

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

SAFETY DATA SHEET**Penguard Express MIO Comp A****SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Product name	: Penguard Express MIO Comp A
Product code	: 3440
Product description	: Paint.
Product type	: Liquid.
Other means of identification	: Not available.

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

Use in coatings - Industrial use
Use in coatings - Professional use

See Annex to the Safety data sheet for additional information in the Exposure Scenario(s).

1.3 Details of the supplier of the safety data sheet

Jotun Paints (Europe) Ltd.
Stather Road
Flixborough, Scunthorpe
North Lincolnshire
DN15 8RR
England

Tel: +44 17 24 40 00 00
Fax: +44 17 24 40 01 00
SDSJotun@jotun.com

1.4 Emergency telephone number

Contact NHS Direct; phone 0845 4647 or 111. Open 24/7.

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture**

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Flam. Liq. 3, H226
Skin Irrit. 2, H315
Eye Irrit. 2, H319
Skin Sens. 1, H317
Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A**SECTION 2: Hazards identification****Hazard pictograms****Signal word**

: Warning.

Hazard statements

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

Precautionary statements**General**

: Not applicable.

Prevention

: P280 - Wear protective gloves. Wear eye or face protection.
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P273 - Avoid release to the environment.

Response

: P302 + P352 - IF ON SKIN: Wash with plenty of soap and water.
 P333 + P313 - If skin irritation or rash occurs: Get medical attention.
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

: P403 - Store in a well-ventilated place.
 P235 - Keep cool.

Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous ingredients

: epoxy resin (MW ≤ 700)
 epoxy resin (MW 700-1200)
 hydrocarbons, c9-unsatd., polymd.
 bisamide mixture

Supplemental label elements

: Contains epoxy constituents. May produce an allergic reaction.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

: Not applicable.

Special packaging requirements**Containers to be fitted with child-resistant fastenings**

: Not applicable.

Tactile warning of danger

: Not applicable.

2.3 Other hazards**Other hazards which do not result in classification**

: None known.

The mixture may be a skin sensitiser. It may also be a skin irritant and repeated contact may increase this effect.

SECTION 3: Composition/information on ingredients**3.2 Mixtures**

: Mixture

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	Weight %	Regulation (EC) No. 1272/2008 [CLP]	Type
epoxy resin (MW ≤ 700)	REACH #: 01-2119456619-26 EC: 216-823-5 CAS: 1675-54-3 Index: 603-073-00-2	≥10 - <25	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 2, H411	[1]
xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≤10	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317	[1] [2]
epoxy resin (MW 700-1200)	CAS: 25036-25-3	≤5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317	[1]
ethylbenzene	REACH #: 01-2119489370-35 EC: 202-849-4 CAS: 100-41-4 Index: 601-023-00-4	≤5	Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 (hearing organs) Asp. Tox. 1, H304	[1] [2]
benzyl alcohol	REACH #: 01-2119492630-38 EC: 202-859-9 CAS: 100-51-6	≤3	Acute Tox. 4, H302 Acute Tox. 4, H332 Eye Irrit. 2, H319	[1]
1-methoxy-2-propanol	REACH #: 01-2119457435-35 EC: 203-539-1 CAS: 107-98-2 Index: 603-064-00-3	≤3	Flam. Liq. 3, H226 STOT SE 3, H336	[1] [2]
hydrocarbons, c9-unsatd., polymd.	REACH #: 01-2119555292-40 EC: 615-276-3 CAS: 71302-83-5	≤3	Skin Sens. 1, H317 Aquatic Chronic 3, H412	[1]
bisamide mixture	REACH #: 01-2119962189-26 EC: 423-300-7 CAS: 911674-82-3	<1	Skin Sens. 1, H317 Aquatic Chronic 4, H413	[1]
			See Section 16 for the full text of the H statements declared above.	

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

Occupational exposure limits, if available, are listed in Section 8.

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A**SECTION 4: First aid measures****4.1 Description of first aid measures**

- General** : In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.
- Eye contact** : Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.
- Inhalation** : Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.
- Skin contact** : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners.
- Ingestion** : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness.

Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Ingestion may cause nausea, diarrhea and vomiting.

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the epoxy constituent(s) and considering toxicological data on similar mixtures, this mixture may be a skin sensitiser and an irritant. It contains low molecular weight epoxy constituents which are irritating to eyes, mucous membrane and skin. Repeated skin contact may lead to irritation and to sensitisation, possibly with cross-sensitisation to other epoxies. Skin contact with the mixture and exposure to spray mist and vapour should be avoided.

Contains 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane, epoxy resin (MW 700-1200), hydrocarbons, C9-unsaturated, polymerized, bisamide mixture. May produce an allergic reaction.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

See toxicological information (Section 11)

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A**SECTION 5: Firefighting measures****5.1 Extinguishing media**

Suitable extinguishing media : Recommended: alcohol-resistant foam, CO₂, powders, water spray.

Unsuitable extinguishing media : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.

Hazardous combustion products : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

5.3 Advice for firefighters

Special protective actions for fire-fighters : Cool closed containers exposed to fire with water. Do not release runoff from fire to drains or watercourses.

Special protective equipment for fire-fighters : Appropriate breathing apparatus may be required.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

For non-emergency personnel : Exclude sources of ignition and ventilate the area. Avoid breathing vapour or mist. Refer to protective measures listed in sections 7 and 8.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.3 Methods and material for containment and cleaning up

: Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Preferably clean with a detergent. Avoid using solvents.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Prevent the creation of flammable or explosive concentrations of vapours in air and avoid vapour concentrations higher than the occupational exposure limits.

In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard.

Mixture may charge electrostatically: always use earthing leads when transferring from one container to another.

Operators should wear antistatic footwear and clothing and floors should be of the conducting type.

Keep away from heat, sparks and flame. No sparking tools should be used.

Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this mixture. Avoid inhalation of dust from sanding.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.

Date of issue/Date of revision

: 16.07.2019

Date of previous issue

: No previous validation

Version : 1

5/19

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 7: Handling and storage

Put on appropriate personal protective equipment (see Section 8).
 Never use pressure to empty. Container is not a pressure vessel.
 Always keep in containers made from the same material as the original one.
 Comply with the health and safety at work laws.
 Do not allow to enter drains or watercourses.

Information on fire and explosion protection

Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.

When operators, whether spraying or not, have to work inside the spray booth, ventilation is unlikely to be sufficient to control particulates and solvent vapour in all cases. In such circumstances they should wear a compressed air-fed respirator during the spraying process and until such time as the particulates and solvent vapour concentration has fallen below the exposure limits.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations.

Notes on joint storage

Keep away from: oxidising agents, strong alkalis, strong acids.

Additional information on storage conditions

Observe label precautions. Store in a dry, cool and well-ventilated area. Keep away from heat and direct sunlight. Keep away from sources of ignition. No smoking. Prevent unauthorised access. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
xylene	EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed through skin. STEL: 441 mg/m ³ 15 minutes. STEL: 100 ppm 15 minutes. TWA: 220 mg/m ³ 8 hours. TWA: 50 ppm 8 hours.
ethylbenzene	EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed through skin. STEL: 552 mg/m ³ 15 minutes. STEL: 125 ppm 15 minutes. TWA: 100 ppm 8 hours. TWA: 441 mg/m ³ 8 hours.
1-methoxy-2-propanol	EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed through skin. STEL: 560 mg/m ³ 15 minutes. STEL: 150 ppm 15 minutes. TWA: 375 mg/m ³ 8 hours. TWA: 100 ppm 8 hours.

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 8: Exposure controls/personal protection

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Exposure	Value	Population	Effects	
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bioxirane	Short term Dermal	8.33 mg/kg bw/day	Workers	Systemic	
	Short term Inhalation	12.25 mg/m ³	Workers	Systemic	
	Long term Dermal	8.33 mg/kg bw/day	Workers	Systemic	
	Long term Inhalation	12.25 mg/m ³	Workers	Systemic	
	Short term Dermal	3.571 mg/kg bw/day	Consumers	Systemic	
	Short term Oral	0.75 mg/kg bw/day	Consumers	Systemic	
	Long term Dermal	3.571 mg/kg bw/day	Consumers	Systemic	
	Long term Oral	0.75 mg/kg bw/day	Consumers	Systemic	
	xylene	Short term Inhalation	289 mg/m ³	Workers	Systemic
		Short term Inhalation	289 mg/m ³	Workers	Local
		Long term Dermal	180 mg/kg bw/day	Workers	Systemic
		Long term Inhalation	77 mg/m ³	Workers	Systemic
		Long term Dermal	108 mg/kg bw/day	Consumers	Systemic
		Long term Inhalation	14.8 mg/m ³	Consumers	Systemic
ethylbenzene	Long term Oral	1.6 mg/kg bw/day	Consumers	Systemic	
	Short term Inhalation	293 mg/m ³	Workers	Local	
	Long term Dermal	180 mg/kg bw/day	Workers	Systemic	
	Long term Inhalation	77 mg/m ³	Workers	Systemic	
	Long term Inhalation	15 mg/m ³	Consumers	Systemic	
	Long term Oral	1.6 mg/kg bw/day	Consumers	Systemic	
benzyl alcohol	Short term Inhalation	450 mg/m ³	Workers	Systemic	
	Long term Inhalation	90 mg/m ³	Workers	Systemic	
	Short term Dermal	47 mg/kg bw/day	Workers	Systemic	

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 8: Exposure controls/personal protection

1-methoxy-2-propanol	Long term Dermal	9.5 mg/kg bw/day	Workers	Systemic
	Short term Dermal	28.5 mg/kg bw/day	Consumers	Systemic
	Short term Oral	25 mg/kg bw/day	Consumers	Systemic
	Long term Dermal	5.7 mg/kg bw/day	Consumers	Systemic
	Long term Oral	5 mg/kg bw/day	Consumers	Systemic
	Long term Inhalation	8.11 mg/m ³	Consumers	Systemic
	Short term Inhalation	40.55 mg/m ³	Consumers	Systemic
	Short term Inhalation	553.5 mg/m ³	Workers	Local
	Long term Dermal	50.6 mg/kg bw/day	Workers	Systemic
	Long term Inhalation	369 mg/m ³	Workers	Systemic
	Long term Dermal	18.1 mg/kg bw/day	Consumers	Systemic
	Long term Inhalation	43.9 mg/m ³	Consumers	Systemic
	Long term Oral	3.3 mg/kg bw/day	Consumers	Systemic
	hydrocarbons, C9-unsaturated, polymerized	Long term Dermal	16.4 mg/kg bw/day	Workers
Long term Inhalation		57 mg/m ³	Workers	Systemic
Long term Dermal		8 mg/kg bw/day	Consumers	Systemic
Long term Inhalation		28 mg/m ³	Consumers	Systemic
Long term Oral	4 mg/kg bw/day	Consumers	Systemic	

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail	
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Fresh water	0.006 mg/l	-	
	Marine	0.0006 mg/l	-	
	Sewage Treatment Plant	10 mg/l	-	
	Fresh water sediment	0.996 mg/l	-	
	Marine water sediment	0.0996 mg/l	-	
	Soil	0.196 mg/l	-	
	xylene	Fresh water	0.327 mg/l	-
		Marine	0.327 mg/l	-
		Sewage Treatment Plant	6.58 mg/l	-
		Fresh water sediment	12.46 mg/kg dwt	-
ethylbenzene	Marine water sediment	12.46 mg/kg dwt	-	
	Soil	2.31 mg/kg dwt	-	
	Fresh water	0.1 mg/l	-	
	Marine	0.01 mg/l	-	
	Sewage Treatment Plant	9.6 mg/l	-	
	Fresh water sediment	13.7 mg/kg dwt	-	
benzyl alcohol	Soil	2.68 mg/kg dwt	-	
	Secondary Poisoning	20 mg/kg	-	
	Fresh water	1 mg/l	-	

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 8: Exposure controls/personal protection

1-methoxy-2-propanol	Marine	0.1 mg/l	-
	Sewage Treatment Plant	39 mg/l	-
	Fresh water sediment	5.27 mg/kg dwt	-
	Marine water sediment	0.527 mg/kg dwt	-
	Soil	0.456 mg/kg dwt	-
	Fresh water	10 mg/l	-
	Marine	1 mg/l	-
	Sewage Treatment Plant	100 mg/l	-
	Fresh water sediment	52.3 mg/kg dwt	-
	Marine water sediment	5.2 mg/kg dwt	-
hydrocarbons, C9-unsaturated, polymerized	Soil	5.49 mg/kg dwt	-
	Fresh water	54 µg/l	-
	Marine	5.4 µg/l	-
	Sewage Treatment Plant	2.2 mg/l	-
	Fresh water sediment	1584 mg/kg dwt	-
	Marine water sediment	158 mg/kg dwt	-
	Marine water sediment	158 mg/kg dwt	-
	Soil	316.7 mg/kg dwt	-
	Secondary Poisoning	200 mg/kg	-

8.2 Exposure controls

Appropriate engineering controls : Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapours below the OEL, suitable respiratory protection must be worn.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Use safety eyewear designed to protect against splash of liquids.

Skin protection

Gloves : There is no one glove material or combination of materials that will give unlimited resistance to any individual or combination of chemicals. The breakthrough time must be greater than the end use time of the product. The instructions and information provided by the glove manufacturer on use, storage, maintenance and replacement must be followed. Gloves should be replaced regularly and if there is any sign of damage to the glove material. Always ensure that gloves are free from defects and that they are stored and used correctly. The performance or effectiveness of the glove may be reduced by physical/chemical damage and poor maintenance. Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred. Wear suitable gloves tested to EN374. May be used, gloves(breakthrough time) 4 - 8 hours: neoprene, butyl rubber, PVC Recommended, gloves(breakthrough time) > 8 hours: Viton®, nitrile rubber, 4H, Teflon, polyvinyl alcohol (PVA)

For right choice of glove materials, with focus on chemical resistance and time of penetration, seek advice by the supplier of chemical resistant gloves.

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A**SECTION 8: Exposure controls/personal protection**

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

- Body protection** : Personnel should wear antistatic clothing made of natural fibres or of high-temperature-resistant synthetic fibres.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : If workers are exposed to concentrations above the exposure limit, they must use a respirator according to EN 140. Use respiratory mask with charcoal and dust filter when spraying this product, according to EN 14387(as filter combination A2-P2). In confined spaces, use compressed-air or fresh-air respiratory equipment. When use of roller or brush, consider use of charcoalfilter.
- Environmental exposure controls** : Do not allow to enter drains or watercourses.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****Appearance**

- Physical state** : Liquid.
- Colour** : Various colours.
- Odour** : Characteristic.
- Odour threshold** : Not applicable.
- pH** : Not applicable.
- Melting point/freezing point** : Not applicable.
- Initial boiling point and boiling range** : Lowest known value: 120.17°C (248.3°F) (1-methoxy-2-propanol). Weighted average: 215.12°C (419.2°F)
- Flash point** : Closed cup: 32°C
- Evaporation rate** : Highest known value: 0.84 (ethylbenzene) Weighted average: 0.67compared with butyl acetate
- Flammability (solid, gas)** : Not applicable.
- Upper/lower flammability or explosive limits** : 0.8 - 13.74%
- Vapour pressure** : Highest known value: 1.2 kPa (9.3 mm Hg) (at 20°C) (ethylbenzene). Weighted average: 0.43 kPa (3.23 mm Hg) (at 20°C)
- Vapour density** : Highest known value: 11.7 (Air = 1) (epoxy resin (MW ≤ 700)). Weighted average: 7.43 (Air = 1)
- Density** : 1.666 to 1.708 g/cm³
- Solubility(ies)** : Insoluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/ water** : Not available.
- Auto-ignition temperature** : Lowest known value: 270°C (518°F) (1-methoxy-2-propanol).
- Decomposition temperature** : Not available.
- Viscosity** : Kinematic (40°C): >0.205 cm²/s (>20.5 mm²/s)
- Explosive properties** : Not available.
- Oxidising properties** : Not available.

9.2 Other information

No additional information.

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A**SECTION 10: Stability and reactivity**

- 10.1 Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- 10.2 Chemical stability** : Stable under recommended storage and handling conditions (see Section 7).
- 10.3 Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- 10.4 Conditions to avoid** : When exposed to high temperatures may produce hazardous decomposition products.
- 10.5 Incompatible materials** : Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids.
- 10.6 Hazardous decomposition products** : Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

SECTION 11: Toxicological information**11.1 Information on toxicological effects**

There are no data available on the mixture itself. The mixture has been assessed following the conventional method of the CLP Regulation (EC) No 1272/2008 and is classified for toxicological properties accordingly. See Sections 2 and 3 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness.

Solvents may cause some of the above effects by absorption through the skin. Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

If splashed in the eyes, the liquid may cause irritation and reversible damage.

Ingestion may cause nausea, diarrhea and vomiting.

This takes into account, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

Based on the properties of the epoxy constituent(s) and considering toxicological data on similar mixtures, this mixture may be a skin sensitizer and an irritant. It contains low molecular weight epoxy constituents which are irritating to eyes, mucous membrane and skin. Repeated skin contact may lead to irritation and to sensitisation, possibly with cross-sensitisation to other epoxies. Skin contact with the mixture and exposure to spray mist and vapour should be avoided.

Contains 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane, epoxy resin (MW 700-1200), hydrocarbons, C9-unsaturated, polymerized, bisamide mixture. May produce an allergic reaction.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	LD50 Dermal	Rabbit	20 g/kg	-
xylene	LD50 Oral	Mouse	15600 mg/kg	-
	LC50 Inhalation Vapour	Rat	20 mg/l	4 hours
ethylbenzene	LD50 Oral	Rat	4300 mg/kg	-
	TDLo Dermal	Rabbit	4300 mg/kg	-
	LC50 Inhalation Gas.	Rabbit	4000 ppm	4 hours
benzyl alcohol	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
	LD50 Oral	Rat	1230 mg/kg	-
1-methoxy-2-propanol	LD50 Dermal	Rabbit	13 g/kg	-
	LD50 Oral	Rat	6600 mg/kg	-

Conclusion/Summary : Not available.

Acute toxicity estimates

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 11: Toxicological information

Route	ATE value
Oral	49004 mg/kg
Dermal	11931.4 mg/kg
Inhalation (vapours)	74.31 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)] bisoxirane	Eyes - Severe irritant	Rabbit	-	24 hours 2 mg	-
1-methoxy-2-propanol	Skin - Mild irritant	Rabbit	-	500 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-

Conclusion/Summary : Not available.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result
epoxy resin (MW 700-1200)	skin	Mammal - species unspecified	Sensitising

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
xylene	Category 3	Not applicable.	Respiratory tract irritation
1-methoxy-2-propanol	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethylbenzene	Category 2	Not determined	hearing organs

Aspiration hazard

Product/ingredient name	Result
xylene	ASPIRATION HAZARD - Category 1
ethylbenzene	ASPIRATION HAZARD - Category 1

Other information : Not available.

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 12: Ecological information

12.1 Toxicity

There are no data available on the mixture itself.
Do not allow to enter drains or watercourses.

The mixture has been assessed following the summation method of the CLP Regulation (EC) No 1272/2008 and is classified for eco-toxicological properties accordingly. See Sections 2 and 3 for details.

Product/ingredient name	Result	Species	Exposure
2,2'-[(1-methylethylidene)bis (4, 1-phenyleneoxymethylene)] bisoxirane	Acute EC50 1.4 mg/l	Daphnia	48 hours
ethylbenzene	Acute LC50 3.1 mg/l Chronic NOEC 0.3 mg/l Acute EC50 7.2 mg/l Acute EC50 2.93 mg/l Acute LC50 4.2 mg/l	Fish - pimephales promelas Fish Algae Daphnia Fish	96 hours 21 days 48 hours 48 hours 96 hours

Conclusion/Summary : This material is harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2,2'-[(1-methylethylidene)bis (4, 1-phenyleneoxymethylene)] bisoxirane	-	-	Not readily
xylene	-	-	Readily
ethylbenzene	-	-	Readily
benzyl alcohol	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
2,2'-[(1-methylethylidene)bis (4, 1-phenyleneoxymethylene)] bisoxirane	2.64 to 3.78	31	low
xylene	3.12	8.1 to 25.9	low
ethylbenzene	3.6	-	low
benzyl alcohol	0.87	<100	low
1-methoxy-2-propanol	<1	-	low
hydrocarbons, C9-unsaturated, polymerized	3.627	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

Disposal considerations : Do not allow to enter drains or watercourses. Dispose of according to all federal, state and local applicable regulations. If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned. For further information, contact your local waste authority.

European waste catalogue (EWC) : 08 01 11* Waste paint and varnish containing organic solvents or other dangerous substances

Packaging





Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Disposal considerations : Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers. Empty containers must be scrapped or reconditioned. Dispose of containers contaminated by the product in accordance with local or national legal provisions.

Type of packaging CEPE Paint Guidelines	15 01 10*	European waste catalogue (EWC) packaging containing residues of or contaminated by hazardous substances
---	-----------	---

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN1263	UN1263	UN1263	UN1263
14.2 UN proper shipping name	Paint	Paint	Paint	Paint
14.3 Transport hazard class(es)	3 	3 	3 	3 
14.4 Packing group	III	III	III	III

Date of issue/Date of revision : 16.07.2019 **Date of previous issue** : No previous validation **Version** : 1 14/19

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 14: Transport information

14.5 Environmental hazards	No.	Yes.	No.	No.
-----------------------------------	-----	------	-----	-----

Additional information

- ADR/RID** : ADR/RID: Viscous substance. Not restricted, ref. chapter 2.2.3.1.5 (applicable to receptacles < 450 litre capacity).
Tunnel restriction code: (D/E)
Hazard identification number: 30
- ADN** : The product is only regulated as an environmentally hazardous substance when transported in tank vessels.
- IMDG** : IMDG: Viscous substance. Transport in accordance with paragraph 2.3.2.5 (applicable to receptacles < 30 litre capacity).
Emergency schedules F-E, S-E

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not applicable.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

VOC : The provisions of Directive 2004/42/EC on VOC apply to this product. Refer to the product label and/or technical data sheet for further information.

VOC for Ready-for-Use Mixture : Not available.

Europe inventory : At least one component is not listed.

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product may add to the calculation for determining whether a site is within the scope of the Seveso Directive on major accident hazards.

National regulations

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A

SECTION 15: Regulatory information

Industrial use : The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations apply to the use of this product at work.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

15.2 Chemical safety assessment : Not applicable.

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 3, H412	On basis of test data Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Date of issue/Date of revision : 16.07.2019 **Date of previous issue** : No previous validation **Version** : 1 16/19

Conforms to Regulation (EC) No. 453/2010 (REACH), Annex II, as amended by Regulation (EU) No. 2015/830

Penguard Express MIO Comp A**SECTION 16: Other information**

H412 H413	Harmful to aquatic life with long lasting effects. May cause long lasting harmful effects to aquatic life.
--------------	---

[Full text of classifications \[CLP/GHS\]](#)

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Aquatic Chronic 2, H411	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Aquatic Chronic 3, H412	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Aquatic Chronic 4, H413	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 4
Asp. Tox. 1, H304	ASPIRATION HAZARD - Category 1
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317	SKIN SENSITISATION - Category 1
Skin Sens. 1B, H317	SKIN SENSITISATION - Category 1B
STOT RE 2, H373	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
STOT SE 3, H336	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3

Date of printing	: 16.07.2019
Date of issue/ Date of revision	: 16.07.2019
Date of previous issue	: No previous validation
Version	: 1

[Notice to reader](#)

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.

Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.



Penguard Express MIO Comp A

Exposure Scenario: Use in coatings - Industrial use

Sector of Use	: Industrial use
Process Category	: PROC05 PROC07 PROC08a PROC10
Environmental release category(ies)	: ERC4

Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

Operational conditions and risk management measures

Control of worker exposure

Frequency and duration of use	: Covers daily exposures up to 8 hours
General - Operational conditions	: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
General - Risk management measures	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. See Section 8 for information on appropriate personal protective equipment.

Type of activity or process Risk management measures

Preparation of material for application	: Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
Roller, spreader, flow application	: Provide extract ventilation to points where emissions occur.
Spraying - Manual	: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Wear a respirator conforming to EN140 with type A/P2 filter or better.

Control of environmental exposure

Organisational measures to prevent/limit release from site	: Prevent environmental discharge consistent with regulatory requirements.
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations. See Section 13 for additional waste treatment information.
Conditions and measures related to external recovery of waste	: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Additional information

The exposure scenario for the mixture is based on the following substances:	
REACH #:	01-2119488216-32
REACH #:	01-2119456619-26



Penguard Express MIO Comp A

Exposure Scenario: Use in coatings - Professional use

Sector of Use	: Professional use
Process Category	: PROC05 PROC08a PROC10 PROC11
Environmental release category(ies)	: ERC8a ERC8d

Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.

Operational conditions and risk management measures

Control of worker exposure

Frequency and duration of use	: Covers daily exposures up to 8 hours
General - Operational conditions	: Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
General - Risk management measures	: Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training. Wear suitable coveralls to prevent exposure to the skin. Use suitable eye protection. See Section 8 for information on appropriate personal protective equipment.

Type of activity or process

Risk management measures

Preparation of material for application - Indoor	: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Avoid carrying out activities involving exposure for more than 1 hour. or Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Wear a respirator conforming to EN140 with type A/P2 filter or better.
Preparation of material for application - Outdoor	: Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 1 hour. or Ensure operation is undertaken outdoors. Wear a respirator conforming to EN140 with type A/P2 filter or better.
Equipment cleaning and maintenance	: Drain down system prior to equipment break-in or maintenance. Avoid carrying out activities involving exposure for more than 4 hours.
Roller, spreader, flow application - Indoor	: Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Wear a respirator conforming to EN140 with type A/P2 filter or better.
Roller, spreader, flow application - Outdoor	: Ensure operation is undertaken outdoors. Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.
Spraying - Manual - Indoor	: Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.
Spraying - Manual - Outdoor	: Ensure operation is undertaken outdoors. Wear a full-face respirator conforming to EN136 with Type A/P2 filter or better.

Control of environmental exposure

Organisational measures to prevent/limit release from site	: Prevent environmental discharge consistent with regulatory requirements.
Conditions and measures related to external treatment of waste for disposal	: External treatment and disposal of waste should comply with applicable local and/or national regulations. See Section 13 for additional waste treatment information.
Conditions and measures related to external recovery of waste	: External recovery and recycling of waste should comply with applicable local and/or national regulations.

Additional information

The exposure scenario for the mixture is based on the following substances:	
REACH #:	01-2119488216-32
REACH #:	01-2119456619-26