



FOR EMERGENCY

CALL CHEMTREC: (800) 424-9300

INTERNATIONAL: (703) 527-3887

MATERIAL SAFETY DATA SHEET

I. PRODUCT AND COMPANY IDENTIFICATION

Product Name: REFLEX ELASTOMERIC (White)

Material Number:

Chemical Family: Acrylic Polymer in Water

Neptune Coatings Corporation

972 Golden Gate Terrace

Grass Valley, CA 95945

Ph: 530.274.1356

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW — WARNING!

Color: White • Form: Liquid • Odor: Ammonia

May cause eye, skin, and respiratory tract irritation. Use cold water spray to cool fire exposed containers to minimize the risk of rupture. Harmful if inhaled. Harmful if swallowed. May affect nervous system. May cause kidney damage. May cause liver damage. Contains material which may cause cancer.

Potential Health Effects

Primary Routes of Entry: Skin Contact, Eye Contact, Ingestion, Inhalation

Medical Conditions Aggravated by Exposure: Skin disorders, Respiratory disorders, Eye disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Acute Inhalation

For Component: Limestone

Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose. May cause mechanical irritation.

For Component: Titanium dioxide (Rutile)

May cause mechanical irritation.

For Component: Zinc Oxide

May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

For Component: 1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-
Expected to be highly toxic by inhalation.

For Component: Crystalline Quartz Silica

May be harmful by inhalation. May cause mechanical irritation.

Chronic Inhalation

For Component: Zinc Oxide

May cause pulmonary edema with symptoms of breathing difficulty and tightness of chest.

For Component: Crystalline Quartz Silica

Exposure to Silica, Quartz can cause a very serious lung disease called Silicosis with cough, shortness of breath, and changes in chest x-ray. The earliest symptoms of silicosis may include: Shortness of breath, coughing, wheezing, fatigue, chest pain, loss of appetite and fever.

Acute Skin

For Component: Limestone

Causes irritation with symptoms of reddening, itching, and swelling. May cause mechanical irritation.

For Component: Titanium dioxide (Rutile)

Not expected to be irritating.

For Component: Zinc Oxide

May cause mechanical irritation.

For Component: Crystalline Quartz Silica

May cause mechanical irritation.

Acute Eye

For Component: Limestone

Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause mechanical irritation.

For Component: Titanium dioxide (Rutile)

Not expected to be irritating.

For Component: Zinc Oxide

May cause mechanical irritation.

For Component: Crystalline Quartz Silica

May cause mechanical irritation.

Acute Ingestion

For Component: Limestone

Slightly toxic by ingestion.

For Component: Titanium dioxide (Rutile)

Not expected to be harmful if swallowed.

For Component: Zinc Oxide

Not expected to be harmful if swallowed.

For Component: Crystalline Quartz Silica

Not expected to be harmful if swallowed.

Acute Effects of Exposure

For Component: Crystalline Quartz Silica

Exposure to Silica, Quartz can cause a very serious lung disease called Silicosis with cough, shortness of breath, and changes in chest x-ray. The earliest symptoms of silicosis may include: Shortness of breath, coughing, wheezing, fatigue, chest pain, loss of appetite and fever.

Chronic Effects of Exposure

For Component: Crystalline Quartz Silica

Excessive exposure to airborne crystalline silica can cause fibrotic lung damage, with scarring of the lungs with cough and shortness of breath. This is called "Silicosis". This is generally a slowly developing fibrotic disease as symptoms are usually delayed for 10 years or more. Symptoms are dyspnea, chest pain, breathlessness, and cough. The chronic lung scarring developed from the silica dust causes a progressive massive fibrosis. This may lead to increased susceptibility to tuberculosis.

Carcinogenicity:

1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-

IARC - Overall evaluation: 2B Possible carcinogen.

Crystalline Quartz Silica NTP - Hazard Designation: Known carcinogen.

IARC - Overall evaluation: 1 Carcinogen. Human carcinogen.

IARC - Overall evaluation: 1 Human carcinogen.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
10 - 20%	Limestone	1317-65-3
3 - 10%	Titanium dioxide (Rutile)	13463-67-7
1 - 5%	Zinc Oxide	1314-13-2
1 - 5%	Propylene Glycol	57-55-6
0.1 - 1%	1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-	1897-45-6
0.1204%	Crystalline Quartz Silica	14808-60-7

4. FIRST AID MEASURES

Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact

In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops and persists.

Inhalation

If inhaled, remove to fresh air. Get medical attention if irritation develops.

Ingestion

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: All extinguishing media are suitable.

Special Fire Fighting Procedures

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize risk of rupture.

Unusual Fire/Explosion Hazards

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition.

6. ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures

Cleanup personnel must use appropriate personal protective equipment. Cover spill with inert material (e.g., dry sand or earth) and collect for proper disposal.

7. HANDLING AND STORAGE

Storage Temperature:

Minimum: 1 °C (33.8 °F)

Maximum: 49 °C (120.2 °F)

Handling/Storage Precautions

Avoid breathing dust, vapor, or mist. Avoid contact with skin or clothing. Avoid contact with eyes. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Keep container closed when not in use. Protect from freezing.

Further Info on Storage Conditions

None known.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Titanium dioxide (Rutile) (13463-67-7)

U.S. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 10 mg/m³

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

PEL: 15 mg/m³ (Total dust.)

U.S. ACGIH Threshold Limit Values

Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Zinc Oxide (1314-13-2)

U.S. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 2 mg/m³ (Respirable fraction.)

U.S. ACGIH Threshold Limit Values

Short Term Exposure Limit (STEL): 10 mg/m³ (Respirable fraction.)

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

PEL: 5 mg/m³ (Fume.)

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

PEL: 5 mg/m³ (Respirable fraction.)

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

PEL: 15 mg/m³ (Total dust.)

Propylene Glycol (107-21-1)

U.S. ACGIH Threshold Limit Values

Ceiling Limit Value: 100 mg/m³ (Aerosol)

U.S. ACGIH Threshold Limit Values

Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Crystalline Quartz Silica (14808-60-7)

U.S. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.05 mg/m³ (Respirable fraction.)

U.S. OSHA Table Z-2 (29 CFR 1910.1000)

Time Weighted Average (TWA): 10 mg/m³ (Respirable., Divide 10 mg/m³ by % SiO₂ + 2 determined from air sample analysis.)

U.S. OSHA Table Z-2 (29 CFR 1910.1000)

Time Weighted Average (TWA): 30 mg/m³ (Total dust., Divide 30 mg/m³ by % SiO₂ + 2 determined from air sample analysis.)

U.S. ACGIH Threshold Limit Values

Hazard Designation: Group A2 Suspected human carcinogen.

Industrial Hygiene/Ventilation Measures

General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition

products below appropriate airborne concentration standards/guidelines.

Respiratory Protection

In case of insufficient ventilation wear suitable respiratory equipment.

Hand Protection

Permeation resistant gloves.

Eye Protection

Splash proof goggles.

Skin and Body Protection

Wear cloth work clothing including long pants and long-sleeved shirts.

Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid

Color: White

Odor: Ammonia

pH: 9 - 9.8

Freezing Point: 0 °C (32 °F) similar to water

Boiling Point/Range: 100 °C (212 °F) similar to water

Flash Point: Not applicable (water based product), however, solid material will support combustion if water has been evaporated.

Lower Explosion Limit: not applicable

Upper Explosion Limit: not applicable

Vapor Pressure: 17 mmHg @ 20 °C (68 °F) similar to water

Viscosity, Dynamic: 10,000 cP

10. STABILITY AND REACTIVITY

Hazardous Reactions: Hazardous polymerization does not occur.

Stability: Stable

Materials to Avoid: None known

Hazardous Decomposition Products: By Thermal Decomposition: Acrylic monomers, other potentially toxic fumes

11. TOXICOLOGICAL INFORMATION

Toxicity Data for Limestone

Acute Oral Toxicity

LD50: 6,450 mg/kg (rat)

Skin Irritation

Rabbit, Draize, Exposure Time: 24 hrs, Moderately irritating

Eye Irritation

Rabbit, Draize, Exposure Time: 24 hrs, Severely irritating

Toxicity Data for Aluminum Hydroxide

Acute Oral Toxicity

LD50: > 5,000 mg/kg (rat)

Skin Irritation

Rabbit, OECD Test Guideline 404, Non-irritating

Eye Irritation

Rabbit, OECD Test Guideline 405, No eye irritation

Repeated Dose Toxicity

28 Days, NOAEL: 14,470 ppm, (rat)

Developmental Toxicity/Teratogenicity

Rat, female, oral, NOAEL (teratogenicity): 1,000 mg/kg,

No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested.

Toxicity Data for Titanium Dioxide (Rutile)

Acute Oral Toxicity

LD50: > 5,000 mg/kg (rat)

Acute Inhalation Toxicity

LC0: > 6.82 mg/l, dust/particulate, 4 hrs (rat)

Acute Dermal Toxicity

LD50: > 5,000 mg/kg (rabbit)

Skin Irritation

Rabbit, Exposure Time: 24 hrs, Non-irritating

Eye Irritation

Rabbit, Draize, Non-irritating

Sensitization

Dermal: non-sensitizer (guinea pig, Maximization Test)

Dermal: non-sensitizer (human, Patch Test)

Repeated Dose Toxicity

28 Days, inhalation: NOAEL: 35 mg/m³, (rat)

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Drosophila SLRL test: negative (Drosophila melanogaster)

Toxicity Data for Zinc Oxide

Acute Oral Toxicity

LD50: > 5,000 mg/kg (rat)

Acute Inhalation Toxicity

LC50: 2,500 mg/m³, (mouse)

Skin Irritation

Rabbit, Draize, Exposure Time: 24 hrs, Non-irritating

Eye Irritation

Rabbit, Draize, Slightly irritating

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Mouse lymphoma assay: positive (Mouse lymphoma cells (L5178Y/TK), Metabolic Activation: with/without)

Toxicity Data for Propylene Glycol

Acute Oral Toxicity

LD50: > 5,000 mg/kg (rat)

Acute Inhalation Toxicity

LC50: > 200 mg/m³, 2 hrs (rat)

Acute Dermal Toxicity

LD50: > 5,000 mg/kg (rabbit)

Skin Irritation

Rabbit, OECD Guideline for Testing of Chemicals, No. 404, No skin irritation

Eye Irritation

Rabbit, OECD Guideline for Testing of Chemicals, No. 405, No eye irritation, Slightly irritating (human)

Sensitization

Dermal: non-sensitizer (human)

Non-sensitizer (mouse, mouse ear swelling test)

Repeated Dose Toxicity

90 Days, Inhalation: NOAEL: 1 mg/l, (rat, male/female, 6 hrs/day 5 days/week)

2 years, Oral: NOAEL: 2,000 mg/kg, (dog, male/female, daily)

2 years, Oral: NOAEL: 50000 ppm, (rat, male/female, daily)

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Positive and negative results were seen in various in vitro studies.

Genetic Toxicity in Vivo:

Dominant Lethal Assay: negative (rat, male/female, oral)

Other assay: negative, Negative results were reported in various in vivo studies (mouse)

Carcinogenicity

Rat, female, dermal, 14 months: negative

Dog, male/female, oral, 2 years, daily: negative

Rat, male/female, oral, 2 years, daily: negative

Toxicity to Reproduction/Fertility

Fertility Screening, oral, daily, (rat, male/female) NOAEL (parental): 7.5 % in feed, Reproductive effects have been observed in animal studies.

Developmental Toxicity/Teratogenicity

Rabbit, female, oral, gestation, daily, NOAEL (teratogenicity): 1,230 mg/kg, NOAEL (maternal): 1,230 mg/kg
No Teratogenic effects observed at doses tested.

Rat, female, oral, gestation, daily, NOAEL (teratogenicity): 1,600 mg/kg, NOAEL (maternal): 1,600 mg/kg
No Teratogenic effects observed at doses tested.

Toxicity Data for Crystalline Quartz Silica

Mutagenicity

Genetic Toxicity in Vitro:

Ames: Negative results were reported in various in vitro studies. (Salmonella typhimurium, Metabolic Activation: with/without)

Genetic Toxicity in Vivo:

Sister Chromatid Exchange: ambiguous (hamster)

Carcinogenicity

Rat, male/female, inhalation, 2 years, 6 hrs/day 5 days/week
Positive

12. ECOLOGICAL INFORMATION

Ecological Data for Limestone

Biodegradation

Not readily biodegradable.

Acute and Prolonged Toxicity to Fish

LC50: 56,000 mg/l (Mosquitofish (Gambusia affinis), 48 hrs)

Ecological Data for Titanium Dioxide (Rutile)

Acute and Prolonged Toxicity to Fish

LC0: > 1,000 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Acute Toxicity to Aquatic Invertebrates

EC0: > 3 mg/l (Water flea (Daphnia magna))

Toxicity to Microorganisms

EC0: > 10,000 mg/l, (Pseudomonas fluorescens, 24 hrs)

EC0: > 5,000 mg/l, (Escherichia coli)

Ecological Data for Propylene Glycol

Biodegradation

Aerobic, 100 %, Exposure time: 1 Days

Anaerobic, 100 %, Exposure time: 9 Days

Biological Oxygen Demand (BOD)

5 Days, 1,170 mg/l

Chemical Oxygen Demand (COD)

2,600 mg/g

Theoretical Biological Oxygen Demand (ThBOD)

0.45 mg/g

Bioaccumulation

< 1 BCF

Calculated value

Acute and Prolonged Toxicity to Fish

LC50: 51,400 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)

LC50: 23,800 mg/l (Sheepshead minnow (Cyprinodon variegatus), 96 hrs)

Acute Toxicity to Aquatic Invertebrates

EC50: > 10,000 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants

EC50: 19,000 mg/l, End Point: growth (Green algae (Selenastrum capricornutum), 96 hrs)

Toxicity to Microorganisms

EC50: 25,800 mg/l, (Photobacterium phosphoreum, 30 min)

> 1,000 mg/l, (Activated sludge microorganisms, 3 hrs)

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions

Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning.

14. TRANSPORTATION INFORMATION

Land Transport (DOT)

Non-Regulated

Sea Transport (IMDG)

Non-Regulated

Air Transport (ICAO/IATA)

Non-Regulated

15. REGULATORY INFORMATION

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

U.S. Toxic Substances Control Act: Listed on the TSCA Inventory.

U.S. EPA CERCLA Hazardous Substances (40 CFR 302):

Components

Zinc Oxide included in the regulation but with no data values. See regulation for further details.

Ethylene Glycol Reportable Quantity: 5,000 lbs

SARA Section 311/312 Hazard Categories:

Acute Health Hazard, Chronic Health Hazard

U.S. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):

Components

None

U.S. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:

Components

Zinc Oxide

Propylene Glycol

1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-

U.S. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
0.1-1%	Ammonium Hydroxide	1336-21-6

California Prop. 65:

Warning! This product contains chemicals known to the State of California to be Carcinogenic.

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
0.1 - 1%	1,3-Benzenedicarbonitrile, 2,4,5,6-tetrachloro-	1897-45-6
<0.5%	Crystalline Quartz Silica	14808-60-7
0.1 - 1%	Ammonium Hydroxide	1336-21-6

16. OTHER INFORMATION

NFPA 704M Rating

Health 1

Flammability 1

Reactivity 0

Other

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health 1*

Flammability 1

Physical Hazard 0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

* = Chronic Health Hazard

The method of hazard communication for Neptune Coatings is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Neptune Coatings as a customer service.

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