POLYMER NATION

Safety Data Sheet
SP-15 Part A

SECTION 1: Identification

1.1 GHS Product identifier

Product name	SP-15 Part A
Product number	E2
Brand	Polymer Nation

1.2 Other means of identification
Epoxy Resin

1.3 Recommended use of the chemical and restrictions on use
100% solids thickened epoxy resin for use in crack fill and patching applications

1.4 Supplier's details

Name	Polymer Nation
Address	405 Oakwood Ave Waukegan IL 60085
Telephone	847-774-5038

1.5 Emergency phone number
800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture
GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)
- Hazardous to the aquatic environment, long-term (chronic), Cat. 2
- Eye damage/irritation, Cat. 2A
- Toxic to reproduction, Cat. 1B
- Skin corrosion/irritation, Cat. 2
- Sensitization, skin, Cat. 1

2.2 GHS label elements, including precautionary statements
Pictograms

Signal word **Danger**

Hazard statement(s)

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H360	May damage fertility or the unborn child [effect, route]
H411	Toxic to aquatic life with long lasting effects

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash … thoroughly after handling.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P321	Specific treatment (see … on this label).
P332+P313	If skin irritation occurs: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

1. EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN), average molecule wei

Concentration	80 - 90 % (weight)
EC no.	500-033-5
CAS no.	25068-38-6
Index no.	603-074-00-8

- Skin corrosion/irritation, Cat. 2
- Eye damage/irritation, Cat. 2A
- Sensitization, skin, Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 2

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H411	Toxic to aquatic life with long lasting effects
SCLs/M-factors/ATEs	Eye Irrit. 2; H319: C ≥ 5% Skin Irrit. 2; H315: C ≥ 5%

2. Alkyl epoxy resin

Concentration	1 - 10 % (weight)
EC no.	271-846-8
CAS no.	68609-97-2
Index no.	603-103-00-4

- Skin corrosion/irritation, Cat. 2
- Sensitization, skin, Cat. 1

H315	Causes skin irritation
H317	May cause an allergic skin reaction

3. Component 3 (trade secret)*

Concentration	1 - 10 % (weight)

- Skin corrosion/irritation, Cat. 2
- Sensitization, skin, Cat. 1

H315	Causes skin irritation
H317	May cause an allergic skin reaction

4. TETRAHYDROFURFURYL ALCOHOL

Concentration	1 - 5 % (weight)
EC no.	202-625-6
CAS no.	97-99-4
Index no.	603-061-00-7

- Toxic to reproduction, Cat. 1B
- Eye damage/irritation, Cat. 2A

H319	Causes serious eye irritation
H360Df	May damage the unborn child. Suspected of damaging fertility.

5. Siloxanes and Silicones, di-Me, reaction products with silica

Concentration	1 - 5 % (weight)
CAS no.	67762-90-7

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
In case of skin contact	Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before

	removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
In case of eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician.
If swallowed	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Personal protective equipment for first-aid responders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of immediate medical attention and special treatment needed, if necessary
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use dry chemical, CO2, alcohol-resistant foam or water spray (fog).

Unsuitable extinguishing media: Do not use water jet

5.2 Specific hazards arising from the chemical
Carbon oxides
carbon dioxide
carbon monoxide
halogenated compounds

In a fire or if heated, a pressure increase will occur and the container may burst.

5.3 Special protective actions for fire-fighters
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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

6.2 Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or
diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an

approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN), average molecule wei (CAS: 25068-38-6 EC: 500-033-5)

2. Alkyl epoxy resin (CAS: 68609-97-2 EC: 271-846-8)

3. TETRAHYDROFURFURYL ALCOHOL (CAS: 97-99-4 EC: 202-625-6)

8.2 Appropriate engineering controls

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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.

Respiratory protection
Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards
No data available

Environmental exposure controls
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	opaque/cloudy
Odor	mild
Odor threshold	ND
Melting point/freezing point	ND
Boiling point or initial boiling point and boiling range	395.6 F/202 C
Flammability	ND
Lower and upper explosion limit/flammability limit	ND
Flash point	485 F/251.6 C
Auto-ignition temperature	ND
Decomposition temperature	ND
pH	ND
Kinematic viscosity	>5000 cP
Solubility	ND
Partition coefficient n-octanol/water (log value)	ND
Vapor pressure	ND
Evaporation rate	ND
Density and/or relative density	1.13
Relative vapor density	ND

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
None under normal use conditions.

10.4 Conditions to avoid
Strong oxidizer

10.5 Incompatible materials

No specific data.

10.6 Hazardous decomposition products
Carbon dioxide, carbon monoxide, oxides of nitrogen, other undetermined compounds

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Alkyl epoxy resin
LD50 Oral - Rat - 1163 mg/kg
LD50 Skin - Rabbit - 1130 mg/kg
LC50 Inhalation - Rat - >11.3 mg/l
EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN)
LD50 Skin - Rat - 2,000 mg/kg
LD50 Oral - Rat - 11,400 mg/kg
TETRAHYDROFURFURYL ALCOHOL
LD50 Oral - Rat - >2000 mg/kg

Siloxanes and Silicones, di-Me, reaction products with silica
LD50 Oral - Rat - >5000 mg/kg
LD50 Skin - Rabbit - >2000 mg/kg
LC50 Inhalation
Remarks: Due to the product's physical characteristics, no suitable testing procedure is available.

Skin corrosion/irritation
EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN),
Rabbit
Result: Score 1.5 - 2
Remarks: Skin - Erythema/Eschar 404
Acute Dermal Irritation/Corrosion
Rabbit
Result: Score 1.0 - 1.5
Remarks: Skin - Edema 404
Acute Dermal Irritation/Corrosion
Rabbit - 24 hrs
Remarks: Skin -Moderate irritant

Serious eye damage/irritation
EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN),
Rabbit
Remarks: eyes - Mild irritant

Respiratory or skin sensitization
Skin sensitizer

In an OECD No. 429 mouse LLNA study the estimated EC3 was a concentration of 5.7% suggesting that BADGE is a moderate skin sensitizer in this test system. In an OECD No. 406 guinea pig Maximization study BADGE induced positive dermal reaction in 100% of the test animals at a 50% concentration challenge dose. Therefore, BADGE is an "Extreme" skin sensitizer under the conditions of this study. BADGE was also positive for skin sensitization in an OECD No. 406 guinea pig Buehler method study.

Germ cell mutagenicity
EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN),

Remarks: Did not induce evidence of chromosome damage in a mouse dominant lethal oral gavage study conducted up to a high dose level of 10 grams/kg and in a mouse micronucleus test conducted up to a high dose of 5000 mg/kg. Negative in a male mouse spermatocyte cytogenetic assay with treatment for 5 days by oral gavage up to a high dose of 3000 mg/kg. Did not induce an increase in the frequency of chromosome damage in a Chinese hamster bone marrow cytogenetic test by oral gavage up to a high dose of 3300 mg/kg. Failed to induce an increase of DNA strand breaks in rat liver cells following oral gavage treatment with 500 mg/kg as measured by alkaline elution.

Carcinogenicity
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity
Based on available data, classification data are not met

Specific target organ toxicity (STOT) - single exposure
No data available

Specific target organ toxicity (STOT) - repeated exposure
Treated Synthetic Amorphous Silica: Repeated dose toxicity: oral (rat) , 5 to 8 weeks, no significant treatment-related adverse effects at doses of up to 2000 mg/kg/d. (ECETOC JACC Report 051- Synthetic Amorphous Silica, September 2006).
Synthetic Amorphous Silica: Repeated dose toxicity: oral (rat), 2 weeks to 6 months, no significant treatment-related adverse effects at doses of up to 8% silica in the diet. Repeated dose toxicity: inhalation (rat), 13 weeks, Lowest Observed Effect Level (LOEL) =1.3mg/m3based on mild reversible effects in the lungs. Repeated dose toxicity: inhalation (rat), 90 days, LOEL = 1 mg/m3 based on reversible effects in the lungs and effects in the nasal cavity. Repeated dose toxicity using SAS 400 m2/g: inhalation (rat), 90 days, fully reversible inflammation related to clearance processes following recovery period. NOAEC (lung) based on histopathology and inflammatory marker is 5 mg/m³

Aspiration hazard
No data available

SECTION 12: Ecological information

Toxicity
EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN), average molecule wei
LC50 - Fish - 1.3 mg/l - 96 h
EC50 - Daphnia magna (water flea) - 2.1 mg/l - 48 h
LC50 - Algae - >11 mg/l - 72 h

Siloxanes and Silicones, di-Me, reaction products with silica
LC50 - Brachydanio rerio (zebrafish) - >10,000 mg/l - 96 hrs

Persistence and degradability
No data available on product

Bioaccumulative potential
EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN),

Remarks: LogPow 2.64 3.78
BCF 3-31 31.00
Potential - low

Mobility in soil
No data available on product.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Packaging disposal
Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Empty containers retain product residue (dust, liquid, vapor and/or gases) and can be dangerous. Do not heat or cut container with electric or gas torch.

SECTION 14: Transport information

DOT (US)
UN Number: UN3082
Class: 9
Packing Group: III
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (EPOXY RESIN)
Reportable quantity (RQ):
Marine pollutant: Yes
Poison inhalation hazard:

IMDG
UN Number: UN3082
Class: 9
Packing Group: III
EMS Number:
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (EPOXY RESIN)

IATA
UN Number: UN3082
Class: 9
Packing Group: III
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (EPOXY RESIN)

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Canadian Domestic Substances List (DSL)
Chemical name: Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane
CAS number: 25068-38-6

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN), average molecule wei
CAS number: 25068-38-6

US EPA TSCA public inventory
Chemical name: EPOXYRESIN, reaction product: BISPHENOL-A(EPICHLOROHYDRIN), average molecule wei
CAS number: 25068-38-6

Canadian Domestic Substances List (DSL)
Chemical name: Oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
CAS number: 68609-97-2

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: Alkyl epoxy resin
CAS number: 68609-97-2

US EPA TSCA public inventory
Chemical name: Alkyl epoxy resin
CAS number: 68609-97-2

Canadian Domestic Substances List (DSL)
Chemical name: Oxirane, 2,2'-[(2,2-dimethyl-1,3-propanediyl)bis(oxymethylene)]bis-
CAS number: 17557-23-2

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: Component 3
CAS number: 17557-23-2

US EPA TSCA public inventory
Chemical name: Component 3
CAS number: 17557-23-2

Pennsylvania Right To Know Components
Chemical name: 2-FURANMETHANOL, TETRAHYDRO-
CAS number: 97-99-4

Canadian Domestic Substances List (DSL)
Chemical name: 2-Furanmethanol, tetrahydro-
CAS number: 97-99-4

EU Cosmetics Prohibited Substances List, (EC) 2009/1223 Annex II
Chemical name/INN: TETRAHYDROFURFURYL ALCOHOL
CAS number: 97-99-4

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: TETRAHYDROFURFURYL ALCOHOL
CAS number: 97-99-4

US EPA TSCA public inventory
Chemical name: TETRAHYDROFURFURYL ALCOHOL
CAS number: 97-99-4

Canadian Domestic Substances List (DSL)
Chemical name: Silica, vitreous
CAS number: 60676-86-0

Canadian Domestic Substances List (DSL)
Chemical name: Siloxanes and Silicones, di-Me, reaction products with silica
CAS number: 67762-90-7

US EPA TSCA public inventory
Chemical name: Siloxanes and Silicones, di-Me, reaction products with silica
CAS number: 67762-90-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: TETRAHYDROFURFURYL ALCOHOL
CAS number: 97-99-4

SECTION 16: Other information

16.1 Further information/disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYMER NATION

Safety Data Sheet
SP-15 Part B

SECTION 1: Identification

1.1 GHS Product identifier

Product name	SP-15 Part B
Product number	H4
Brand	Polymer Nation

1.2 Other means of identification

Epoxy Hardener

1.3 Recommended use of the chemical and restrictions on use

100% solids clear epoxy hardener for use in resinous flooring applications

1.4 Supplier's details

Name	Polymer Nation
Address	405 Oakwood Ave Waukegan IL 60085
Telephone	847-774-5038

1.5 Emergency phone number

800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)

- Acute toxicity, inhalation, Cat. 4
- Acute toxicity, oral, Cat. 4
- Acute toxicity, dermal, Cat. 4
- Eye damage/irritation, Cat. 1
- Sensitization, respiratory, Cat. 1
- Skin corrosion/irritation, Cat. 1B
- Sensitization, skin, Cat. 1
- Specific target organ toxicity (single exposure), Cat. 3
- Specific target organ toxicity (repeated exposure), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 1
- Eye damage/irritation, Cat. 2A
- Toxic to reproduction, Cat. 2
- Skin corrosion/irritation, Cat. 2
- Sensitization, skin, Cat. 1B

2.2 GHS label elements, including precautionary statements

Pictograms

Signal word **Danger**

Hazard statement(s)

H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H361	Suspected of damaging fertility or the unborn child [effect, route]
H372	Causes damage to organs [organs] through prolonged or repeated exposure [route]
H410	Very toxic to aquatic life with long lasting effects

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash … thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER /doctor/...if you feel unwell,
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER/doctor/...
P312	Call a POISON CENTER/doctor/.../ if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment (see … on this label).
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.

P337+P313	If eye irritation persists: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor/...
P362+P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

1. 4-TERT-BUTYL PHENOL

Concentration	25 - 50 % (weight)
EC no.	202-679-0
CAS no.	98-54-4
Index no.	604-090-00-8

- Toxic to reproduction, Cat. 2
- Skin corrosion/irritation, Cat. 2
- Eye damage/irritation, Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 1

H315	Causes skin irritation
H318	Causes serious eye damage
H361f	
H410	Very toxic to aquatic life with long lasting effects
SCLs/M-factors/ATEs	M=1

2. Xylylenediamine

Concentration	20 - 35 % (weight)
EC no.	216-032-5
CAS no.	1477-55-0

3. 1,3-Cyclohexanedimethanamine

Concentration	20 - 35 % (weight)
EC no.	219-941-5
CAS no.	2579-20-6

4. Benzyl alcohol

Concentration	10 - 25 % (weight)
EC no.	202-859-9
CAS no.	100-51-6
Index no.	603-057-00-5

- Acute toxicity, oral, Cat. 4
- Eye damage/irritation, Cat. 2A
- Sensitization, skin, Cat. 1B

H302	Harmful if swallowed
H317	May cause an allergic skin reaction

H319	Causes serious eye irritation
SCLs/M-factors/ATEs	oral: ATE = 1200 mg/kg bw

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	If inhaled, remove to fresh air.
In case of skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. Take victim immediately to hospital.
In case of eye contact	In case of contact, immediately flush eyes with plenty of water for at least 30 minutes. If easy to do, remove contact lens, if worn. Continue rinsing eyes during transport to hospital. Protect unharmed eye. Keep eye wide open while rinsing.
If swallowed	Rinse mouth with water. If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.
Personal protective equipment for first-aid responders	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of immediate medical attention and special treatment needed, if necessary
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical
Burning produces irritant fumes.

Do not allow run-off from fire fighting to enter drains or water courses.

Benzyl alcohol: Carbon oxides

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

Further information
Unsuitable extinguishing media: Do NOT use water jet.

In the event of fire and/or explosion do not breathe fumes.
Prevent fire extinguishing water from contaminating surface water or the ground water system.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Keep people away from and upwind of spill/leak.

6.2 Environmental precautions
Local authorities should be advised if significant spillages cannot be contained.
Do not allow contact with soil, surface or ground water.
Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Wear personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
Use only with adequate ventilation.
Do not breathe vapours/dust.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not
be employed in any process in which this mixture is being used.

7.2 Conditions for safe storage, including any incompatibilities
Store in original container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability: No decomposition if stored and applied as directed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Xylylenediamine (CAS: 1477-55-0)
TWA [m-Xylene-alpha,alpha'-diamine] (Inhalation): 0.1 Peak limitation mg/m3; AU (AU/SWA)
Other advisory: Sk

2. Benzyl alcohol (CAS: 100-51-6 EC: 202-859-9)
TWA: 10 ppm
US WEEL

3. Xylylenediamine (CAS: 1477-55-0)
TWA [m-Xylene-alpha,alpha'-diamine] (Inhalation): 0.1 Peak limitation mg/m3; AU (AU/SWA)
Other advisory: Sk

TWA [m-Xylene-alpha,alpha'-diamine] (Inhalation): 0.1 Peak limitation mg/m3; AU (AU/SWA)
Other advisory: Sk

8.2 Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker
exposure to airborne contaminants below any recommended or statutory limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection
Hand protection : Chemical-resistant, impervious gloves complying with an approved
standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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.

Body protection : 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.

Respiratory protection
Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards
No data available

Environmental exposure controls
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	clear
Color	straw; yellow
Odor	amine
Odor threshold	ND
Melting point/freezing point	ND
Boiling point or initial boiling point and boiling range	ND
Flammability	ND
Lower and upper explosion limit/flammability limit	ND
Flash point	> 201 F/> 94 C
Auto-ignition temperature	ND
Decomposition temperature	ND
pH	ND
Kinematic viscosity	< 200 cP @ 72 F
Solubility	water - negligible
Partition coefficient n-octanol/water (log value)	ND
Vapor pressure	ND
Evaporation rate	ND
Density and/or relative density	1.02 g/cm3
Relative vapor density	ND

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
None under normal use conditions.

10.4 Conditions to avoid
Strong oxidizer

10.5 Incompatible materials
No specific data.

Benzyl alcohol: Strong oxidizing agents

10.6 Hazardous decomposition products
Carbon dioxide, carbon monoxide, oxides of nitrogen, other undetermined compounds

---
Benzyl alcohol: Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
1,3-Cyclohexanedimethanamine
LD50 Oral - > 300 mg/kg
LD50 Skin - 1700 mg/kg
LC50 Inhalation - > 20 mg/l
4-TERT-BUTYL PHENOL
LD50 Oral - 3250 mg/kg
LD50 Skin - 2520 mg/kg
LC50 Inhalation - > 20 mg/l
Benzyl alcohol
LD50 Oral - Rat - 1,230 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Excitement. Behavioral:Coma.
OECD Test Guideline 404 Skin - Rabbit - 24 h
Result: No skin irritation
LD50 Oral - Rat - 1,620 mg/kg
Xylylenediamine
LD50 Oral - 930
LD50 Skin - > 2000 mg/kg
LC50 Inhalation - > 10 mg/l

Skin corrosion/irritation
Irritating to skin.

Causes severe skin burns.

May cause skin irritation.

Serious eye damage/irritation
Risk of serious damage to eyes.

Causes eye irritation.

Causes serious eye irritation.

Respiratory or skin sensitization
May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

Germ cell mutagenicity
No data available

Carcinogenicity
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity
May damage fertility or the unborn child

Specific target organ toxicity (STOT) - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity (STOT) - repeated exposure
May cause damage to organs through prolonged or repeated exposure

Aspiration hazard
May be harmful if swallowed and enters airways

SECTION 12: Ecological information

Toxicity
Benzyl alcohol
LC50 - Lepomis macrochirus (bluegill) - 10 mg/l - 96 h
LC50 - Pimephales promelas (fathead minnow) - 460 mg/l - 96 h
EC50 - Daphnia magna (water flea) - 55 mg/l - 24 h
LC50 Percutaneous - Lepomis macrochirus (Bluegill) - 10 mg/l - 96 h
LC50 Percutaneous - Pimephales promelas (fathead minnow) - 460 mg/l - 96 h

4-TERT-BUTYL PHENOL
LC50 - Pimephales promelas (fathead minnow) - 4.71-5.62 mg/l - 96 h

Persistence and degradability
Benzyl alcohol
Biotic/Aerobic - Exposure time 28 d
Result: Result: 92 - 96 % - Readily biodegradable
Aerobic Biochemical oxygen demand - Exposure time 7 d
Result: Result: 92 - 96 % - Readily biodegradable
(OECD Test Guideline 301C)

Bioaccumulative potential
4-TERT-BUTYL PHENOL
Pseudokirchneriella subcapitata (green algae)
Result: Bioconcentration factor (BCF): 34 (static)

Other adverse effects
Toxic to aquatic organisms

SECTION 13: Disposal considerations

Disposal methods

Product disposal
The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Packaging disposal
Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Empty containers retain product residue (dust, liquid, vapor and/or gases) and can be dangerous. Do not heat or cut container with electric or gas torch.

SECTION 14: Transport information

DOT (US)
UN Number: UN2735
Class: 8
Packing Group: II
Proper Shipping Name: Amines, liquid, corrosive, n.o.s. (1,3-Cyclohexanedimethanamine)
Reportable quantity (RQ):
Marine pollutant: no
Poison inhalation hazard:

IMDG
UN Number: UN2735
Class: 8
Packing Group: II
EMS Number:
Proper Shipping Name: Amines, liquid, corrosive, n.o.s. (1,3-Cyclohexanedimethanamine)

IATA
UN Number: UN2735
Class: 8
Packing Group: II
Proper Shipping Name: Amines, liquid, corrosive, n.o.s. (1,3-Cyclohexanedimethanamine)

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Pennsylvania Right To Know Components
Chemical name: BENZENEMETHANOL
CAS number: 100-51-6

Canadian Domestic Substances List (DSL)
Chemical name: Benzenemethanol
CAS number: 100-51-6

Water hazard class (WGK, Germany)
Chemical name: Benzyl alcohol, CAS number: 100-51-6
WGK hazard class: WGK 1 - Slightly hazardous to water

EU Cosmetics Allowed preservatives List, (EC) 2009/1223 Annex V
Chemical name: Benzyl alcohol
CAS number: 100-51-6

EU Cosmetics Restricted Substances List, (EC) 2009/1223 Annex III
Chemical name/INN: Benzyl alcohol
CAS number: 100-51-6

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: Benzyl alcohol
CAS number: 100-51-6

US EPA TSCA public inventory
Chemical name: Benzyl alcohol
CAS number: 100-51-6

Canadian Domestic Substances List (DSL)
Chemical name: Phenol, 4-(1,1-dimethylethyl)-
CAS number: 98-54-4

EU Cosmetics Prohibited Substances List, (EC) 2009/1223 Annex II
Chemical name/INN: 4-TERT-BUTYL PHENOL
CAS number: 98-54-4

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: 4-TERT-BUTYL PHENOL
CAS number: 98-54-4

EU SVHC Candidate List for Authorisation
Chemical name: 4-TERT-BUTYL PHENOL
CAS number: 98-54-4

US EPA TSCA public inventory
Chemical name: 4-TERT-BUTYL PHENOL
CAS number: 98-54-4

Water hazard class (WGK, Germany)
Chemical name: 4-TERT-BUTYL PHENOL, CAS number: 98-54-4
WGK hazard class: WGK 3 - Extremely hazardous to water

New Jersey Right To Know Components
Common name: m-XYLENE alpha, alpha'-DIAMINE
CAS number: 1477-55-0

Pennsylvania Right To Know Components
Chemical name: 1,3-BENZENEDIMETHANAMINE
CAS number: 1477-55-0

Canadian Domestic Substances List (DSL)
Chemical name: 1,3-Benzenedimethanamine
CAS number: 1477-55-0

US EPA TSCA public inventory
Chemical name: Xylylenediamine
CAS number: 1477-55-0

Water hazard class (WGK, Germany)
Chemical name: Xylylenediamine, CAS number: 1477-55-0
WGK hazard class: WGK 2 - Hazardous to water

Canadian Domestic Substances List (DSL)
Chemical name: 1,3-Cyclohexanedimethanamine
CAS number: 2579-20-6

US EPA TSCA public inventory
Chemical name: 1,3-Cyclohexanedimethanamine
CAS number: 2579-20-6

Water hazard class (WGK, Germany)
Chemical name: 1,3-Cyclohexanedimethanamine, CAS number: 2579-20-6
WGK hazard class: WGK 2 - Hazardous to water

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: MXDA
CAS number: 1477-55-0

SARA 302 Components
No chemicals in this material [Benzyl alcohol] are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material [Benzyl alcohol] does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard for: Benzyl alcohol.

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: BENZYL ALCOHOL
CAS number: (none)

SECTION 16: Other information

16.1 Further information/disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYMER NATION

Safety Data Sheet
F-52 SL 28, SL 36, TD, D Part A

SECTION 1: Identification

1.1 GHS Product identifier

Product name	F-52 SL 28, SL 36, TD, D Part A
Product number	U2
Brand	Polymer Nation

1.2 Other means of identification
Polyol emulsion

1.3 Recommended use of the chemical and restrictions on use
Resin component for urethane concrete; for use in resinous flooring applications

1.4 Supplier's details

Name	Polymer Nation
Address	405 Oakwood Ave Waukegan IL 60085
Telephone	847-774-5038

1.5 Emergency phone number

800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)

Not a hazardous substance or mixture.

2.2 GHS label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Other hazards which do not result in classification

Not a hazardous substance or mixture.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

1. Component 1 (trade secret)*

Concentration	60 - 75 % (weight), Trade secret

2. Water

Concentration	25 - 40 % (weight)
EC no.	231-791-2
CAS no.	7732-18-5

Trade secret statement (OSHA 1910.1200(i))
*The specific chemical identities and/or actual concentrations or actual concentration ranges for one or more listed components are being withheld as trade secrets under the US regulation 29 CFR 1910.1200(i).

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	If symptoms are experienced remove source of contamination or move victim to fresh air and seek medical attention.
In case of skin contact	If irritation does occur, flush with lukewarm, gently flowing water for 5 minutes. Get medical attention if irritation develops or persists.
In case of eye contact	Quickly and gently blot or brush chemical off the face. Flush the contaminated eye with lukewarm, gently flowing water for 5 minutes. Get medical attention if irritation persists.
If swallowed	If irritation or discomfort occurs, seek medical attention.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No data available

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Carbon dioxide alcohol foam water spray

5.2 Specific hazards arising from the chemical
Unusual Fire and Explosion Hazards: Irritating and/or toxic fumes may be released if this material is burned.

Castor oil: Carbon oxides

5.3 Special protective actions for fire-fighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Evacuate area and fight fire from a safe distance. Chemical can burn in fire, releasing toxic vapors.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in section 4. Leather shoes that have been saturated must be discarded.

6.2 Environmental precautions
Prevent releases to soils, drains, sewers, and waterways.

6.3 Methods and materials for containment and cleaning up
Ensure clean-up measures are in compliance with OSHA (29 CFR 1910.120).

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Wear appropriate protective equipment when performing maintenance on contaiminated equipment. Wash hands thoroughly before eating or smoking after handling this material.

7.2 Conditions for safe storage, including any incompatibilities
Incompatible materials: Acids, alkalies, oxidizing agents.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Component 1 (trade secret)*
REL-TWA: 10 mg/m3 (Total); US (NIOSH)

REL-TWA: 5 mg/m3 (Resp); US (NIOSH)

8.2 Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	milky emulsion
Odor	mild
Odor threshold	ND
Melting point/freezing point	ND
Boiling point or initial boiling point and boiling range	ND
Flammability	ND
Lower and upper explosion limit/flammability limit	ND
Flash point	216 C/420 F
Auto-ignition temperature	ND
Decomposition temperature	ND
pH	ND
Kinematic viscosity	250-500 cP
Solubility	water
Partition coefficient n-octanol/water (log value)	ND
Vapor pressure	ND
Evaporation rate	ND
Density and/or relative density	0.99
Relative vapor density	ND

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions
None expected to occur.

10.4 Conditions to avoid

Keep from contact with oxidizing materials, acids, sparks, and open flame.

10.5 Incompatible materials
Acids, alkalies, oxidizing agents.

Castor oil: Strong oxidizing agents

10.6 Hazardous decomposition products
Products of incomplete combustion may include CO, CO2 and dense smoke.

Water: In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - >599 mg/kg

Skin corrosion/irritation
Prolonged or repeated contact may cause irritation.

Serious eye damage/irritation
Prolonged or repeated contact may cause irritation.

Respiratory or skin sensitization
Not expected to be a skin or respiratory sensitizer.

Germ cell mutagenicity
Not available

Carcinogenicity
Not available

Reproductive toxicity
Not available

Specific target organ toxicity (STOT) - single exposure
No data available

Specific target organ toxicity (STOT) - repeated exposure
No data available

Aspiration hazard
May be harmful if swallowed and enters airways

SECTION 12: Ecological information

Toxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Results of PBT and vPvB assessment
No data available

Endocrine disrupting properties
No data available

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Packaging disposal
Containers that are empty as defined by RCRA (40 CFR part 261.7), may retain product residue; observe all precautions for product.

Waste treatment
Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Canadian Domestic Substances List (DSL)
Chemical name: Water
CAS number: 7732-18-5

US EPA TSCA public inventory
Chemical name: Water
CAS number: 7732-18-5

SARA 302 Components
No chemicals in this material [Water] are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material [Water] does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards for: Water.

SECTION 16: Other information

16.1 Further information/disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYMER NATION

Safety Data Sheet
F-52 SL 28, SL 36, TD, D Part B

SECTION 1: Identification

1.1 GHS Product identifier

Product name	F-52 SL 28, SL 36, TD, D Part B
Product number	ISO3
Brand	Polymer Nation

1.2 Other means of identification
Isocyanate Hardener

1.3 Recommended use of the chemical and restrictions on use
Hardener component for urethane concrete; for use in resinous flooring applications

1.4 Supplier's details

Name	Polymer Nation
Address	405 Oakwood Ave Waukegan IL 60085
Telephone	847-774-5038

1.5 Emergency phone number
800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture
GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)
- Acute toxicity, inhalation, Cat. 4
- Carcinogenicity, Cat. 2
- Specific target organ toxicity (repeated exposure), Cat. 2
- Eye damage/irritation, Cat. 2A
- Sensitization, respiratory, Cat. 1
- Skin corrosion/irritation, Cat. 2
- Sensitization, skin, Cat. 1
- Specific target organ toxicity (single exposure), Cat. 3

2.2 GHS label elements, including precautionary statements
Pictograms

Signal word **Danger**

Hazard statement(s)

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H351	Suspected of causing cancer [route]
H373	May cause damage to organs [organs] through prolonged or repeated exposure [route]

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash … thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P284	[In case of inadequate ventilation] wear respiratory protection.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P312	Call a POISON CENTER/doctor/.../ if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment (see … on this label).
P332+P313	If skin irritation occurs: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor/...
P362+P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

3.1 Substances

Hazardous components

1. 4,4’ Diphenylmethanediisocyanate, isomere, homologe and mixtures (pMDI)

Concentration	25 - 50 % (weight)
EC no.	618-498-9
CAS no.	9016-87-9

2. 4,4'-Diphenylmethane diisocyanate

Concentration	50 - 75 % (weight)

EC no.	202-966-0
CAS no.	101-68-8
Index no.	615-005-00-9

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	Move to an area free from further exposure. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.
In case of skin contact	If direct skin contact with isocyanates occurs, immediately remove contaminated clothing and shoes. Wipe off the isocyanate product from the skin using dry towels or other similar absorbent fabric. If readily available, apply a polyglycol-based cleanser (e.g. SKC, Inc. (SKC) D-TAM™ Skin Cleanser) or corn oil. Wash with soap and warm water and pat dry. If a polyglycol-based cleanser is not available, wash with soap and warm water for 15 minutes. If available, use a wipe test pad to verify decontamination is complete (e.g. SKC SWYPE™). Get medical attention if irritation develops. Discard or wash contaminated clothing before reuse.
In case of eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.
If swallowed	Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

4.2 Most important symptoms/effects, acute and delayed

Acute: Isocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines 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.
May cause skin irritation with symptoms of reddening, itching, and swelling. Can cause sensitization. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching,

swelling, and rash. Cured material is difficult to remove.
May cause 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.
May cause irritation of the digestive tract; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.
Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

4.3 Indication of immediate medical attention and special treatment needed, if necessary
Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.
Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.
Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound.
Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to
any diisocyanate.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Dry chemical, Carbon dioxide (CO2), Foam, water spray for large fires

5.2 Specific hazards arising from the chemical
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

5.3 Special protective actions for fire-fighters
Unsuitable Extinguishing Media: High volume water jet

Fire Fighting Procedure
Firefighters should wear NFPA compliant structural firefighting protective equipment, including selfcontained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear necessary personal protective equipment (PPE) as specified in the SDS or the site emergency response plan. Ventilate and remove ignition sources.

Implement site emergency response plan. Evacuate non-emergency personnel. The magnitude of the evacuation depends upon the quantity released, site conditions, and the ambient temperature. Isolate the area and prevent access of unauthorized personnel. Notify management.

6.3 Methods and materials for containment and cleaning up
Control the source of the leak. Contain the released material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc…). Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid

on the container. Repeat application of absorbent material until all liquid has been removed from the surface. For spills involving a solid product, remove mechanically (sweep up, vacuum, shovel etc.) and collect and place into an approved metal container.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

7.2 Conditions for safe storage, including any incompatibilities

Store separate from food products.
Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Substances to Avoid
Water, Amines, Strong bases, Alcohols, Copper alloys

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. 4,4'-Diphenylmethane diisocyanate (CAS: 101-68-8)
TWA [Methylene bisphenyl isocyanate (MDI)] (Inhalation): See Isocyanates, all ppm; AU (AU/SWA)
Advisory carc cat: Carc. 2; Other advisory: Sen

PEL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): (C) 0.02 ppm; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): (C) 0.2 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): 0.005 ppm; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): 0.05 mg/m3, (C) 0.2 mg/m3 [10-min]; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

TWA [Methylene bisphenyl isocyanate (MDI)] (Inhalation): See Isocyanates, all ppm; AU (AU/SWA)
Advisory carc cat: Carc. 2; Other advisory: Sen

PEL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): (C) 0.02 ppm; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): (C) 0.2 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): 0.005 ppm; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Methylene bisphenyl isocyanate (MDI)] (Inhalation): 0.05 mg/m3, (C) 0.2 mg/m3 [10-min]; US (NIOSH) OSHA Annotated Table Z-1, www.osha.gov

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	light brown
Color	amber
Odor	faint aromatic odor
Odor threshold	ND
Melting point/freezing point	ND
Boiling point or initial boiling point and boiling range	200 C
Flammability	ND
Lower and upper explosion limit/flammability limit	ND
Flash point	approximately 200 C
Auto-ignition temperature	ND
Decomposition temperature	ND
pH	ND
Kinematic viscosity	100-500 cP
Solubility	water; reactive
Partition coefficient n-octanol/water (log value)	ND
Vapor pressure	ND
Evaporation rate	ND
Density and/or relative density	1.23
Relative vapor density	ND

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions
Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization, Moisture (water and high humidity) or high heat (temperatures greater than 350 F (177C)) can cause pressure build-up with possible explosive rupture.

10.4 Conditions to avoid
Heat, flames and sparks. Protect from freezing.

10.5 Incompatible materials
Water, Amines, Strong bases, Alcohols, Copper alloys

4,4’ Diphenylmethanediisocyanate, isomere, homologe and mixtures (pMDI): Bases, Strong oxidizing agents, Alcohols

10.6 Hazardous decomposition products
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Assessment of acute toxicity: Inhalation of vapors may cause irritation of the mucous membranes of the nose, throat or
trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function. Inhalation exposure well
above the PEL may result additionally in eye irritation, headache, chemical bronchitis, asthma-like findings or pulmonary
edema. Isocyanates have also been reported to cause hypersensitivity pneumonitis, which is characterized by flu-like
symptoms, the onset of which may be delayed

Information on: Diphenylmethane-4,4'-diisocyanate (MDI)
LD50 Oral Rat (male/female) > 2,000 mg/kg (Directive 84/449/EEC, B.1)
LC50 rat (male/female) 2.0 mg/l (OECD Guideline 403). An aerosol was tested.
LD50 rabbit (male/female) > 9,400 mg/kg

Skin corrosion/irritation
Skin Corrosion/Irritation (Rabbit, Draize Test): Irritating

Serious eye damage/irritation
Eye Corrosion/Irritation (Rabbit, Draize Test): Irritating.

Respiratory or skin sensitization

Buehler test (guinea pig): Sensitizing
Local Lymph Node Assay (Mouse, LLNA): Sensitizing. Can cause skin sensitization.
Skin Corrosion/Irritation (Guinea Pig): Sensitizing. Note: Studies in animals suggest that dermal exposure may lead to
pulmonary sensitization. However, the relevance of this result for humans is unclear.

Germ cell mutagenicity
Assessment of mutagenicity: The substance was mutagenic in various bacterial test systems; however, these results
could not be confirmed in tests with mammals.
Information on Diphenylmethane-4,4'-diisocyanate (MDI):
Genetic toxicity in vitro: OECD Guideline 471 Ames-test Salmonella typhimurium: with and without metabolic activation, ambiguous.

Carcinogenicity
Assessment of carcinogenicity: A carcinogenic potential cannot be excluded after prolonged exposure to severely irritating concentrations. These effects are not relevant to humans at occupational levels of exposure.
Experimental/calculated data: OECD Guideline 453 rat Inhalation 0, 0.2, 1, 6 mg/m3. Result: Lung tumors

Reproductive toxicity
Assessment of reproduction toxicity: Repeated inhalative uptake of the substance did not cause damage to the reproductive organs.

Specific target organ toxicity (STOT) - single exposure
Assessment of STOT single: Causes temporary irritation of the respiratory tract.

Specific target organ toxicity (STOT) - repeated exposure
No data available

Aspiration hazard
May be harmful if swallowed and enters airways

SECTION 12: Ecological information

Toxicity
Assessment of aquatic toxicity: There is a high probability that the product is not acutely harmful to aquatic organisms.
The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment
plants in appropriate low concentrations. Based on long-term (chronic) toxicity study data, the product is very likely not
harmful to aquatic organisms.
The product may hydrolyze. The test result may be partially due to degradation products. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.
Toxicity to fish
LC0 (96 h) > 1,000 mg/l, Brachydanio rerio (OECD Guideline 203, static)
Aquatic invertebrates
EC50 (24 h) > 1,000 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)
Aquatic plants
EC0 (72 h) 1,640 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static)

Persistence and degradability
Assessment biodegradation and elimination (H2O): Not readily biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.

Bioaccumulative potential
Assessment of bioaccumulation potential: Significant accumulation in organisms is not to be expected.
Bioconcentration
factor: 200 (28 d), Cyprinus carpio (OECD Guideline 305 E).

Mobility in soil
Assessment of transport between environmental compartments: The substance will not evaporate into the atmosphere
from the water surface. Adsorption to solid soil phase is not expected.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Packaging disposal
Containers that are empty as defined by RCRA (40 CFR part 261.7), may retain product residue; observe all precautions for product. Do not grind, torch cut, weld or heat an empty container that once held an isocyanate-containing product; highly toxic vapors or gases are formed.

Waste treatment
Incinerate or dispose of in a licensed facility. Do not discharge substance/product into
sewer system.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

New Jersey Right To Know Components
Common name: METHYLENE DIPHENYL DIISOCYANATE (POLYMERIC)
CAS number: 9016-87-9

Canadian Domestic Substances List (DSL)
Chemical name: Isocyanic acid, polymethylenepolyphenylene ester
CAS number: 9016-87-9

US EPA TSCA public inventory
Chemical name: 4,4’ Diphenylmethanediisocyanate, isomere, homologe and mixtures (pMDI)
CAS number: 9016-87-9

Canadian Domestic Substances List (DSL)
Chemical name: Benzene, 1,1'-methylenebis[4-isocyanato-
CAS number: 101-68-8

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: 4,4'-Diphenylmethane diisocyanate
CAS number: 101-68-8

US EPA TSCA public inventory
Chemical name: 4,4'-Diphenylmethane diisocyanate
CAS number: 101-68-8

Massachusetts Toxic Use Reduction Act (TURA) list
Chemical name: Polymeric diphenylmethane diisocyanate
CAS number: 9016-87-9

Pennsylvania Right To Know Components
Chemical name: BENZENE, 1,1'-METHYLENEBIS[4-ISOCYANATO-
CAS number: 101-68-8

New Jersey Right To Know Components
Common name: METHYLENE BISPHENYL ISOCYANATE
CAS number: 101-68-8

Massachusetts Toxic Use Reduction Act (TURA) list
Chemical name: MDI
CAS number: 101-68-8

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: DIPHENYLMETHANE DIISOCYANATE
CAS number: 101-68-8

SECTION 16: Other information

16.1 Further information/disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYMER NATION

Safety Data Sheet
F-52 SL 28, SL 36, TD, D Part C

SECTION 1: Identification

1.1 GHS Product identifier

Product name	F-52 SL 28, SL 36, TD, D Part C
Product number	SL 28, SL 36, TD, D Agg
Brand	Polymer Nation

1.2 Other means of identification
Solid Aggregate

1.3 Recommended use of the chemical and restrictions on use
Aggregate component for urethane concrete; for use in resinous flooring applications

1.4 Supplier's details

Name	Polymer Nation
Address	405 Oakwood Ave Waukegan IL 60085
Telephone	847-774-5038

1.5 Emergency phone number
800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)

- Carcinogenicity, Cat. 1A
- Specific target organ toxicity (repeated exposure), Cat. 1

2.2 GHS label elements, including precautionary statements

Pictograms

Signal word **Danger**

Hazard statement(s)

H350	May cause cancer [route]
H372	Causes damage to organs [organs] through prolonged or repeated exposure [route]

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash … thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P314	Get medical advice/attention if you feel unwell.
P405	Store locked up.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

1. Silica, crystalline

Concentration	25 - 85 % (weight)
EC no.	238-878-4
CAS no.	14808-60-7

- Carcinogenicity, Cat. 1A
- Specific target organ toxicity (repeated exposure), Cat. 1

2. Cement, portland, chemicals

Concentration	15 - 65 % (weight)
EC no.	266-043-4
CAS no.	65997-15-1

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H335	May cause respiratory irritation
H350	May cause cancer [route]
H372	Causes damage to organs [organs] through prolonged or repeated exposure [route]

3. Calcium hydroxide

Concentration	1 - 5 % (weight)
EC no.	215-137-3
CAS no.	1305-62-0

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	Remove to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, give artificial ventilation. Get medical attention if irritation persists.
In case of skin contact	Remove contaminated clothing and launder before reuse. Wash skin with a cool water and pHneutral soap. Get medical attention if irritation develops or persists.
In case of eye contact	Immediately flush eyes with large quantities of water for at least 15 minutes, holding the eyelids apart. Get immediate medical attention.
If swallowed	If swallowed, drink 1 or 2 glasses of water to dilute. Never give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

4.2 Most important symptoms/effects, acute and delayed

Dust may cause eye and skin irritation or burns. Wet cement may cause eye and skin damage. May cause skin sensitization. Inhalation of dust may cause mucous membrane and respiratory irritation. Prolonged overexposure to respirable crystalline silica may cause lung disease (silicosis) and increase the risk of lung cancer. Risk of cancer depends on duration and level of exposure

4.3 Indication of immediate medical attention and special treatment needed, if necessary

If eye or skin burns occur, get immediate medical attention. For ingestion, get immediate medical attention.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Use media appropriate to the surrounding fire

5.2 Specific hazards arising from the chemical

None known

5.3 Special protective actions for fire-fighters

Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate protective clothing as described in Section 8.

6.2 Environmental precautions

Report releases as required by local and federal authorities.

6.3 Methods and materials for containment and cleaning up

Collect using dustless method and place in appropriate container for use or disposal. Do not use compressed air.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with the eyes and skin. Do not breathe dust. Wear protective clothing and equipment as described in Section 8. Use with adequate ventilation and proper dust collection methods to keep exposure level below occupational exposure limits. Wash thoroughly with soap and water after use.
Empty containers retain product residues. Follow all SDS precautions in handling empty containers.

7.2 Conditions for safe storage, including any incompatibilities

Keep dry until ready to use. Store in a cool, dry, well ventilated area away from incompatible materials. Protect from physical damage.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Silica, crystalline (CAS: 14808-60-7)
TWA [Quartz (respirable dust)] (Inhalation): 0.05 mg/m3; AU (AU/SWA)
Advisory carc cat: Carc. 1A; Other advisory: - ; Notes: See Silica - Crystalline

PEL [Quartz: see 1910.1053(m)] (Inhalation): 0.05 mg/m3, (See Sections 1532.3 & 5204); US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Quartz: see 1910.1053(m)] (Inhalation): Ca, 0.05 mg/m3, See Appendix A; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

2. Calcium hydroxide (CAS: 1305-62-0)
TWA (Inhalation): 5 mg/m3; AU (AU/SWA)

IOELV-LTEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 1 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

IOELV-STEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 4 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

PEL [Calcium hydroxide -Total dust] (Inhalation): 15 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Respirable fraction] (Inhalation): 5 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

3. Silica, crystalline (CAS: 14808-60-7)
TWA [Quartz (respirable dust)] (Inhalation): 0.05 mg/m3; AU (AU/SWA)
Advisory carc cat: Carc. 1A; Other advisory: - ; Notes: See Silica - Crystalline

PEL [Quartz: see 1910.1053(m)] (Inhalation): 0.05 mg/m3, (See Sections 1532.3 & 5204); US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Quartz: see 1910.1053(m)] (Inhalation): Ca, 0.05 mg/m3, See Appendix A; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

4. Calcium hydroxide (CAS: 1305-62-0 EC: 215-137-3)
IOELV-LTEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 1 mg/m3; EU (EU/OSHA)

List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

IOELV-STEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 4 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

PEL [Calcium hydroxide -Total dust] (Inhalation): 15 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Respirable fraction] (Inhalation): 5 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

5. Silica, crystalline (CAS: 14808-60-7)
TWA [Quartz (respirable dust)] (Inhalation): 0.05 mg/m3; AU (AU/SWA)
Advisory carc cat: Carc. 1A; Other advisory: - ; Notes: See Silica - Crystalline

PEL [Quartz: see 1910.1053(m)] (Inhalation): 0.05 mg/m3, (See Sections 1532.3 & 5204); US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Quartz: see 1910.1053(m)] (Inhalation): Ca, 0.05 mg/m3, See Appendix A; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

6. Calcium hydroxide (CAS: 1305-62-0 EC: 215-137-3)
IOELV-LTEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 1 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

IOELV-STEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 4 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

PEL [Calcium hydroxide -Total dust] (Inhalation): 15 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Respirable fraction] (Inhalation): 5 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

7. Silica, crystalline (CAS: 14808-60-7)
TWA [Quartz (respirable dust)] (Inhalation): 0.05 mg/m3; AU (AU/SWA)
Advisory carc cat: Carc. 1A; Other advisory: - ; Notes: See Silica - Crystalline

PEL [Quartz: see 1910.1053(m)] (Inhalation): 0.05 mg/m3, (See Sections 1532.3 & 5204); US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Quartz: see 1910.1053(m)] (Inhalation): Ca, 0.05 mg/m3, See Appendix A; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

8. Calcium hydroxide (CAS: 1305-62-0 EC: 215-137-3)
IOELV-LTEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 1 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

IOELV-STEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 4 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

PEL [Calcium hydroxide -Total dust] (Inhalation): 15 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Respirable fraction] (Inhalation): 5 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

9. Silica, crystalline (CAS: 14808-60-7)
TWA [Quartz (respirable dust)] (Inhalation): 0.05 mg/m3; AU (AU/SWA)
Advisory carc cat: Carc. 1A; Other advisory: - ; Notes: See Silica - Crystalline

PEL [Quartz: see 1910.1053(m)] (Inhalation): 0.05 mg/m3, (See Sections 1532.3 & 5204); US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Quartz: see 1910.1053(m)] (Inhalation): Ca, 0.05 mg/m3, See Appendix A; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

10. Calcium hydroxide (CAS: 1305-62-0 EC: 215-137-3)
IOELV-LTEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 1 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

IOELV-STEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 4 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

PEL [Calcium hydroxide -Total dust] (Inhalation): 15 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Respirable fraction] (Inhalation): 5 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

11. Cement, portland, chemicals (CAS: 65997-15-1)
TWA [Portland cement] (Inhalation): 10 mg/m3; AU (AU/SWA)
Notes: (a)

12. Silica, crystalline (CAS: 14808-60-7)
TWA [Quartz (respirable dust)] (Inhalation): 0.05 mg/m3; AU (AU/SWA)
Advisory carc cat: Carc. 1A; Other advisory: - ; Notes: See Silica - Crystalline

PEL [Quartz: see 1910.1053(m)] (Inhalation): 0.05 mg/m3, (See Sections 1532.3 & 5204); US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Quartz: see 1910.1053(m)] (Inhalation): Ca, 0.05 mg/m3, See Appendix A; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

13. Calcium hydroxide (CAS: 1305-62-0 EC: 215-137-3)
IOELV-LTEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 1 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

IOELV-STEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 4 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

PEL [Calcium hydroxide -Total dust] (Inhalation): 15 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Respirable fraction] (Inhalation): 5 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

14. Silica, crystalline (CAS: 14808-60-7)
TWA [Quartz (respirable dust)] (Inhalation): 0.05 mg/m3; AU (AU/SWA)
Advisory carc cat: Carc. 1A; Other advisory: - ; Notes: See Silica - Crystalline

PEL [Quartz: see 1910.1053(m)] (Inhalation): 0.05 mg/m3, (See Sections 1532.3 & 5204); US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Quartz: see 1910.1053(m)] (Inhalation): Ca, 0.05 mg/m3, See Appendix A; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

15. Calcium hydroxide (CAS: 1305-62-0 EC: 215-137-3)
IOELV-LTEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 1 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

IOELV-STEL [Calcium dihydroxide, Respirable fraction] (Inhalation): 4 mg/m3; EU (EU/OSHA)
List no. 4 under Council Directive 98/24/EC as amended. List last updated on 8/25/2023.

PEL [Calcium hydroxide -Total dust] (Inhalation): 15 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

REL [Calcium hydroxide -Total dust] (Inhalation): 5 mg/m3; US (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

PEL [Calcium hydroxide -Respirable fraction] (Inhalation): 5 mg/m3; US (US/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

8.2 Appropriate engineering controls

Use with adequate general or local exhaust ventilation to maintain exposures below the occupational exposure limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Chemical safety goggles are recommended to prevent eye contact.

Skin protection
Alkali/abrasive resistant gloves are recommended to prevent skin contact.

Respiratory protection
If the exposure limits are exceeded a NIOSH approved particulate respirator appropriate for the form and concentration of the contaminants should be used. Selection and use of respiratory equipment must be in accordance with OSHA 1910.134 or other applicable regulations and good industrial hygiene practice.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Solid
Appearance	granular solid
Odor	none

Odor threshold	ND
Melting point/freezing point	ND
Boiling point or initial boiling point and boiling range	2204 C /4000F
Flammability	not flammable or combustible
Lower and upper explosion limit/flammability limit	ND
Flash point	not flammable
Auto-ignition temperature	ND
Decomposition temperature	ND
pH	ND
Kinematic viscosity	ND
Solubility	Insoluble
Partition coefficient n-octanol/water (log value)	ND
Vapor pressure	ND
Evaporation rate	ND
Density and/or relative density	> 1.0
Relative vapor density	ND

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions
Crystalline silica will dissolve in hydrofluoric acid and produce silicone tetrafluoride.

10.4 Conditions to avoid
Unintentional contact with water will result in hydration and produce caustic calcium hydroxide.

10.5 Incompatible materials
Avoid contact with hydrofluoric acid and oxidizing agents.

10.6 Hazardous decomposition products
None known.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Portland Cement: No toxicity data available
Crystalline Silica, Quartz: Oral rat LD50 >22,500 mg/kg
Calcium Hydroxide: Oral rat LD50 > 2000 mg/kg; Dermal rabbit LD50 > 2500 mg/kg

Skin corrosion/irritation
Contact with dry powder may cause drying of the skin and mild irritation. May cause mechanical irritation. Contact with wet cement may cause irritation with thickening, cracking and fissuring of the skin. Prolonged contact may cause skin burns. May cause allergic skin reaction.

Serious eye damage/irritation

Dust may cause irritation or redness with inflammation of the cornea. May cause mechanical irritation. Direct contact with wet cement or large amounts of dry powder may cause irritation or burns with possible blindness.

Respiratory or skin sensitization
Inhalation of dust may cause irritation to the nose, throat and upper respiratory tract with coughing and shortness of breath.

Germ cell mutagenicity
None of the components greater than 0.1% have been shown to cause germ cell mutagenicity.

Carcinogenicity
Crystalline silica quartz is listed as “Carcinogenic to Humans” (Group 1) by IARC and “Known to be a Human Carcinogen" by NTP. None of the other components are listed as a carcinogen by IARC, NTP, ACGIH or OSHA.

Reproductive toxicity
None of the components greater than 0.1% have been shown to cause reproductive or developmental toxicity.

Specific target organ toxicity (STOT) - single exposure
No data available

Specific target organ toxicity (STOT) - repeated exposure
No data available

Aspiration hazard
May be harmful if swallowed and enters airways

SECTION 12: Ecological information

Toxicity
Portland Cement: No toxicity data available
Crystalline Silica: 72 hr LC50 carp >10,000 mg/L
Calcium Hydroxide: 96 hr LC50 Gasterosteus aculeatus 457 mg/L; 48 hr EC50 daphnia magna 49.1 mg/L; 72 hr EC50 Pseudokirchnerella subcapitata 184.57 mg/L

Persistence and degradability
Biodegradation is not applicable to inorganic substances.

Bioaccumulative potential
Not expected to be bioaccumulative.

Mobility in soil
No data available.

Other adverse effects
No data available.

SECTION 13: Disposal considerations

Disposal methods

Product disposal

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Waste treatment
Incinerate or dispose of in a licensed facility. Do not discharge substance/product into sewer system.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

New Jersey Right To Know Components
Common name: SILICA, QUARTZ
CAS number: 14808-60-7

Pennsylvania Right To Know Components
Chemical name: QUARTZ (SIO2)
CAS number: 14808-60-7

Canadian Domestic Substances List (DSL)
Chemical name: Quartz (SiO2)
CAS number: 14808-60-7

Canadian Domestic Substances List (DSL)
Chemical name: Silica, vitreous
CAS number: 60676-86-0

US EPA TSCA public inventory
Chemical name: Silica, crystalline
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: QUARTZ
CAS number: 14808-60-7

New Jersey Right To Know Components
Common name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

Pennsylvania Right To Know Components
Chemical name: CALCIUM HYDROXIDE (CA(OH)2)

CAS number: 1305-62-0

Canadian Domestic Substances List (DSL)
Chemical name: Calcium hydroxide (Ca(OH)2)
CAS number: 1305-62-0

EU Cosmetics Restricted Substances List, (EC) 2009/1223 Annex III
Chemical name/INN: Calcium hydroxide
CAS number: 1305-62-0

US EPA TSCA public inventory
Chemical name: Calcium hydroxide
CAS number: 1305-62-0

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

New Jersey Right To Know Components
Common name: SILICA, QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

New Jersey Right To Know Components
Common name: SILICA, QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

New Jersey Right To Know Components
Common name: SILICA, QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

New Jersey Right To Know Components
Common name: SILICA, QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

New Jersey Right To Know Components
Common name: SILICATE, PORTLAND CEMENT
CAS number: 65997-15-1

Pennsylvania Right To Know Components
Chemical name: CEMENT, PORTLAND, CHEMICALS
CAS number: 65997-15-1

Canadian Domestic Substances List (DSL)
Chemical name: Cement, portland, chemicals
CAS number: 65997-15-1

US EPA TSCA public inventory
Chemical name: Portland cement
CAS number: 65997-15-1

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: PORTLAND CEMENT
CAS number: 65997-15-1

New Jersey Right To Know Components
Common name: SILICA, QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: PORTLAND CEMENT
CAS number: 65997-15-1

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: PORTLAND CEMENT
CAS number: 65997-15-1

New Jersey Right To Know Components
Common name: SILICA, QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: QUARTZ
CAS number: 14808-60-7

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: PORTLAND CEMENT
CAS number: 65997-15-1

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: CALCIUM HYDROXIDE
CAS number: 1305-62-0

SECTION 16: Other information

16.1 Further information/disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYMER NATION

Safety Data Sheet
F-61 Part A

SECTION 1: Identification

1.1 GHS Product identifier

Product name	F-61 Part A
Product number	P1
Brand	Polymer Nation

1.2 Other means of identification
Polyaspartic Resin

1.3 Recommended use of the chemical and restrictions on use
High solids clear polyaspartic resin for use in resinous flooring applications

1.4 Supplier's details

Name	Polymer Nation
Address	405 Oakwood Ave Waukegan IL 60085
Telephone	847-774-5038

1.5 Emergency phone number
800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)

- Sensitization, skin, Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 3

2.2 GHS label elements, including precautionary statements

Pictograms

Signal word **Warning**

Hazard statement(s)

H317	May cause an allergic skin reaction
H412	Harmful to aquatic life with long lasting effects

Precautionary statement(s)

P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P321	Specific treatment (see … on this label).
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

1. bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane

Concentration	40 - 60 % (weight)
EC no.	412-060-9
CAS no.	136210-32-7
Index no.	607-350-00-9

- Sensitization, skin, Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 3

H317	May cause an allergic skin reaction
H412	Harmful to aquatic life with long lasting effects

2. Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester

Concentration	15 - 30 % (weight)
EC no.	429-270-1
CAS no.	136210-30-5
Index no.	607-521-00-8

- Sensitization, skin, Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 3

H317	May cause an allergic skin reaction
H412	Harmful to aquatic life with long lasting effects

3. Propanol, 1(or 2)-(2-methoxymethylethoxy)-, acetate

Concentration	10 - 30 % (weight)
CAS no.	88917-22-0

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
In case of skin contact	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician Rinse with plenty of water. Get medical attention if irritation develops and persists.
In case of eye contact	Flush eyes with water as a precaution. Rinse thoroughly with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
If swallowed	Rinse mouth. If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Call a poison center or doctor if you feel unwell. Acute and delayed symptoms and effects: Harmful if swallowed. May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

4.2 Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of immediate medical attention and special treatment needed, if necessary
No data available

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical
Carbon oxides

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus for firefighting if necessary.

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material (e.g. sand, silica gel). Keep in suitable, closed containers for disposal.

Sweep up and shovel. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Use personal protective equipment as required. Keep container closed when not in use. Never return spills in original containers for re-use. Keep out of the reach of children.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester (CAS: 136210-30-5 EC: 429-270-1)

2. bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane (CAS: 136210-32-7 EC: 412-060-9)

3. Propanol, 1(or 2)-(2-methoxymethylethoxy)-, acetate (CAS: 88917-22-0)

8.2 Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Face shield and/or safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Thermal hazards
No data available

Environmental exposure controls
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	clear
Odor	mild solvent
Odor threshold	ND
Melting point/freezing point	ND
Boiling point or initial boiling point and boiling range	200 C
Flammability	ND
Lower and upper explosion limit/flammability limit	
Flash point	ND
Auto-ignition temperature	ND
Decomposition temperature	ND
pH	ND
Kinematic viscosity	< 500 cP
Solubility	ND
Partition coefficient n-octanol/water (log value)	ND
Vapor pressure	ND
Evaporation rate	ND
Density and/or relative density	1.038
Relative vapor density	ND

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
None under normal use conditions.

10.4 Conditions to avoid
None under normal use conditions.

Avoid storing in direct sunlight and avoid extremes of temperature.

Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, acids, and isocyanates

10.6 Hazardous decomposition products
Carbon dioxide, carbon monoxide, oxides of nitrogen, other undetermined compounds

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester
LD50 Oral - Rat - >2,000 mg/kg
LD50 Skin - Rat - >2,000 mg/kg
LC50 Inhalation - Rat - >3,224 mg/l - 4 h
bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane
LD50 Oral - Rat - >2,000 mg/kg
LC50 Inhalation - Rat - >4,224 mg/l - 4 h
LD50 Skin - Rat - >2,000 mg/kg
Propanol, 1(or 2)-(2-methoxymethylethoxy)-, acetate
LD50 Oral - >5,000 mg/kg
LD50 Skin - >2,000 mg/kg
LC50 Inhalation - >20 mg/l

Skin corrosion/irritation
Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester

Result: slight irritant
bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane
Rabbit
Result: slight irritant

Serious eye damage/irritation
Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester
Rabbit
Result: slightly irritating

Respiratory or skin sensitization
Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester
Rat
Result: slight irritant

Germ cell mutagenicity
Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester
Mutagenicity in vitro
Result: No indication of mutagenic effects

Carcinogenicity
Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester

Result: No carcinogenic substances as defined by IARC, NTP and/or OSHA

Reproductive toxicity
bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane
Oral - Rat - 1,000 mg/kg

Specific target organ toxicity (STOT) - single exposure
Based on available data, classification data are not met

Specific target organ toxicity (STOT) - repeated exposure
Based on available data, classification data are not met

Aspiration hazard
May be harmful if swallowed and enters airways

SECTION 12: Ecological information

Toxicity
bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane
LC50 - Danio rerio (zebra fish) - 66 mg/l - 96 h
EC50 - Daphnia magna (water flea) - 88.6 mg/l - 48 h
EC50 - Scenedesmus subspicatus (green algae) - 113 mg/l - 72 h

Persistence and degradability
13 %, Exposure time: 28 d, i.e. not readily degradable
Ecotoxicological reports on a comparable product
0 %, Exposure time: 28 d, i.e. not inherently degradable
Ecotoxicological studies of the product

Bioaccumulative potential
value calculated, 1,872 BCF
The substance hydrolyzes rapidly in water. An accumulation in aquatic organisms is not to be expected.

Mobility in soil
bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane
Adsorption/Soil
log Koc value: 4,2 - 5,1
Method: EU Method C.19

Results of PBT and vPvB assessment
No data available.

Other adverse effects
No data available.

SECTION 13: Disposal considerations

Disposal methods

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

Packaging disposal
Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Empty containers retain product residue (dust, liquid, vapor and/or gases) and can be dangerous. Do not heat or cut container with electric or gas torch.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Canadian Domestic Substances List (DSL)
Chemical name: DL-Aspartic acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, tetraethyl ester
CAS number: 136210-32-7

Chemical name: Aspartic acid N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, tetraethyl ester
CAS number: 136210-30-5

Chemical name: Propanol, 1(or 2)-(2-methoxymethylethoxy)-, acetate
CAS number: 88917-22-0

EU Table of Harmonised Entries (Annex VI to CLP)
Chemical name: bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane
CAS number: 136210-32-7

Chemical name: Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester
CAS number: 136210-30-5

US EPA TSCA public inventory
Chemical name: bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane
CAS number: 136210-32-7

Chemical name: Aspartic acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester
CAS number: 136210-30-5

Chemical name: Propanol, 1(or 2)-(2-methoxymethylethoxy)-, acetate
CAS number: 88917-22-0

SECTION 16: Other information

16.1 Further information/disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYMER NATION

Safety Data Sheet
F-60,61,70,71,80,81 Part B

SECTION 1: Identification

1.1 GHS Product identifier

Product name	F-60,61,70,71,80,81 Part B
Product number	ISO4/ISO4 LV2
Brand	Polymer Nation
Substance name	HEXAMETHYLENE DIISOCYANATE

1.2 Other means of identification
Isocyanate Hardener

1.3 Recommended use of the chemical and restrictions on use
Hardener component for polyaspartic resin; for use in resinous flooring applications

1.4 Supplier's details

Name	Polymer Nation
Address	405 Oakwood Ave Waukegan IL 60085
Telephone	847-774-5038

1.5 Emergency phone number
800-424-9300

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture
GHS classification in accordance with: OSHA (29 CFR 1910.1200, 2024)
- Acute toxicity, inhalation, Cat. 3
- Eye damage/irritation, Cat. 2A
- Sensitization, respiratory, Cat. 1
- Skin corrosion/irritation, Cat. 2
- Sensitization, skin, Cat. 1
- Specific target organ toxicity (single exposure), Cat. 3

2.2 GHS label elements, including precautionary statements
Pictograms

Signal word **Danger**

Hazard statement(s)

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H331	Toxic if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness

Precautionary statement(s)

P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash … thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear eye protection/face protection/protective gloves.
P284	[In case of inadequate ventilation] wear respiratory protection.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P311	Call a POISON CENTER/doctor/...
P312	Call a POISON CENTER/doctor/.../ if you feel unwell.
P321	Specific treatment (see … on this label).
P332+P313	If skin irritation occurs: Get medical advice/attention.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor/...
P362+P364	Take off contaminated clothing and wash it before reuse.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to …

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	HEXAMETHYLENE DIISOCYANATE
Other names / synonyms	Hexamethylendiisocyanatoligomere, Allophanat; Hexamethylendiisocyanatoligomere, Allophanat; Hexamethylendiisocyanatoligomere, Allophanat; Hexamethylendiisocyanatoligomere, Allophanat; Hexamethylendiisocyanatoligomere, Allophanat; Hexane, 1,6-diisocyanato-, homopolymer; Hexamethylendiisocyanatoligomere, Isocyanurat

Hazardous components

1. Hexamethylendiisocyanatoligomere, Isocyanurat

Concentration	95 - 100 % (weight)
EC no.	931-274-8
CAS no.	28182-81-2

2. HEXAMETHYLENE DIISOCYANATE

Concentration	< 0.1 % (weight)
EC no.	212-485-8
CAS no.	822-06-0
Index no.	615-011-00-1

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled	Move to an area free from further exposure. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.
In case of skin contact	If direct skin contact with isocyanates occurs, immediately remove contaminated clothing and shoes. Wipe off the isocyanate product from the skin using dry towels or other similar absorbent fabric. If readily available, apply a polyglycol-based cleanser (e.g. SKC, Inc. (SKC) D-TAM™ Skin Cleanser) or corn oil. Wash with soap and warm water and pat dry. If a polyglycol-based cleanser is not available, wash with soap and warm water for 15 minutes. If available, use a wipe test pad to verify decontamination is complete (e.g. SKC SWYPE™). Get medical attention if irritation develops. Discard or wash contaminated clothing before reuse.
In case of eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.
If swallowed	Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

4.2 Most important symptoms/effects, acute and delayed

Acute: Isocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines 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.

May cause skin irritation with symptoms of reddening, itching, and swelling. Can cause sensitization. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove.
May cause 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.
May cause irritation of the digestive tract; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.
Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

4.3 Indication of immediate medical attention and special treatment needed, if necessary
Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.
Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.
Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound.
Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to
any diisocyanate.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media
Dry chemical, Carbon dioxide (CO2), Foam, water spray for large
fires

5.2 Specific hazards arising from the chemical
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

5.3 Special protective actions for fire-fighters
Unsuitable Extinguishing Media: High volume water jet

Fire Fighting Procedure
Firefighters should wear NFPA compliant structural firefighting protective equipment, including selfcontained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear necessary personal protective equipment (PPE) as specified in the SDS or the site emergency response plan. Ventilate and remove ignition sources.

Implement site emergency response plan. Evacuate non-emergency personnel. The magnitude of the evacuation depends upon the quantity released, site conditions, and the ambient temperature. Isolate the area and prevent access of unauthorized personnel. Notify management.

6.3 Methods and materials for containment and cleaning up
Control the source of the leak. Contain the released
material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc…). Allow for the absorbent material

to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat application of absorbent material until all liquid has been removed from the surface. For spills involving a solid product, remove mechanically (sweep up, vacuum, shovel etc.) and collect and place into an approved metal container.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

7.2 Conditions for safe storage, including any incompatibilities

Store separate from food products.
Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Substances to Avoid
Water, Amines, Strong bases, Alcohols, Copper alloys

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1. Hexamethylene diisocyanate (CAS: 822-06-0)
TWA (Inhalation): See Isocyanates, all ppm; AU (AU/SWA)
Other advisory: Sen

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	Clear
Color	colorless
Odor	nearly odorless
Odor threshold	ND
Melting point/freezing point	ND
Boiling point or initial boiling point and boiling range	ND
Flammability	ND
Lower and upper explosion limit/flammability limit	ND
Flash point	158 C/316 F
Auto-ignition temperature	445 C/833 F
Decomposition temperature	ND
pH	ND
Kinematic viscosity	700-2500 cP
Solubility	Insoluble in water
Partition coefficient n-octanol/water (log value)	ND
Vapor pressure	5.2 x 10^-9 mmHg @ 68 F
Evaporation rate	ND
Density and/or relative density	1.17
Relative vapor density	ND

SECTION 10: Stability and reactivity

10.1 Reactivity
None under normal use conditions.

10.2 Chemical stability
Stable under normal conditions of use and storage.

10.3 Possibility of hazardous reactions
Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization, Moisture (water and high humidity) or high heat (temperatures greater than 350 F (177C)) can cause pressure build-up with possible explosive rupture.

10.4 Conditions to avoid
Heat, flames and sparks. Protect from freezing.

10.5 Incompatible materials
Water, Amines, Strong bases, Alcohols, Copper alloys

10.6 Hazardous decomposition products
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Hexamethylendiisocyanatoligomere, Isocyanurat
LD50 Oral - Rat - >2,500 mg/kg
LC50 Inhalation - Rat - 0.39-0.543 mg/L - 4 hrs
LD50 Skin - Rat - >2,000 mg/kg

Skin corrosion/irritation
Hexamethylendiisocyanatoligomere, Isocyanurat
Rabbit - 4 hrs
Result: slight irritant

Serious eye damage/irritation
Hexamethylendiisocyanatoligomere, Isocyanurat
Rabbit
Result: slight irritant

Respiratory or skin sensitization
Hexamethylendiisocyanatoligomere, Isocyanurat
Guinea pig
Result: positive

Germ cell mutagenicity
Genetic Toxicity in Vitro:
Salmonella/microsome test (Ames test): No indication of mutagenic effects. (Metabolic Activation: with/without)
Chromosome aberration test in vitro: negative (Chinese hamster V79 cell line, Metabolic Activation: with/without)
Point mutation in mammalian cells (HPRT test): negative (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without)

Carcinogenicity
No carcinogenic substances as defined by IARC, NTP and/or OSHA

Reproductive toxicity
Available data show no indications for reproductive toxicity.

Specific target organ toxicity (STOT) - single exposure
No data available

Specific target organ toxicity (STOT) - repeated exposure
90 d, Inhalative: NOAEL: 3.3, (rat, male/female, 6 hours a day, 5 days a week)
Irritation to lungs and nasal cavity.Evidence of damage to organs other than the organs of respiration was not found.

Aspiration hazard
May be harmful if swallowed and enters airways

SECTION 12: Ecological information

Toxicity
LC50: > 100 mg/l (Danio rerio (zebra fish), 96 h)
EC50: > 100 mg/l (Daphnia magna (Water flea), 48 h)
ErC50: > 1,000 mg/l, (scenedesmus subspicatus, 72 h)
EC50: 3,828 mg/l, (activated sludge, 3 h)

Persistence and degradability
aerobic, 1 %, Exposure time: 28 d, i.e. not readily degradable
aerobic, 0 %, Exposure time: 28 d, i.e. not readily degradable

Bioaccumulative potential
3.2 BCF
An accumulation in aquatic organisms is not to be expected.
367.7 BCF
An accumulation in aquatic organisms is not to be expected. Studies of hydrolysis products.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Packaging disposal
Containers that are empty as defined by RCRA (40 CFR part 261.7), may retain product residue; observe all precautions for product. Do not grind, torch cut, weld or heat an empty container that once held an isocyanate-containing product; highly toxic vapors or gases are formed.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

US EPA TSCA public inventory
Chemical name: Hexamethylendiisocyanatoligomere, Allophanat
CAS number: 28182-81-2

Canadian Domestic Substances List (DSL)
Chemical name: Hexane, 1,6-diisocyanato-, homopolymer
CAS number: 28182-81-2

US EPA TSCA public inventory
Chemical name: Hexamethylendiisocyanatoligomere, Isocyanurat
CAS number: 28182-81-2

Massachusetts Toxic Use Reduction Act (TURA) list
Chemical name: Hexamethylene-1,6-diisocyanate
CAS number: 822-06-0

New Jersey Right To Know Components
Common name: HEXAMETHYLENE DIISOCYANATE
CAS number: 822-06-0

Canadian Domestic Substances List (DSL)
Chemical name: Hexane, 1,6-diisocyanato-
CAS number: 822-06-0

EU Table of Harmonised Entries (Annex VI to CLP)
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CAS number: 822-06-0

US EPA TSCA public inventory
Chemical name: HEXAMETHYLENE DIISOCYANATE
CAS number: 822-06-0

Massachusetts Right To Know Components (105 CMR 670)
Chemical name: HEXAMETHYLENE DIISOCYANATE
CAS number: 822-06-0

Massachusetts Toxic Use Reduction Act (TURA) list
Chemical name: Hexamethylene-1,6-diisocyanate
CAS number: 822-06-0

New Jersey Right To Know Components
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SECTION 16: Other information

16.1 Further information/disclaimer

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