Safety Data Sheet

According to Regulation (EC) No. 1272/2008 (CLP), as amended by Commission Regulation (EU) 2019/521 and Commission Delegated Regulation (EU) 2020/217, and (EC) No. 1907/2006 (REACH), as amended by Commission Regulation (EU) 2020/878.

Initial preparation date: 2015-03-26
Revision date: 2024-02-28

Rhino 4120 Epoxy Hardener

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

1.1 Product identifier

Product Name: Rhino 4120 Epoxy Hardener
Product code: 4120

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

Relevant identified uses: EPOXY SYSTEM - Hardener Component
Uses advised against: Not determined or not applicable.
Reasons why uses advised against: Not determined or not applicable.

1.3 Details of the manufacturer/supplier of the safety data sheet

Manufacturer:
United States
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA 92131
858-450-0441
www.rhinolinings.com

1.4 Emergency telephone number:

International
CHEMTREC - International
703-527-3887 (24/7)
International

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 (CLP):
Acute toxicity (oral), category 4
Acute toxicity (dermal), category 3
Acute toxicity (inhalation), category 2
Skin corrosion, category 1A
Serious eye damage, category 1
Chronic aquatic hazard, category 2

Hazard-determining components of labeling:
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)
Poly(propylene glycol) bis(2-aminopropyl ether)

Additional Information: None

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)
Hazard pictograms:

Signal Word: Danger

Hazard statements:

H314 Causes severe skin burns and eye damage
H318 Causes serious eye damage
H302 Harmful if swallowed
H311 Toxic in contact with skin
H330 Fatal if inhaled
H411 Toxic to aquatic life with long lasting effects

Precautionary statements:

P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood
P260 Do not breathe dust, fumes, gas, mist, vapours or spray.
P264 Wash any exposed skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product
P271 Use only outdoors or in a well-ventilated area
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P284 In case of inadequate ventilation wear respiratory protection.
P273 Avoid release to the environment
P310 Immediately call a POISON CENTER.
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.
P321 Specific treatment (see Sections 4-8 of this SDS and any supplemental information on the product label).
P363 Wash contaminated clothing before reuse
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P320 Specific treatment is urgent (see Sections 4-8 of this SDS and any supplemental information on the product label).
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P391 Collect spillage
P405 Store locked up
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P501 Dispose of contents and container in accordance with local, regional, national, and international regulations.

2.3 Other hazards: None known

SECTION 3: Composition/information on ingredients

3.1 Substance: Not applicable.

3.2 Mixture:

Identification	EU REACH Registration No.	Name	Classification according to Regulation (EC) No. 1272/2008 (CLP)	Weight %

CAS number: 6864-37-5 EC number: 229-962-1	–	2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Acute Tox. 4 (Oral); H302 Acute Tox. 3 (Dermal); H311 Skin Corr. 1A; H314 Aquatic Chronic 2; H411 Acute Tox. 2 (Inh); H330 Eye Dam. 1; H318	75-95
CAS number: 9046-10-0 EC number: 618-561-0	01-2119557899-12-0000	Poly(propylene glycol) bis(2-aminopropyl ether)	Aquatic Chronic 3; H412 Eye Dam. 1; H318 Skin Corr. 1C; H314	1-15

Additional information: None
Full Text of H and EUH statements: See section 16

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes:

Show this Safety Data Sheet to the doctor in attendance. This product is toxic by one or more routes of exposure (inhalation, ingestion, skin contact). Take precautions to ensure your own safety before attempting rescue. Wear appropriate safety eyewear, gloves, protective clothing and respiratory protection to prevent exposure. See Section 8 of this SDS for personal protective equipment recommendations. Do not use the mouth to mouth method if victim has ingested or inhaled the product. Give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper device.

Following inhalation:

Treatment is urgent. Seek emergency medical treatment. If inhaled, remove person to fresh air and place in a position comfortable for breathing. Keep person at rest. If breathing is difficult, administer oxygen. If breathing has stopped, provide artificial respiration.

Following skin contact:

Treatment is urgent. Seek emergency medical treatment. Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse.

Following eye contact:

Immediately rinse eyes with plenty of gently flowing lukewarm water for 15 minutes. Remove contact lenses if present and easy to do so. Protect unexposed eye. Seek immediate medical attention, preferably from an ophthalmologist.

Following ingestion:

If swallowed, DO NOT induce vomiting unless told to do so by a physician or poison control center. Rinse mouth with water. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, place on the left side with head down to prevent aspiration of liquid into the lungs. Seek immediate medical attention.

Self-Protection of the first aider:

Not determined or not available.

4.2 Most important symptoms and effects, both acute and delayed

Acute symptoms and effects:

Eye contact may result in irritation, redness, pain, inflammation, itching, burning, tearing, corneal damage and loss of vision.
Acute oral exposure may lead to dizziness, drowsiness, headache, breathing difficulties, nausea, vomiting, abdominal pain, and lowering of consciousness. Adverse effects are dependent on exposure (dose, concentration, contact time).
Acute dermal exposure may lead to dizziness, drowsiness, headache, breathing difficulties, nausea, vomiting, abdominal pain, and lowering of consciousness. Adverse effects are dependent on exposure (dose, concentration, contact time).
Acute inhalation exposure may lead to depression of the central nervous system. Symptoms include dizziness, drowsiness, headache, breathing difficulties, nausea, vomiting, abdominal pain, and lowering of consciousness. Exposure far above any stated OELs may result in respiratory depression, unconsciousness and death. Adverse effects are dependent on exposure (dose, concentration, contact time).

Delayed symptoms and effects:

Effects are dependent on exposure (dose, concentration, contact time).
Symptoms of exposure may be delayed.

4.3 Indication of any immediate medical attention and special treatment needed

Specific treatment:

In case of eye contact, seek prompt medical attention while rinsing is continued.
In case of skin contact, seek prompt medical attention while rinsing is continued.
In case of ingestion, seek prompt medical attention.
Exposure to this product via inhalation contact requires emergency medical treatment.

Notes for the doctor:

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water mist/fog, carbon dioxide, dry chemical or alcohol resistant foam.

Unsuitable extinguishing media:

Do not use water jet.

5.2 Special hazards arising from the substance or mixture:

Thermal decomposition may produce irritating/toxic fumes/gases.

5.3 Advice for firefighters

Personal protection equipment:

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full-face piece operated in positive pressure mode.

Special precautions:

DO NOT GET WATER INSIDE CONTAINERS. Avoid contact with skin, eyes, hair and clothing. Do not breathe fumes/gas/mists/aerosols/vapors/dusts. Move containers from fire area if safe to do so. Use water spray/fog for cooling fire exposed containers. Avoid unnecessary run-off of extinguishing media which may cause pollution.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate unnecessary personnel. Ventilate area. Extinguish any sources of ignition. Wear recommended personal protective equipment (see Section 8). Avoid contact with skin, eyes and clothing. Avoid breathing mist, vapor, dust, fume and spray. Do not walk through spilled material. Wash thoroughly after

handling.

6.2 Environmental precautions:

Prevent further leakage or spillage if safe to do so. Prevent from reaching drains, sewers and waterways. Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up:

Fatal if inhaled. Put on appropriate personal protective equipment, including a self-contained breathing apparatus (see Section 8) before entering area of spill or leak. Avoid breathing dust, mist, fumes, vapors or spray. Do not touch damaged containers or spilled material unless wearing appropriate personal protective clothing. Stop leak if you can do it without risk. Contain and collect spillage and place in suitable container for future disposal. Dispose of in accordance with all applicable regulations (see Section 13).

6.4 Reference to other sections:

For personal protective equipment see Section 8. For disposal see Section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:

Use appropriate personal protective equipment (see Section 8). Prevent skin contact. Do not get in eyes. Use only with adequate ventilation. Do not add water to the corrosive product. If it is necessary to mix a corrosive product with water, do so slowly adding the corrosive to cold water, in small amounts, and stir frequently. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use. Keep only in original packaging.

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight and away from exit paths. Store in a corrosion-resistant container with a resistant inner liner. Inspect containers and storage area regularly for signs of leak and damage. Store containers at a convenient height for handling, below eye level if possible. High shelving increases the risk of dropping containers, personal injury and exposure. Ensure that appropriate fire fighting and spill-clean up equipment is readily available. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Store separately. Keep container tightly sealed. Store away from incompatible materials (See Section 10).

Recommended storage temperature: 16 - 32°C (60 - 90°F)

7.3 Specific end use(s):

Refer to Section 1 (Recommended Use).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Only those substances with limit values have been included below.

Occupational Exposure limit values:

No occupational exposure limits noted for the ingredient(s).

Biological limit values:

No biological exposure limits noted for the ingredient(s).

Derived No Effect Level (DNEL):

Ingredient Name: 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)
CAS #: 6864-37-5

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Hazard identified but no DNEL available
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	0.6 mg/m³
	Chronic - Dermal	0.05 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	Hazard identified but no DNEL available
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	1 mg/m³
	Chronic - Dermal	Hazard identified but no DNEL available
General Population - Systemic Effects	Acute - Oral	No exposure expected
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No exposure expected
	Chronic - Oral	0.008 mg/kg bw/day
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	No exposure expected
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No exposure expected
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	No exposure expected

Ingredient Name: Poly(propylene glycol) bis(2-aminopropyl ether)
CAS #: 9046-10-0

Workers - Systemic Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	5.29 mg/m³
	Chronic - Dermal	2.5 mg/kg bw/day
Workers - Local Effects	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No hazard identified
	Acute - Dermal	Hazard identified but no DNEL available
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No hazard identified
	Chronic - Dermal	No hazard identified

General Population - Systemic Effects	Acute - Oral	No exposure expected
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No exposure expected
	Chronic - Oral	No exposure expected
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	No exposure expected
General Population - Local Effect	Acute - Oral	Not determined or not applicable.
	Acute - Inhalation	No exposure expected
	Acute - Dermal	No exposure expected
	Chronic - Oral	Not determined or not applicable.
	Chronic - Inhalation	No exposure expected
	Chronic - Dermal	No exposure expected

Predicted No Effect Concentration (PNEC):
Ingredient Name: 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)
CAS #: 6864-37-5

Environmental Protection Target	PNEC
Fresh water	0.1 mg/L
Freshwater sediments	4.34 mg/kg
Marine water	0.01 mg/L
Marine sediments	0.434 mg/kg
Microorganisms in sewage treatment	1.6 mg/L
Soil (agricultural)	4.56 mg/kg soil dw
Air	No hazard identified
Food chain	0.556 mg/kg food

Ingredient Name: Poly(propylene glycol) bis(2-aminopropyl ether)
CAS #: 9046-10-0

Environmental Protection Target	PNEC
Fresh water	0.015 mg/L
Freshwater sediments	0.132 mg/kg sediment dw
Marine water	0.014 mg/L
Marine sediments	0.125 mg/kg sediment dw
Microorganisms in sewage treatment	7.5 mg/L
Soil (agricultural)	0.018 mg/kg soil dw
Air	No hazard identified
Oral (Secondary Poisoning)	6.93 mg/kg food

Information on monitoring procedures:
Not determined or not applicable.

8.2 Exposure controls

Appropriate engineering controls:
Contact with material may cause severe injury or death. Emergency eye wash stations and safety showers should be available in the immediate vicinity of use or handling. Provide adequate ventilation to maintain the airborne concentrations of vapor, mists, and/or dusts below the applicable workplace exposure limits, while observing recognized national standards (or equivalent).

Personal protection equipment

Eye and face protection:
Use safety glasses with side shields or goggles. Consider the use of a face shield for splash protection. Use eye protection equipment that has been tested and approved by recognized national standards (or equivalent).

Skin and body protection:
Chemical resistant, impervious gloves approved by the appropriate standards. Gloves must be inspected prior to use. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. Full body protection should be worn. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Ensure that all personal protective equipment is approved by recognized national standards (or equivalent).

Respiratory protection:
Inhalation of material may cause severe injury or death. If engineering controls do not maintain airborne concentrations below the applicable workplace exposure limits, or to an acceptable level (if exposure limits have not been established), a respirator approved by recognized national standards (or equivalent) must be worn. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

General hygienic measures:
When handling chemical products, do not eat, drink or smoke. Wash hands after handling, before breaks, and at the end of the workday. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Perform routine housekeeping.

Environmental exposure controls:
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Product (substance / mixture) related measures to prevent exposure:	Not determined or not applicable.
Instruction measures to prevent exposure:	Not determined or not applicable.
Organisational measures to prevent exposure:	Not determined or not applicable.
Technical measures to prevent exposure:	Not determined or not applicable.

Risk management measures to control exposure:
Not determined or not applicable.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Liquid
Color	Amber
Odor/Odor threshold	Irritating
pH	Alkaline
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	252°C (485°F)
Flash point (closed cup)	116°C (240°F)

Flammability	Not determined or not available.
Upper flammability/explosive limit	Not determined or not available.
Lower flammability/explosive limit	Not determined or not available.
Vapor pressure	Not determined or not available.
Relative vapor density	Not determined or not available.
Density	Not determined or not available.
Relative density	Not determined or not available.
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	Not determined or not available.
Decomposition temperature	Not determined or not available.
Kinematic viscosity	Not determined or not available.
Particle characteristics	Not determined or not available.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Explosives	No data available/Not applicable
Flammable gases	No data available/Not applicable
Aerosols	No data available/Not applicable
Oxidizing gases	No data available/Not applicable
Gases under pressure	No data available/Not applicable
Flammable liquids	No data available/Not applicable
Flammable solids	No data available/Not applicable
Self-reactive substances and mixtures	No data available/Not applicable
Pyrophoric liquids	No data available/Not applicable
Pyrophoric solids	No data available/Not applicable
Self-heating substances and mixtures	No data available/Not applicable
Substances and mixtures, which emit flammable gases in contact with water	No data available/Not applicable
Oxidizing liquids	No data available/Not applicable
Oxidizing solids	No data available/Not applicable
Organic peroxides	No data available/Not applicable
Corrosive to metals	No data available/Not applicable
Desensitized explosives	No data available/Not applicable

9.2.2 Other safety characteristics

None.

SECTION 10: Stability and reactivity

10.1 Reactivity:

Not reactive under recommended handling and storage conditions.

10.2 Chemical stability:

Stable under recommended handling and storage conditions.

10.3 Possibility of hazardous reactions:

Hazardous reactions are not anticipated under recommended conditions of handling and storage.

10.4 Conditions to avoid:

Avoid generation of aerosols and mists, extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

10.5 Incompatible materials:

None known.

10.6 Hazardous decomposition products:

Nitric acid. Ammonia Nitrogen Oxides Nitrogen oxide can react with water vapors to form corrosive nitric acid. Carbon Monoxide. Carbon Dioxide.

SECTION 11: Toxicological information

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

Acute toxicity

Assessment:

Harmful if swallowed.
Toxic in contact with skin.
Fatal if inhaled.

Product data: No data available.

Substance data:

Name	Route	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	oral	LD50 Rat: > 320 - < 460 mg/kg
	inhalation	LC50 Rat: 0.42 mg/L (4 hr (aerosol))
	dermal	LD50 Rabbit: > 200 - < 400 mg/kg
Poly(propylene glycol) bis(2-aminopropyl ether)	oral	LD50 Rat: 2885.3 mg/kg
	dermal	LD50 Rabbit: 2979.7 mg/kg

Skin corrosion/irritation

Assessment:

Causes severe skin burns and eye damage.

Product data:

No data available.

Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Causes severe skin burns.
Poly(propylene glycol) bis(2-aminopropyl ether)	Causes severe skin burns.

Serious eye damage/irritation

Assessment:

Causes serious eye damage.

Product data:

No data available.

Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Causes serious eye damage.
Poly(propylene glycol) bis(2-aminopropyl ether)	Causes serious eye damage.

Respiratory or skin sensitization

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC):

Name	Classification
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Not Applicable
Poly(propylene glycol) bis(2-aminopropyl ether)	Not Applicable

Germ cell mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Reproductive Toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Specific target organ toxicity (single exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Specific target organ toxicity (repeated exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data:

No data available.

Substance data: No data available.

Information on likely routes of exposure:
No data available.
Symptoms related to the physical, chemical and toxicological characteristics:
No data available.

11.2 Information on other hazards

Endocrine disrupting properties:

Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	This substance does not have endocrine disrupting properties as it does not meet the criteria set out in (EC) No 1907/2006, (EU) 2017/2100, (EU) 2018/605.

Other information:
No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute (short-term) toxicity

Assessment: Based on available data, the classification criteria are not met.
Product data: No data available.
Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Fish LC50 Leuciscus idus: 31.6 mg/L (96 hr)
	Aquatic Invertebrates EC50 Daphnia magna: 4.6 mg/L (48 hr)
	Aquatic Plants EC50 Scenedesmus subspicatus: >5 mg/L (72 hr [growth rate])
Poly(propylene glycol) bis(2-aminopropyl ether)	Aquatic Plants ErC50 Pseudokirchneriella subcapitata: 15 mg/L (72 hr [growth rate])
	Aquatic Invertebrates EC50 Daphnia Magna: 80 mg/L (48 hr[immobilization])
	Fish EC50 Oncorhynchus mykiss: >15 mg/L (96 hr [mortality])

Chronic (long-term) toxicity

Assessment:
Toxic to aquatic life with long lasting effects.
Product data: No data available.
Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Aquatic Invertebrates EC50 Daphnia magna: >7.2 mg/L (21 d)

12.2 Persistence and degradability

Product data: No data available.
Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Under test conditions, no biodegradation observed (3% degradation after 28 days).

Name	Result
Poly(propylene glycol) bis(2-aminopropyl ether)	The substance is not readily biodegradable. 0% degradation, measured by CO2 evolution, after 28 days.

12.3 Bioaccumulative potential

Product data: No data available.

Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Does not significantly bioaccumulate in organisms (maximum BCF of <60 after 60 days).
Poly(propylene glycol) bis(2-aminopropyl ether)	The substance has low potential for bioaccumulation based on estimated [QSAR] BCF of 3.16 L/kg (freshwater fish).

12.4 Mobility in soil

Product data: No data available.

Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Moderately mobile (log Koc: 2.6).
Poly(propylene glycol) bis(2-aminopropyl ether)	The substance is mobile in soil with low potential for adsorption to soil and sediment [Koc: 52.1 L/kg]

12.5 Results of PBT and vPvB assessment

Product data:

PBT assessment: This product does not contain any substances that are assessed to be a PBT.
vPvB assessment: This product does not contain any substances that are assessed to be a vPvB.

Substance data:

PBT assessment:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Substance is not PBT.
Poly(propylene glycol) bis(2-aminopropyl ether)	The substance is not PBT.

vPvB assessment:

2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Substance is not vPvB.
Poly(propylene glycol) bis(2-aminopropyl ether)	The substance is not vPvB.

12.6 Endocrine disrupting properties

Substance data:

Name	Result
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	This substance does not have endocrine disrupting properties as it does not meet the criteria set out in (EC) No 1907/2006, (EU) 2017/2100, (EU) 2018/605.

12.7 Other adverse effects: No data available.

12.8 Hazard to the ozone layer

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.
Substance data: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

13.1.1 Product / Packaging disposal:

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water. Incineration under approved, controlled conditions using incinerators suitable or designed for the disposal of hazardous chemical wastes, is the preferred method for disposal. Small quantities of waste may be pretreated for example with polyol, to neutralise prior to disposal. Empty drums should be decontaminated (see Section 6) and either punctured and scrapped or given to an approved drum reconditioner.

Waste codes / waste designations according to LoW:

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

13.1.2 Waste treatment-relevant information:

Incinerate in suitable incineration plant, observing local authority regulations.

13.1.3 Sewage disposal-relevant information:

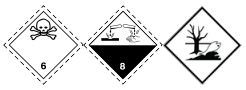
Not determined or not available.

13.1.4 Other disposal recommendations:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities.

SECTION 14: Transport information

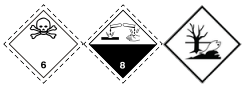
International Carriage of Dangerous Goods by Road/Rail (ADR/RID)

UN number or ID number	UN2927
UN proper shipping name	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine))
UN transport hazard class(es)	6.1 (8) 
Packing group	II
Environmental hazards	Marine Pollutant
Special precautions for user	Keep separate from foodstuffs, luxury foods, feedstuffs
Additional Information	This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

International Carriage of Dangerous Goods by Inland Waterways (ADN)

UN number or ID number	UN2927
UN proper shipping name	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine))
UN transport hazard class(es)	6.1 (8) 
Packing group	II
Environmental hazards	Marine Pollutant
Special precautions for user	None

International Maritime Dangerous Goods (IMDG)

UN number or ID number	UN2927
UN proper shipping name	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine))
UN transport hazard class(es)	6.1 (8) 
Packing group	II
Environmental hazards	Marine Pollutant
Special precautions for user	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

UN number or ID number	UN2927
UN proper shipping name	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine))
UN transport hazard class(es)	6.1 (8) 
Packing group	II
Environmental hazards	Marine Pollutant
Special precautions for user	None

Maritime Transport in Bulk according to IMO Instruments

Bulk Name	None
Ship type	None
Pollution category	None
IMO hazard class	None
Environmental hazards	None
Material hazardous only in bulk	None
Cargo Group	None

SECTION 15: Regulatory information

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

European regulations

Inventory listing (EINECS):

6864-37-5	2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Listed
9046-10-0	Poly(propylene glycol) bis(2-aminopropyl ether)	Not Listed

REACH SVHC candidate list: None of the ingredients are listed.

REACH SVHC Authorizations: None of the ingredients are listed.

REACH Restriction:

6864-37-5	2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Listed
9046-10-0	Poly(propylene glycol) bis(2-aminopropyl ether)	Not Listed

Water hazard class (WGK) (Product): Not determined.

Water hazard class (WGK) (Substance):

Ingredient Name	CAS	Class
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	6864-37-5	Water hazard class 3: highly hazardous to water
Poly(propylene glycol) bis(2-aminopropyl ether)	9046-10-0	Water hazard class 2: obviously hazardous to water

Other regulations

Germany TA Luft:

Ingredient Name	CAS	Class	Base Emission Rate	Max Concentration
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	6864-37-5	Class I	0.1 kg/h	20 mg/m³

Additional information: Not determined.

15.2 Chemical Safety Assessment

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

SECTION 16: Other information

Abbreviations and Acronyms: None

Classification procedure:

Classification according to Regulation (EC) No. 1272/2008 (CLP)	Method Used
Acute toxicity (oral), category 4	On the basis of test data
Acute toxicity (dermal), category 3	On the basis of test data
Acute toxicity (inhalation), category 2	On the basis of test data
Skin corrosion, category 1A	Calculation method
Serious eye damage, category 1	Calculation method
Chronic aquatic hazard, category 2	On the basis of test data

Summary of classification(s) in section 3:

Acute Tox. 4 (Oral)	Acute toxicity (oral), category 4
Acute Tox. 3 (Dermal)	Acute toxicity (dermal), category 3
Skin Corr. 1A	Skin corrosion, category 1A
Aquatic Chronic 2	Chronic aquatic hazard, category 2

Acute Tox. 2 (Inh)	Acute toxicity (inhalation), category 2
Eye Dam. 1	Serious eye damage, category 1
Aquatic Chronic 3	Chronic aquatic hazard, category 3
Skin Corr. 1C	Skin corrosion, category 1C

Summary of hazard statements in section 3:

H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H411	Toxic to aquatic life with long lasting effects
H330	Fatal if inhaled
H318	Causes serious eye damage
H412	Harmful to aquatic life with long lasting effects

Disclaimer:

The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof. Sections 11/12 Disclaimer (Toxicity/Ecotoxicity): This product itself has not been tested. Information given is based on data on the components and the toxicology of similar products. Section 14 (Transport Information): Information provided in Section 14 is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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Revision Notes:

Revision Date	Notes
2015-03-26	
2021-03-19	Internal Review
2024-02-28	Internal Review

End of Safety Data Sheet