

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 1 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

SECTION 1: Identification

Product Identifier

Product Name: RhinoArmor 11-90 XC Resin

Product code: 60112

Recommended Use of the Product and Restriction on Use

Relevant Identified Uses: POLYUREA SPRAY ELASTOMER SYSTEM - Resin Component

Uses Advised Against: Not determined or not applicable.

Reasons Why Uses Advised Against: Not determined or not applicable.

Manufacturer or Supplier Details

Manufacturer:

United States

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

Emergency Telephone Number:

North America

CHEMTREC
800-424-9300 (24/7)

SECTION 2: Hazard(s) Identification

GHS Classification:

Acute toxicity (oral), category 4

Acute toxicity (dermal), category 4

Eye irritation, category 2A

Specific target organ toxicity - repeated exposure, category 2

Acute aquatic hazard, category 3

Chronic aquatic hazard, category 3

Label elements

Hazard Pictograms:



Signal Word: Warning

Hazard statements:

H319 Causes serious eye irritation

H373 May cause damage to organs through prolonged or repeated exposure.

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 2 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

H302 Harmful if swallowed
H312 Harmful in contact with skin
H402 Harmful to aquatic life
H412 Harmful 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, vapors or spray.
P264 Wash any exposed skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P273 Avoid release to the environment
P301+P312 IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell.
P330 Rinse mouth
P302+P352 IF ON SKIN: Wash with plenty of water and soap.
P321 Specific treatment (see Sections 4-8 of this SDS and any supplemental information on the product label).
P312 Call a POISON CENTER if you feel unwell.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 If eye irritation persists: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P405 Store locked up
P501 Dispose of contents and container in accordance with local, regional, national, and international regulations.

Hazards Not Otherwise Classified:

This product contains Diethyltoluenediamine (DETDA). This may cause methemoglobin formation resulting in a reduced ability of the blood to carry oxygen; a symptom may include cyanosis. Immediately give oxygen if victim turns blue (lips, ears, fingernails). Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures.

SECTION 3: Composition/Information on Ingredients

Identification	Name	Weight %
CAS Number: 25190-06-1	(2S)-2-butoxybutan-1-ol	70-80
CAS Number: 68479-98-1	diethylmethylbenzenediamine	5-15
CAS Number: 1318-02-1	Zeolites	1-5
CAS Number: 26896-20-8	2-ethyl-2,5-dimethylhexanoic acid	0.5-1

Additional Information:

Specific chemical identity and/or exact percentage (concentration) of each ingredient may be held as confidential business information (CBI). Any ingredient not disclosed in this section may have been

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 3 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

determined not to be hazardous to health or the environment, or it may be present at a level below its disclosure threshold.

SECTION 4: First Aid Measures

Description of First Aid Measures

General Notes:

Show this Safety Data Sheet to the doctor in attendance.

After Inhalation:

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. If experiencing respiratory symptoms, seek medical advice/attention.

After Skin Contact:

Remove contaminated clothing and shoes. Rinse skin with copious amounts of water [shower] for several minutes. Launder contaminated clothing before reuse. If symptoms develop or persist, seek medical advice/attention.

After Eye Contact:

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. If symptoms develop or persist, seek medical advice/attention.

After Swallowing:

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. If symptoms develop or persist, seek medical advice/attention.

Most Important Symptoms and Effects, Both Acute and Delayed

Acute Symptoms and Effects:

Eye contact may result in irritation, redness, pain, inflammation, itching, burning and tearing.

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).

Delayed Symptoms and Effects:

Effects are dependent on exposure (dose, concentration, contact time).

May cause damage to organs through prolonged or repeated exposure. Effects are dependent on exposure (dose, concentration, contact time).

Symptoms of exposure may be delayed.

Immediate Medical Attention and Special Treatment

Specific Treatment:

Not determined or not applicable.

Notes for the Doctor:

Treat symptomatically.

SECTION 5: Firefighting Measures

Extinguishing Media

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 4 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

Suitable Extinguishing Media:

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

Unsuitable Extinguishing Media:

Do not use water jet.

Specific Hazards During Fire-Fighting:

Thermal decomposition may produce irritating/toxic fumes/gases.

Special Protective Equipment for Firefighters:

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:

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

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.

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.

Methods and Material for Containment and Cleaning Up:

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).

Reference to Other Sections:

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

SECTION 7: Handling and Storage

Precautions for Safe Handling:

Use appropriate personal protective equipment (see Section 8). Use only with adequate ventilation. Avoid breathing mist/vapor/spray/dust. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with skin, eyes and clothing. Wash affected areas thoroughly after handling. Keep away from incompatible materials (See Section 10). Keep containers tightly closed when not in use.

Conditions for Safe Storage, Including Any Incompatibilities:

Store in cool, dry, well-ventilated location out of direct sunlight. Keep away from food and beverages. Protect from freezing and physical damage. Store away from heat, open flames and other sources of ignition. Keep container tightly sealed. Store away from incompatible materials (See Section 10). Storage temperature: 16 - 32°C (60 - 90°F)

SECTION 8: Exposure Controls/Personal Protection

Only those substances with limit values have been included below.

Occupational Exposure Limit Values:

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 5 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

Country (Legal Basis)	Substance	Identifier	Permissible concentration
ACGIH	Zeolites	1318-02-1	8-Hour TWA: 1 mg/m ³ (Aluminum metal and insoluble compounds, respirable fraction)

Biological Limit Values:

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

Information on Monitoring Procedures:

Not determined or not applicable.

Appropriate Engineering Controls:

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:

Safety glasses or goggles. 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. Avoid skin contact with used gloves. Appropriate techniques should be used to remove used gloves and contaminated clothing. 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:

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.

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.

SECTION 9: Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Appearance	Liquid
Odor	Faint
Odor threshold	Not determined or not available.
pH	8-10
Melting point/freezing point	Not determined or not available.
Initial boiling point/range	>200°C (>392°F)
Flash point (closed cup)	>200°C (>392°F)
Evaporation rate	Negligible

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 6 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

Flammability (solid, gas)	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.
Vapor density	Not determined or not available.
Density	Not determined or not available.
Relative density	1.00-1.10 @ 25°C (77°F)
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined or not available.
Auto/Self-ignition temperature	[^] 250°C (>482°F)
Decomposition temperature	Not determined or not available.
Dynamic viscosity	Not determined or not available.
Kinematic viscosity	Not determined or not available.
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

SECTION 10: Stability and Reactivity

Reactivity:

Not reactive under recommended handling and storage conditions.

Chemical Stability:

Stable under recommended handling and storage conditions.

Possibility of Hazardous Reactions:

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

Conditions to Avoid:

Extreme heat, open flames, hot surfaces, sparks, ignition sources and incompatible materials.

Incompatible Materials:

Strong oxidizing agents.

Hazardous Decomposition Products:

Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.

SECTION 11: Toxicological Information

Acute Toxicity

Assessment:

Harmful if swallowed.

Harmful in contact with skin.

Product Data: No data available.

Substance Data:

Name	Route	Result
diethylmethylbenzenediamine	oral	LD50 Rat: 738 mg/kg
	dermal	LD50 Rabbit: 1100 mg/kg (ATE - Conversion point based on Hazard Classification)
	inhalation	LC50 Rat: >2.45 mg/L (1 hr [Aerosol])

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 7 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

Name	Route	Result
Zeolites	oral	LD50 Rat: \geq 5110 mg/kg
	dermal	LD50 Rabbit: >2000 mg/kg
	inhalation	LC50 Rat: >3.35 mg/L (4 hr [dust])
2-ethyl-2,5-dimethylhexanoic acid	oral	LD50 Rat: 2066 mg/kg
	dermal	LD50 Rabbit: >3640 mg/kg

Skin Corrosion/Irritation

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

Product Data:

No data available.

Substance Data: No data available.

Serious Eye Damage/Irritation

Assessment:

Causes serious eye irritation.

Product Data:

No data available.

Substance Data:

Name	Result
diethylmethylbenzenediamine	Causes serious eye irritation

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
Zeolites	Group 3
diethylmethylbenzenediamine	Not Applicable
(2S)-2-butoxybutan-1-ol	Not Applicable
2-ethyl-2,5-dimethylhexanoic acid	Not Applicable

National Toxicology Program (NTP):

Name	Classification
Zeolites	Not Applicable
diethylmethylbenzenediamine	Not Applicable
(2S)-2-butoxybutan-1-ol	Not Applicable
2-ethyl-2,5-dimethylhexanoic acid	Not Applicable

OSHA Carcinogens: Not applicable

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 8 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

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:

May cause damage to organs through prolonged or repeated exposure.

Product Data:

No data available.

Substance Data:

Name	Result
diethylmethylbenzenediamine	Causes damage to organs (pancreas; liver; kidneys) through prolonged or repeated exposure

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.

Other Information:

No data available.

SECTION 12: Ecological Information

Acute (Short-Term) Toxicity

Assessment:

Harmful to aquatic life.

Product Data: No data available.

Substance Data:

Name	Result
diethylmethylbenzenediamine	Fish LC50 <i>Leuciscus idus</i> : 200 mg/L (48 hr)
	Aquatic Invertebrates EC50 <i>Daphnia magna</i> : 0.5 mg/L (48 hr)
	Aquatic Plants ErC50 Algae: 104 mg/L (72 hr)

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 9 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

Name	Result
Zeolites	Fish LC50 Lagodon rhomboides: >680 mg/L (96 hr [read-across])
	Aquatic Invertebrates EC50 Daphnia magna: 2808 mg/L (24 hr [mobility])
	Aquatic Plants EC50 Desmodosmus subspicatus: >1000 mg/L (72 hr [growth rate; read-across])
(2S)-2-butoxybutan-1-ol	Aquatic Invertebrates EC50 Daphnia magna: 8.87 mg/L (48 hr [QSAR])

Chronic (Long-Term) Toxicity

Assessment:

Harmful to aquatic life with long lasting effects.

Product Data: No data available.

Substance Data:

Name	Result
Zeolites	Fish NOEC Pimephales promelas: \geq 86.7 mg/L (30 d)
2-ethyl-2,5-dimethylhexanoic acid	Fish NOEC Freshwater Fish: 1.1 mg/L (30 d, (Q) SAR value)
	Aquatic Invertebrates NOEC Ceriodaphnia dubia: 3.4 mg/L (7 d)
	Bacteria NOEC microorganism: >100 mg/L

Persistence and Degradability

Product Data: No data available.

Substance Data:

Name	Result
diethylmethylbenzenediamine	Under test conditions no biodegradation observed.
Zeolites	Persistence and degradability studies are not applicable to inorganic substances.
2-ethyl-2,5-dimethylhexanoic acid	Substance is not readily biodegradable (11% biodegradation in 28 d).

Bioaccumulative Potential

Product Data: No data available.

Substance Data:

Name	Result
diethylmethylbenzenediamine	Bioaccumulation is not expected. BCF (aquatic species): 2.75
Zeolites	Bioaccumulation studies are not applicable to inorganic substances.
2-ethyl-2,5-dimethylhexanoic acid	The substance has a low potential of bioaccumulation. BCF after 14 days of exposure: <225 L/kg

Mobility in Soil

Product Data: No data available.

Substance Data:

Name	Result
diethylmethylbenzenediamine	The substance is moderately mobile in soil with a moderate potential for adsorption to soil and sediment. Koc at 20 °C: 551
Zeolites	Adsorption to soil and sediment is not expected because the substance is inorganic.
2-ethyl-2,5-dimethylhexanoic acid	The substance is moderately mobile with a moderate potential for adsorption to soil and sediment. Koc is 342

Results of PBT and vPvB assessment

Product Data:

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 10 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

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:

diethylmethylenediamine	The substance is not PBT.
Zeolites	This substance is not PBT.
2-ethyl-2,5-dimethylhexanoic acid	The substance is not PBT.

vPvB assessment:

diethylmethylenediamine	The substance is not vPvB.
Zeolites	This substance is not vPvB.
2-ethyl-2,5-dimethylhexanoic acid	The substance is not vPvB.

Other Adverse Effects: No data available.

SECTION 13: Disposal Considerations

Disposal Methods:

The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements.

Dispose waste in compliance with local, state and federal regulations via licensed waste disposal contractor.

Contaminated packages:

Even after emptying, container may retain residues. Containers should be completely emptied and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulation. This material and its container must be disposed of in a safe way.

SECTION 14: Transport Information

United States Transportation of Dangerous Goods (49 CFR DOT)

UN Number	Not regulated
UN Proper Shipping Name	Not regulated
UN Transport Hazard Class(es)	None
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None

International Maritime Dangerous Goods (IMDG)

UN Number	Not regulated
UN Proper Shipping Name	Not regulated
UN Transport Hazard Class(es)	None
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None

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

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 11 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

UN Number	Not regulated
UN Proper Shipping Name	Not regulated
UN Transport Hazard Class(es)	None
Packing Group	None
Environmental Hazards	None
Special Precautions for User	None

SECTION 15: Regulatory Information

United States Regulations

Inventory Listing (TSCA):

1318-02-1	Zeolites	Not Listed
68479-98-1	diethylmethylbenzenediamine	Listed - Active
25190-06-1	(2S)-2-butoxybutan-1-ol	Listed - Active
26896-20-8	2-ethyl-2,5-dimethylhexanoic acid	Listed - Active

Significant New Use Rule (TSCA Section 5): None of the ingredients are listed.

Export Notification under TSCA Section 12(b): None of the ingredients are listed.

SARA Section 302 Extremely Hazardous Substances: None of the ingredients are listed.

SARA Section 313 Toxic Chemicals: None of the ingredients are listed.

CERCLA: None of the ingredients are listed.

RCRA: None of the ingredients are listed.

Section 112(r) of the Clean Air Act (CAA): None of the ingredients are listed.

Massachusetts Right to Know: None of the ingredients are listed.

New Jersey Right to Know: None of the ingredients are listed.

New York Right to Know:

26896-20-8	2-ethyl-2,5-dimethylhexanoic acid	Listed
------------	-----------------------------------	--------

Pennsylvania Right to Know: None of the ingredients are listed.

California Proposition 65: None of the ingredients are listed.

Additional information: Not determined.

SECTION 16: Other Information

Abbreviations and Acronyms: None

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

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial Preparation Date: 07.31.2023

Page 12 of 12

Revision date: 07.31.2023

RhinoArmor 11-90 XC Resin

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.

NFPA: 2-1-0

HMIS: 2*-1-0

Initial Preparation Date: 07.31.2023

Revision date: 07.31.2023

Revision Notes:

Revision Date	Notes
2023-07-31	New Product

End of Safety Data Sheet