Nurofast Concrete Primer

SECTION 1. IDENTIFICATION

Product Identifier	Nurofast Concrete Primer
Other Means of Identification	none
Product Family	Aromatic isocyanate
Recommended Use	Single component corrosion-resistant primer.
Manufacturer/Supplier Identifier	The Stebbins Engineering and Manufacturing Company, 363 Eastern Boulevard, Watertown, NY, 13601, (315) 782-3000, www.stebbinseng.com
Emergency Phone No.	Chemtrec - Within North America, 1-800-424-9300, 24 hours
	Stebbins 24 Hour Contact-, 1-315-788-6624
SDS No.	014

SECTION 2. HAZARD IDENTIFICATION

Classification

Flammable liquid - Category 3; Acute toxicity (Inhalation) - Category 4; Skin irritation - Category 2; Eye irritation - Category 2B; Respiratory sensitization - Category 1B; Specific target organ toxicity (single exposure) - Category 3; Specific target organ toxicity (repeated exposure) - Category 1

Label Elements

Signal Word:
Danger

Hazard Statement(s):

H226	Flammable liquid and vapour.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary Statement(s):

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical, ventilating, and lighting equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist, vapours, spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	Wear respiratory protection (NIOSH approved air-purifying respirator with an organic vapour cartridge).

P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P333 + P313 If skin irritation or rash occurs: Get medical advice or attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTRE or doctor.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use carbon dioxide, dry chemical powder, appropriate foam, water spray or fog to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
Light aromatic solvent naphtha	64742-95-6	30 - 40%	N/A	light aromatic hydrocarbon
Polyisocyanate Prepolymer based on MDI	67815-87-6	30 - 50%	PIR	Polyurea -based polymer
4,4'-Methylenediphenyl diisocyanate	101-68-8	15 - 30%	MDI	Aromatic diisocyanate
Methylenediphenyl diisocyanate (mixed isomers)	26447-40-5	3 - 10%	MDI	Aromatic diisocyanate

Notes

**This ingredient is a component of the complex mixture.

Concentrations are expressed in % weight/weight.

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Take precautions to prevent a fire (e.g. remove sources of ignition). Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. Get medical advice or attention if you feel unwell or are concerned.

Skin Contact

Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately rinse with lukewarm, gently flowing water for 15-20 minutes. Get medical advice or attention if you feel unwell or are concerned.

Eye Contact

Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.

Ingestion

Rinse mouth with water. Get medical advice or attention if you feel unwell or are concerned.

First-aid Comments

Get medical advice or attention if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed

If inhaled: can irritate the nose and throat. Respiratory sensitizer. May cause asthma or an asthma-like reaction in some people. If on skin: skin sensitizer. May cause an allergic skin reaction in some people.

Immediate Medical Attention and Special Treatment

Target Organs

Lungs, skin, eyes.

Special Instructions

Not applicable.

Medical Conditions Aggravated by Exposure

Asthma, respiratory conditions, skin allergies.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Combustible liquid. Can ignite if heated. Releases vapour that can form explosive mixture with air at or above the flash point. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, resulting in a fire hazard. Can be ignited by static discharge. May travel a considerable distance to a source of ignition and flash back to a leak or open container. Closed containers may rupture violently when heated releasing contents.
In a fire, the following hazardous materials may be generated: toxic chemicals.

Special Protective Equipment and Precautions for Fire-fighters

Approach fire from upwind to avoid hazardous vapours or gases. Before entry, especially into confined areas, use an appropriate monitor to check for: toxic gases or vapours.
Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Monitor area for flammable or explosive atmosphere. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, if ventilation is not sufficient.

Environmental Precautions

It is good practice to prevent releases into the environment.

Methods and Materials for Containment and Cleaning Up

Contain and soak up spill with absorbent that does not react with spilled product. Contaminated absorbent poses the same hazard as the spilled product. Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal. Store recovered product in suitable containers that are: tightly-covered. Contact emergency services and manufacturer/supplier for advice.

Other Information

Contact supplier, local fire and emergency services for help. Report spills to local health, safety and environmental authorities, as required.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe in this product. Do not get in eyes, on skin or on clothing. Only use where there is adequate ventilation. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Electrically bond and ground equipment. Ground clips must contact bare metal. Keep dry. Prevent accidental contact with water and humidity. Keep containers tightly closed when not in use or empty. Do NOT eat, drink or store food in work areas. Wash hands thoroughly after handling this product and before eating, using the washroom or leaving work area. Thoroughly clean clothing, shoes and leather goods before reuse or dispose of safely.

Conditions for Safe Storage

Store in a closed container. Store in an area that is: dry, out of direct sunlight and away from heat and ignition sources.

Empty containers may contain hazardous residue. Store separately. Keep closed. Follow all precautions given on this safety data sheet. Store between: 50°F (10°C) and 81°F (27°C).

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

	ACGIH TLV®		OSHA PEL		AIHA WEEL	
Chemical Name	**TWA**	**STEL**	**TWA**	**Ceiling**	**8-hr TWA**	**TWA**
4,4'-Methylenediphenyl diisocyanate			0.005 ppm	0.02 ppm		
Polyisocyanate Prepolymer based on MDI	0.005 ppm			0.02 ppm		
Methylenediphenyl diisocyanate (mixed isomers)	0.005 ppm	0.02 ppm		0.02 ppm		

Exposure Limits:
Methylenediphenyl diisocyanate (mixed isomers):

U.S. ACGIH Threshold Limit Values, as amended: Time weighted average 0.005 ppm

U.S. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended: Ceiling Limit Value 0.02 ppm, 0.2 mg/m3.

Appropriate Engineering Controls

Do not allow product to accumulate in the air in work or storage areas, or in confined spaces. Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Use non-sparking ventilation systems, approved explosion-proof equipment and intrinsically safe electrical systems in areas where this product is used and stored. Control static electricity discharges which includes bonding of equipment to ground.

Individual Protection Measures

Eye/Face Protection

Wear approved safety glasses.
When there is potential for eye exposure to Liquid, vopor or mist, wear safety goggles.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.
Suitable materials are: nitrile rubber, butyl rubber, polyvinyl chloride, Viton®/butyl rubber.

Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an organic vapour cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Dark brown liquid. Particle Size: Not applicable
Odour	Aromatic
Odour Threshold	Not available
pH	Not available
Melting Point/Freezing Point	Not available (melting); Not available (freezing)
Boiling Range	Not available
Flash Point	108 ºF (42 ºC) (closed cup) (Light aromatic solvent naphtha)
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable (liquid).
Upper/Lower Flammability or Explosive Limit	6.0% (Light aromatic solvent naphtha) (upper); 0.9% (Light aromatic solvent naphtha) (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	> 1

Relative Density (water = 1)	1.02
Solubility	Not applicable in water; Not available (in other liquids)
Partition Coefficient, n-Octanol/Water (Log Kow)	Not available
Auto-ignition Temperature	894 ºF (479 ºC) (Light aromatic solvent naphtha)
Decomposition Temperature	Not available
Viscosity	Not available (kinematic); Not available (dynamic)

Other Information

Physical State	Liquid
Molecular Formula	Not available
Molecular Weight	Not available
Bulk Density	63.65 lb/ft3 (1020.00 kg/m3)
Surface Tension	Not available
Critical Temperature	Not available
Electrical Conductivity	Not available
Vapour Pressure at 50 deg C	Not available
Saturated Vapour Concentration	Not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Hardens on exposure to air or water.

Temperatures above 350 F (177 C), may cause polymerization.

Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact; these reactions can become violent. Contact is increased by stirring or if the other material mixes with the diisocyanate.

Diisocyanates are not soluble in water and sink to the bottom, but react slowly at the interface.
The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

Polymerizes in the presence of water or humidity.

Conditions to Avoid

Prolonged contact with water, moisture or humidity. Alkaline conditions (high pH). Acidic conditions (low pH). Open flames, sparks, static discharge, heat and other ignition sources. Heat. Temperatures below 50.0 ºF (10.0 ºC) and above 120.0 ºF (48.9 ºC)

Incompatible Materials

Avoid: water, alcohols (e.g. ethanol), strong bases (e.g. sodium hydroxide), amines (e.g. triethylamine), strong oxidizing agents (e.g. perchloric acid), organic acids (e.g. acetic acid), strong acids (e.g. hydrochloric acid).
Not corrosive to metals.

Hazardous Decomposition Products

By Fire and High Heat: Carbon dioxide (CO_2), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke., Isocyanate, Isocyanic Acid, Other undetermined compounds.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
4,4'-Methylenediphenyl diisocyanate	178 mg/m3 (rat)	2200 mg/kg (mouse)	
Polyisocyanate Prepolymer based on MDI	490 mg/m3 (rat) (4-hour exposure)	2200 mg/kg (mouse)	> 9400 mg/kg (rabbit)
Methylenediphenyl diisocyanate (mixed isomers)	0.49 mg/L (rat) (4-hour exposure) (dust)	> 10000 mg/kg (rat)	> 9400 mg/kg (rabbit)

LC50 (Inhalation)

Toxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

LC50: 0.49 mg/l, 490 mg/m3, 4 h, aerosol (rat)

The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and weight of the evidence, a modified classification for acute inhalation toxicity is justified.

LD50 (Oral)

Toxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

LD50: > 2,000 mg/kg (rat, male/female)

May cause irritation of the digestive tract. Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

LD50 (Dermal)

Toxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

LD50: > 9,400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)

Skin Corrosion/Irritation

Repeated or prolonged exposure can irritate or burn the skin. May cause mild irritation based on information for closely related chemicals.

Causes skin irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

Serious Eye Damage/Irritation

May cause serious eye irritation based on information for closely related materials.

Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Causes nose and throat irritation.

Acute: Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Skin Absorption

Symptoms may include redness, rash, swelling and itching.

Ingestion

May cause irritation of the mouth, throat and stomach. Symptoms may include nausea, vomiting, stomach cramps and diarrhea.

Aspiration Hazard

Not known to be an aspiration hazard.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

If inhaled: may cause irritation of the respiratory system. May cause respiratory tract injury. Following skin contact: symptoms can include redness, rash, swelling and itching.

Respiratory and/or Skin Sensitization

Respiratory sensitizer. Can cause an allergic reaction (skin sensitization) based on animal tests.

Chronic: As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to isocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to isocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to isocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

Prolonged contact with skin can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.
Prolonged vapor contact with the eyes may cause conjunctivitis.

Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

Carcinogenicity

Product: No carcinogenic substances as defined by IARC, NTP and/or OSHA. (4,4'-Methylenediphenyl diisocyanate). (Methylenediphenyl diisocyanate (mixed isomers))
rat, Male/Female, inhalation, 2 Years, 6 hrs/day 5 days/week LOAEL: 6mg/l

Polymeric MDI has been classified as IARC Group 3 (“Not classifiable as to its carcinogenicity to humans”) (1999) indicating there is inadequate evidence available to describe the carcinogenic potential. Epidemiological studies found no association between isocyanates and cancer. In chronic exposure studies in rodents, pMDI produced tumors only at the highest exposure level of 6 mg/m3.

This exposure level is significantly above the TLV for MDI (0.051 mg/m3). Based on the weight of the evidence, a determination of not classified for carcinogenicity is justified.

Key to Abbreviations

ACGIH® = American Conference of Governmental Industrial Hygienists.
IARC = International Agency for Research on Cancer.
NTP = National Toxicology Program.
OSHA = US Occupational Safety and Health Administration.

Reproductive Toxicity

Development of Offspring

Not known to harm the unborn child.

Sexual Function and Fertility

Not known to cause effects on sexual function or fertility.

Effects on or via Lactation

Not known to cause effects on or via lactation.

Germ Cell Mutagenicity

Not known to be a mutagen.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity data based on polymeric MDI (a mixture of monomers and higher molecular weight oligomers).

Acute and Prolonged Toxicity to Fish
LC50: > 500 mg/l (Zebra fish (Brachydanio rerio), 24 h)

Acute Toxicity to Aquatic Invertebrates
EC50: > 500 mg/l (Water flea (Daphnia magna), 24 h).
Acute Toxicity to Aquatic Invertebrates
EC50: 83 mg/l (Daphnia magna (Water flea), 48 h) Studies of a comparable product.

Toxicity to Aquatic Plants
ErC50: > 100 mg/l, (Desmodesmus subspicatus (Green algae),72 h) Studies of a comparable product.

Toxicity to Microorganisms
EC50: > 100 mg/l, (activated sludge, 3 h)

Acute Aquatic Toxicity

Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Methylenediphenyl diisocyanate (mixed isomers)	> 1,000 mg/L (Lepomis macrochirus (bluegill); 96-hour; fresh water; static)			1,640 mg/L (Desmodesmus subspicatus (algae); 72-hour; static)

Persistence and Degradability

Biodegradation:
0 %, Exposure time: 28 d, i.e. not degradable.

Bioaccumulative Potential

This product and its degradation products are not expected to bioaccumulate.

Mobility in Soil

Studies are not available.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

This product and its container must be disposed of as hazardous waste. Do NOT dump into any sewers, on the ground or into any body of water. Empty containers retain product residue. Follow label warnings even if container appears to be empty. The container for this product can present explosion or fire hazards, even when emptied. Do not cut, puncture, or weld on or near this container. Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group

US DOT	UN1993	flammable liquid, n.o.s. (naphtha)	3	III
IMO (Marine)	UN1993	flammable liquid, n.o.s. (naphtha)	3	III
IATA (Air)	UN1993	flammable liquid, n.o.s. (naphtha)	3	III
Canadian TDG	UN1993	flammable liquid, n.o.s. (naphtha)	3	III

Special Precautions Please note: 14475 kg (31912 lb)

Transport in Bulk according to International Maritime Organization Instruments

Not applicable

Other Information Reportable Quantity: 14475 kg (31912 lb)

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

All ingredients are listed on the DSL or are not required to be listed.

CEPA - National Pollutant Release Inventory (NPRI)

Part 1A. (4,4'-Methylenediphenyl diisocyanate) Part 1A. (Methylenediphenyl diisocyanate (mixed isomers)) Part 5. (Light aromatic solvent naphtha)

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

Additional USA Regulatory Lists

US Federal

SARA Title III - Section 302:
This material does not contain any components with a section 302 EHS TPQ.

SARA Title III - Section 311/312:
Acute Health Hazard Chronic Health Hazard Sensitizing material Irritating material

SARA Title III - Section 313. (4,4'-Methylenediphenyl diisocyanate). (Polyisocyanate Prepolymer based on MDI)

Massachusetts Right To Know. (Polyisocyanate Prepolymer based on MDI). (4,4'-Methylenediphenyl diisocyanate). (Methylenediphenyl diisocyanate (mixed isomers))

New Jersey Right To Know. (Polyisocyanate Prepolymer based on MDI). (4,4'-Methylenediphenyl diisocyanate). (Methylenediphenyl diisocyanate (mixed isomers))

Pennsylvania Right To Know. (Polyisocyanate Prepolymer based on MDI). (4,4'-Methylenediphenyl diisocyanate). (Methylenediphenyl diisocyanate (mixed isomers))

California Proposition 65:
To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

SECTION 16. OTHER INFORMATION

NFPA Rating **Health - 2** **Flammability - 2** **Instability - 3**

SDS Prepared By B.E.R

Phone No. (315) 782-3000

Date of Preparation October 19, 2015

Date of Last Revision June 30, 2023

Revision Indicators	Revision 5 Updated: . Toxicological, Ecological, and Exposure Controls/Personal Protection Information C.A.S.# SECTION 15. REGULATORY INFORMATION Other Related Literature; Additional Information; reviewed and approved
Key to Abbreviations	ACGIH® = American Conference of Governmental Industrial Hygienists HSDB® = Hazardous Substances Data Bank IARC = International Agency for Research on Cancer NFPA = National Fire Protection Association NIOSH = National Institute for Occupational Safety and Health NTP = National Toxicology Program OSHA = US Occupational Safety and Health Administration RTECS® = Registry of Toxic Effects of Chemical Substances
References	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA (“BIOVIA”). Available from Canadian Centre for Occupational Health and Safety (CCOHS).
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