/kg ( Rat )	> 2000 mg/kg ( Rat )	-
formaldehyde, oligomeric	> 2 g/kg ( Rat )	-	-

reaction products with 1-chloro-2,3-epoxypropane and phenol			
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	= 17100 mg/kg ( Rat )	> 3987 mg/kg ( Rabbit )	-
Cyclohexanone	= 1544 mg/kg ( Rat )	= 947 mg/kg ( Rabbit )	> 6.2 mg/L ( Rat ) 4 h

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

<b>Skin corrosion/irritation</b>	Classification based on data available for ingredients. Causes skin irritation.
<b>Serious eye damage/eye irritation</b>	Classification based on data available for ingredients. Causes serious eye irritation.
<b>Respiratory or skin sensitisation</b>	May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met.
<b>Carcinogenicity</b>	Based on available data, the classification criteria are not met.
<b>Reproductive toxicity</b>	Based on available data, the classification criteria are not met.
<b>STOT - single exposure</b>	Based on available data, the classification criteria are not met.
<b>STOT - repeated exposure</b>	Based on available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based on available data, the classification criteria are not met.

**11.2. Information on other hazards**

**11.2.1. Endocrine disrupting properties**

**Endocrine disrupting properties** The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**11.2.2. Other information**

**Other adverse effects** No information available.

**SECTION 12: Ecological information**

**12.1. Toxicity**

**Ecotoxicity** Toxic to aquatic life with long lasting effects. Harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Cyclohexanone	-	LC50: 481 - 578mg/L (96h, Pimephales promelas)	-	-

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation** There is no data for this product.

Chemical name	Partition coefficient
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	3.77
Cyclohexanone	0.86

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight $\leq$ 700)	The substance is not PBT / vPvB
formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	The substance is not PBT / vPvB
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	The substance is not PBT / vPvB
Cyclohexanone	The substance is not PBT / vPvB

### 12.6. Endocrine disrupting properties

**Endocrine disrupting properties** The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7. Other adverse effects

No information available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

**IATA**

<b>14.1 UN number or ID number</b>	UN3082
<b>14.2 UN proper shipping name</b>	Environmentally hazardous substances, liquid, n.o.s. (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700))
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>Description</b>	UN3082, Environmentally hazardous substances, liquid, n.o.s. (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)), 9, III
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	A97, A158, A197
<b>ERG Code</b>	9L

**IMDG**

<b>14.1 UN number or ID number</b>	UN3082
<b>14.2 UN proper shipping name</b>	Environmentally hazardous substances, liquid, n.o.s.(Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700))
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>Description</b>	UN3082, Environmentally hazardous substances, liquid, n.o.s., 9, III, Marine pollutant
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	274, 335, 969
<b>EmS-No</b>	F-A, S-F
<b>14.7 Maritime transport in bulk according to IMO instruments</b>	No information available

**RID**

<b>14.1 UN number or ID number</b>	UN3082
<b>14.2 UN proper shipping name</b>	Environmentally hazardous substances, liquid, n.o.s. (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700))
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>Description</b>	UN3082, Environmentally hazardous substances, liquid, n.o.s. (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)), 9, III
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	274, 335, 375, 601
<b>Classification code</b>	M6

**ADR**

<b>14.1 UN number or ID number</b>	UN3082
<b>14.2 UN proper shipping name</b>	Environmentally hazardous substances, liquid, n.o.s. (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700))
<b>14.3 Transport hazard class(es)</b>	9
<b>14.4 Packing group</b>	III
<b>Description</b>	UN3082, Environmentally hazardous substances, liquid, n.o.s. (Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight ≤ 700)), 9, III, (-)
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	274, 335, 601, 375
<b>Classification code</b>	M6
<b>Tunnel restriction code</b>	(-)

**SECTION 15: Regulatory information**

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

Chemical name	French RG number
Cyclohexanone - 108-94-1	RG 84

**Water hazard class (WGK)** obviously hazardous to water (WGK 2)

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
Reaction product: bisphenol-A-(epichlorhydrin) epoxy resin (number average molecular weight $\leq$ 700) - 25068-38-6	Use restricted. See item 75.	-
1,3-bis(2,3-epoxypropoxy)-2,2-dimethylpropane - 17557-23-2	Use restricted. See item 75.	-
oxirane, mono[(C12-14-alkyloxy)methyl] derivs. - 68609-97-2	Use restricted. See item 75.	-

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 1005/2009**

Not applicable

**International Inventories**

<b>TSCA</b>	Contact supplier for inventory compliance status
<b>DSL/NDSL</b>	Contact supplier for inventory compliance status
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status
<b>ENCS</b>	Contact supplier for inventory compliance status
<b>IECSC</b>	Contact supplier for inventory compliance status
<b>KECL</b>	Contact supplier for inventory compliance status
<b>PICCS</b>	Contact supplier for inventory compliance status
<b>AIIC</b>	Contact supplier for inventory compliance status
<b>NZIoC</b>	Contact supplier for inventory compliance status

**Legend:**

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances

AIIIC - Australian Inventory of Industrial Chemicals  
NZIoC - New Zealand Inventory of Chemicals

### 15.2. Chemical safety assessment

Chemical Safety Report No information available

## SECTION 16: Other information

### Key or legend to abbreviations and acronyms used in the safety data sheet

#### Full text of H-Statements referred to under section 3

H226 - Flammable liquid and vapour  
H315 - Causes skin irritation  
H317 - May cause an allergic skin reaction  
H319 - Causes serious eye irritation  
H332 - Harmful if inhaled  
H411 - Toxic to aquatic life with long lasting effects  
H412 - Harmful to aquatic life with long lasting effects

#### Legend

SVHC: Substances of Very High Concern for Authorisation:

#### Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

#### Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA\_RAC)  
European Chemicals Agency (ECHA) (ECHA\_API)



EPA (Environmental Protection Agency)  
Acute Exposure Guideline Level(s) (AEGL(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
National Institute of Technology and Evaluation (NITE)  
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

Revision date 25/10/2023

**Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)**

**Disclaimer**

**The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.**

**End of Safety Data Sheet**

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

### 1.1. Product identifier

Product Name	Epoxy Resin ER1448, Part B
Product Code(s)	ER1448B, EER1448RP250G, EER1448K5K, EER1448BB200K, ZE
Safety data sheet number	00730
Unique Formula Identifier (UFI)	QN02-T0J9-F004-XT21
Pure substance/mixture	Mixture

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

Recommended use	Hardener
Uses advised against	No specific uses advised against are identified

### 1.3. Details of the supplier of the safety data sheet

<u>Manufacturer</u>	<u>Supplier</u>
ELECTROLUBE MacDermid Alpha Electronics Solutions ASHBY PARK, COALFIELD WAY, ASHBY DE LA ZOUCH, LEICESTERSHIRE LE65 1JR UNITED KINGDOM	HK WENTWORTH LIMITED 32 RUE DE TOURNENFILS 91540 MENNECY FRANCE
+44 (0)1530 419600 +44 (0)1530 416640 info@electrolube.com	+33 (0) 1 82 88 47 94 info@electrolube.com

For further information, please contact

**E-mail address** info@electrolube.com

### 1.4. Emergency telephone number

Emergency Telephone	POISON INFORMATION CENTRE (Beaumont Hospital, Republic of Ireland only) +353 (0)1 809 2166 (08:00 - 22:00)
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**Emergency Telephone - IN CASE OF EMERGENCY CALL: +44 1865 407333 (24hr, Provided by Carechem 24)**

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to

Regulation (EC) No. 1272/2008 [CLP]

<b>Acute toxicity - Oral</b>	Category 4 - (H302)
<b>Skin corrosion/irritation</b>	Category 1 Sub-category B - (H314)
<b>Serious eye damage/eye irritation</b>	Category 1 - (H318)
<b>Skin sensitisation</b>	Category 1 - (H317)
<b>Chronic aquatic toxicity</b>	Category 2 - (H411)

## 2.2. Label elements

Contains Fatty acids, tall-oil, reaction products with tetraethylenepentamine, Phenol, styrenated, 2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine



### Signal word

Danger

### Hazard statements

H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction

H411 - Toxic to aquatic life with long lasting effects

### Precautionary Statements - EU (§28, 1272/2008)

P273 - Avoid release to the environment.

P280 - Wear protective gloves/protective clothing and eye/face protection.

P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

## 2.3. Other hazards

This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

Chemical name	Weight-%	REACH registration	EC No (EU	Classification according	Specific	M-Factor	M-Factor
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		number	Index No)	to Regulation (EC) No. 1272/2008 [CLP]	concentration limit (SCL)		(long-term)
Fatty acids, tall-oil, reaction products with tetraethylenepentamine 68953-36-6	30-60	No data available	273-201-6	Aquatic Chronic 2 (H411) Skin Sens. 1 (H317)	-	-	-
Phenol, styrenated 61788-44-1	10-30	01-2119980970-27-0000	262-975-0	Aquatic Chronic 2 (H411) Skin Sens. 1 (H317) Skin Irrit. 2 (H315)	-	-	-
2-Piperazin-1-ylethylamine 140-31-8	10-30	01-2119471486-30-0003	205-411-0	Aquatic Chronic 3 (H412) Skin Corr. 1B (H314) Skin Sens. 1 (H317) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Eye Dam. 1 (H318)	-	-	-
3,6,9-Triazaundecamethylenediamine 112-57-2	1-5	No data available	203-986-2	Aquatic Chronic 2 (H411) Skin Corr. 1B (H314) Skin Sens. 1 (H317) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Eye Dam. 1 (H318)	-	-	-

**Full text of H- and EUH-phrases: see section 16**

Acute Toxicity Estimate

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapour - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Phenol, styrenated 61788-44-1	2100	7940	No data available	No data available	No data available
2-Piperazin-1-ylethylamine 140-31-8	2097.2	866	No data available	No data available	No data available
3,6,9-Triazaundecamethylenediamine 112-57-2	3990	655.38	No data available	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (Regulation (EC) No. 1907/2006 (REACH), Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

#### Inhalation

Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the

substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical attention.

<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention. May cause an allergic skin reaction.
<b>Ingestion</b>	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.
<b>Self-protection of the first aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

#### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms** Burning sensation. Itching. Rashes. Hives.

**Effects of Exposure** No information available.

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

**Note to doctors** Product is a corrosive material. Use of gastric lavage or emesis is contra-indicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitisation in susceptible persons. Treat symptomatically.

### **SECTION 5: Firefighting measures**

#### 5.1. Extinguishing media

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

#### 5.2. Special hazards arising from the substance or mixture

**Specific hazards arising from the chemical** The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapours. Product is or contains a sensitiser. May cause sensitisation by skin contact.

#### 5.3. Advice for firefighters

**Special protective equipment and precautions for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

### **SECTION 6: Accidental release measures**

### 6.1. Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
<b>Other information</b>	Refer to protective measures listed in Sections 7 and 8.
<b>For emergency responders</b>	Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.
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### 6.3. Methods and material for containment and cleaning up

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Take up mechanically, placing in appropriate containers for disposal.
<b>Prevention of secondary hazards</b>	Clean contaminated objects and areas thoroughly observing environmental regulations.

### 6.4. Reference to other sections

<b>Reference to other sections</b>	See section 8 for more information. See section 13 for more information.
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## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

<b>Advice on safe handling</b>	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse.
<b>General hygiene considerations</b>	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

<b>Storage Conditions</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up. Protect from moisture. Store away from other materials.
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### 7.3. Specific end use(s)

<b>Risk Management Methods (RMM)</b>	The information required is contained in this Safety Data Sheet.
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## **SECTION 8: Exposure controls/personal protection**

## 8.1. Control parameters

### Exposure Limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

### Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
2-Piperazin-1-ylethylamine 140-31-8	-	3.33 mg/kg bw/day [4] [6]	10.6 mg/m <sup>3</sup> [4] [6] 10.6 mg/m <sup>3</sup> [4] [7] 15 µg/m <sup>3</sup> [5] [6] 80 mg/m <sup>3</sup> [5] [7]
Phenol, styrenated 61788-44-1	-	21 mg/kg bw/day [4] [6]	74 mg/m <sup>3</sup> [4] [6]

### Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
Phenol, styrenated 61788-44-1	7.5 mg/kg bw/day [4] [6]	-	13.1 mg/m <sup>3</sup> [4] [6]

### Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
2-Piperazin-1-ylethylamine 140-31-8	0.058 mg/L	0.58 mg/L	0.0058 mg/L	-	-
Phenol, styrenated 61788-44-1	4 µg/L	46 µg/L	0.4 µg/L	4.6 µg/L	-

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
2-Piperazin-1-ylethylamine 140-31-8	215 mg/kg sediment dw	21.5 mg/kg sediment dw	250 mg/L	1 mg/kg soil dw	-
Phenol, styrenated 61788-44-1	0.248 mg/kg sediment dw	24.8 µg/kg sediment dw	36.2 mg/L	47.3 µg/kg soil dw	-

## 8.2. Exposure controls

### Engineering controls

Ensure adequate ventilation, especially in confined areas.

### Personal protective equipment

<b>Eye/face protection</b>	Tight sealing safety goggles. Face protection shield.
<b>Hand protection</b>	Wear suitable gloves. Impervious gloves.
<b>Skin and body protection</b>	Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.
<b>Respiratory protection</b>	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
<b>General hygiene considerations</b>	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.
<b>Environmental exposure controls</b>	No information available.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Physical state</b>	Liquid
<b>Appearance</b>	Liquid
<b>Colour</b>	Dark amber
<b>Odour</b>	Amines.
<b>Odour threshold</b>	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>Melting point / freezing point</b>	No data available	None known
<b>Initial boiling point and boiling range</b>	No data available	None known
<b>Flammability</b>	No data available	None known
<b>Flammability Limit in Air</b>		None known
<b>Upper flammability or explosive limits</b>	No data available	
<b>Lower flammability or explosive limits</b>	No data available	
<b>Flash point</b>	No data available	None known
<b>Autoignition temperature</b>	No data available	None known
<b>Decomposition temperature</b>		None known
<b>pH</b>	No data available	None known
<b>pH (as aqueous solution)</b>	No data available	None known
<b>Kinematic viscosity</b>	No data available	None known
<b>Dynamic viscosity</b>	300 mPa s @ 23°C/73.4°F	None known
<b>Water solubility</b>	No data available	None known
<b>Solubility(ies)</b>	No data available	None known
<b>Partition coefficient</b>	No data available	None known
<b>Vapour pressure</b>	No data available	None known
<b>Relative density</b>	No data available	None known
<b>Bulk density</b>	0.95 kg/l	
<b>Liquid Density</b>	No data available	
<b>Relative vapour density</b>	No data available	None known
<b>Particle characteristics</b>		
<b>Particle Size</b>	No information available	
<b>Particle Size Distribution</b>	No information available	

### 9.2. Other information



9.2.1. Information with regards to physical hazard classes

Explosive properties	Not considered to be explosive.
<b>Oxidising properties</b>	Does not meet the criteria for classification as oxidizing.

9.2.2. Other safety characteristics  
No information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity	No information available.
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### 10.2. Chemical stability

Stability	Stable under normal conditions.
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### Explosion data

Sensitivity to mechanical impact	None.
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Sensitivity to static discharge	None.
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### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	None under normal processing.
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### 10.4. Conditions to avoid

Conditions to avoid	Exposure to air or moisture over prolonged periods.
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### 10.5. Incompatible materials

Incompatible materials	Acids. Bases. Oxidising agent.
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### 10.6. Hazardous decomposition products

Hazardous decomposition products	None known based on information supplied.
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## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Information on likely routes of exposure

#### Product Information

<b>Inhalation</b>	Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.
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<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.
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**Skin contact** Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. May cause sensitisation by skin contact. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May be absorbed through the skin in harmful amounts. Harmful in contact with skin.

**Ingestion** Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing. Itching. Rashes. Hives.

**Acute toxicity**

**Numerical measures of toxicity**  
No information available

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 6,055.60 mg/kg  
ATEmix (dermal) 13,322.20 mg/kg  
ATEmix (inhalation-gas) 99,999.00 ppm  
ATEmix (inhalation-vapour) 99,999.00 mg/l  
ATEmix (inhalation-dust/mist) 99,999.00 mg/l

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Phenol, styrenated	2100 - 6700 mg/kg ( Rat )	> 7940 mg/kg ( Rabbit )	> 2.5 mg/L ( Rat ) 6 h
2-Piperazin-1-ylethylamine	= 2140 µL/kg ( Rat )	= 866 mg/kg ( Rabbit )	-
3,6,9-Triazaundecamethylenedi amine	= 3990 mg/kg ( Rat )	= 660 µL/kg ( Rabbit )	-

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes severe skin burns and eye damage.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye damage. Causes burns.

**Respiratory or skin sensitisation** May cause an allergic skin reaction.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT - single exposure** Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

## 11.2. Information on other hazards

### 11.2.1. Endocrine disrupting properties

**Endocrine disrupting properties** The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 11.2.2. Other information

**Other adverse effects** No information available.

## **SECTION 12: Ecological information**

### 12.1. Toxicity

**Ecotoxicity** Toxic to aquatic life with long lasting effects. Harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
2-Piperazin-1-ylethylamine	EC50: =495mg/L (72h, Pseudokirchneriella subcapitata)	LC50: 1950 - 2460mg/L (96h, Pimephales promelas) LC50: >1000mg/L (96h, Poecilia reticulata) LC50: >=100mg/L (96h, Oncorhynchus mykiss)	-	EC50: =32mg/L (48h, Daphnia magna)
3,6,9-Triazaundecamethylenediamine	EC50: =2.1mg/L (72h, Pseudokirchneriella subcapitata)	LC50: =420mg/L (96h, Poecilia reticulata)	-	EC50: =24.1mg/L (48h, Daphnia magna)

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation** There is no data for this product.

Chemical name	Partition coefficient
Phenol, styrenated	3.13
2-Piperazin-1-ylethylamine	-1.48
3,6,9-Triazaundecamethylenediamine	1

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Phenol, styrenated	The substance is not PBT / vPvB
2-Piperazin-1-ylethylamine	The substance is not PBT / vPvB

### 12.6. Endocrine disrupting properties

**Endocrine disrupting properties** The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7. Other adverse effects

No information available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

### IATA

14.1 UN number or ID number UN1760  
 14.2 UN proper shipping name Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine)  
 14.3 Transport hazard class(es) 8  
 14.4 Packing group II  
 Description UN1760, Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine), 8, II  
 14.5 Environmental hazards Yes  
 14.6 Special precautions for user  
 Special Provisions A3, A803  
 ERG Code 8L

### IMDG

14.1 UN number or ID number UN1760  
 14.2 UN proper shipping name Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine)  
 14.3 Transport hazard class(es) 8  
 14.4 Packing group II  
 Description UN1760, Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine), 8, II, Marine pollutant  
 14.5 Environmental hazards Yes  
 14.6 Special precautions for user  
 Special Provisions 274  
 EmS-No F-A, S-B  
 14.7 Maritime transport in bulk No information available

according to IMO instruments

**RID**

<b>14.1 UN number or ID number</b>	UN1760
<b>14.2 UN proper shipping name</b>	Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine)
<b>14.3 Transport hazard class(es)</b>	8
<b>14.4 Packing group</b>	II
<b>Description</b>	UN1760, Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine), 8, II, Environmentally Hazardous
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	274
<b>Classification code</b>	C9

**ADR**

<b>14.1 UN number or ID number</b>	UN1760
<b>14.2 UN proper shipping name</b>	Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine)
<b>14.3 Transport hazard class(es)</b>	8
<b>14.4 Packing group</b>	II
<b>Description</b>	UN1760, Corrosive liquid, n.o.s. (2-Piperazin-1-ylethylamine, 3,6,9-Triazaundecamethylenediamine), 8, II, (E), Environmentally Hazardous
<b>14.5 Environmental hazards</b>	Yes
<b>14.6 Special precautions for user</b>	
<b>Special Provisions</b>	274
<b>Classification code</b>	C9
<b>Tunnel restriction code</b>	(E)

**SECTION 15: Regulatory information**

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

Chemical name	French RG number
3,6,9-Triazaundecamethylenediamine - 112-57-2	RG 49, RG 49bis

**Water hazard class (WGK)** obviously hazardous to water (WGK 2)

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product does not contain substances subject to authorisation (Regulation (EC) No. 1907/2006 (REACH), Annex XIV) This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
2-Piperazin-1-ylethylamine - 140-31-8	Use restricted. See item 75.	-
3,6,9-Triazaundecamethylenediamine - 112-57-2	Use restricted. See item 75.	-

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 1005/2009**

Not applicable

**International Inventories**

<b>TSCA</b>	Contact supplier for inventory compliance status
<b>DSL/NDSL</b>	Contact supplier for inventory compliance status
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status
<b>ENCS</b>	Contact supplier for inventory compliance status
<b>IECSC</b>	Contact supplier for inventory compliance status
<b>KECL</b>	Contact supplier for inventory compliance status
<b>PICCS</b>	Contact supplier for inventory compliance status
<b>AIIC</b>	Contact supplier for inventory compliance status
<b>NZIoC</b>	Contact supplier for inventory compliance status

**Legend:**

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AIIC** - Australian Inventory of Industrial Chemicals
- NZIoC** - New Zealand Inventory of Chemicals

**15.2. Chemical safety assessment**

**Chemical Safety Report** No information available

**SECTION 16: Other information**

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of H-Statements referred to under section 3**

- H302 - Harmful if swallowed
- H312 - Harmful in contact with skin
- H314 - Causes severe skin burns and eye damage
- H315 - Causes skin irritation
- H317 - May cause an allergic skin reaction
- H318 - Causes serious eye damage
- H411 - Toxic to aquatic life with long lasting effects
- H412 - Harmful to aquatic life with long lasting effects

**Legend**

SVHC: Substances of Very High Concern for Authorisation:

**Legend Section 8: Exposure controls/personal protection**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used

Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA\_RAC)  
 European Chemicals Agency (ECHA) (ECHA\_API)  
 EPA (Environmental Protection Agency)  
 Acute Exposure Guideline Level(s) (AEGL(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 National Institute of Technology and Evaluation (NITE)  
 Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
 Organisation for Economic Co-operation and Development Screening Information Data Set  
 World Health Organization

Revision date 25/10/2023

**Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)**

**Disclaimer**

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**End of Safety Data Sheet**