

U-217 Part B

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: U-217 Part B
Common Name: 1,6 Hexamethylene Diisocyanate Based Polyisocyanate
SDS Number: I152
Revision Date: 10/16/2018
Version: 1
Chemical Family: Aliphatic Isocyanate
Supplier Details: Coatings for Industry, Inc.
319 Township Line Road
Souderton, PA 18964
Emergency: Infotrac
Contact: USA: 1-800-535-5053 / International :352-323-3500
Phone: 215-723-0919
Fax: 215-723-0911
Email: cs@cficoatings.com
Web: www.cficoatings.com

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Respiratory or skin sensitization, 1 Skin
Health, Serious Eye Damage/Eye Irritation, 2 A
Health, Specific target organ toxicity - Single exposure, 3
Health, Acute toxicity, 4 Oral
Health, Acute toxicity, 4 Inhalation
Physical, Flammable Liquids, 2

GHS Label elements, including precautionary statements

GHS Signal Word: **DANGER**

GHS Hazard Pictograms:



GHS Hazard Statements:

H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H302 - Harmful if swallowed
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H225 - Highly flammable liquid and vapor

GHS Precautionary Statements:

P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
P232 - Protect from moisture.
P233 - Keep container tightly closed.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof electrical/ventilating/light/equipment.
P242 - Use non-sparking tools.
P243 - Take precautionary measures against static discharge.
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.

U-217 Part B

- P271 - Use only outdoors or in a well-ventilated area.
- P272 - Contaminated work clothing should not be allowed out of the workplace.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P302+352 - IF ON SKIN: Wash with soap and water.
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
- P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305+351+338 - IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
- P314 - Get Medical advice/attention if you feel unwell.
- P333 - If skin irritation or a rash occurs: Get medical attention.
- P363 - Wash contaminated clothing before reuse.
- P403+233 - Store in a well ventilated place. Keep container tightly closed.
- P501 - Dispose of contents/container in accordance with existing federal, state, and local environmental control laws.

3	COMPOSITION/INFORMATION ON INGREDIENTS
----------	---

Ingredients:

Cas#	%	Chemical Name
28182-81-2	55-65%	Hexane, 1,6-diisocyanato-, homopolymer
822-06-0	0.1-1%	Hexamethylene-1,6-diisocyanate
616-38-6	35-45%	Carbonic acid, dimethyl ester

4	FIRST AID MEASURES
----------	---------------------------

- Inhalation:** Move to an area free from further exposure. Extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get immediate medical attention. Give oxygen or artificial respiration if needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.
- 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. Colorimetric Laboratories, Inc. (CLI) 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. CLI SWYPE™). Get medical attention if irritation develops. Discard or wash contaminated clothing before reuse.
- Eye Contact:** Immediately flush eyes with large amounts of water for at least 15 minutes, lifting eyelids occasionally to facilitate irrigation. Then remove contact lenses, if easily removeable, and continue irrigation for not less than 15 minutes. Get medical Attention if irritation develops.
- Ingestion:** Do NOT induce vomiting or attempt chemical neutralization. Rinse mouth with water. Never give anything by mouth to an unconscious person. Get prompt, qualified medical attention.

Most Important Symptom(s)/Effect(s)

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.

U-217 Part B

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.

Notes to Physician: 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.

5 FIRE FIGHTING MEASURES

Flash Point: 64.0° F. (18.0° C.)

Special Fire Fighting Procedures:

Full emergency equipment with self contained breathing apparatus and full protective clothing should be worn by fire fighters. During a fire, HDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. (see Section VIII). Isolate from heat, electrical equipment, sparks and open flame. Closed container may explode when exposed to extreme heat or burst when contaminated with water (CO₂ evolved). Solvent vapors may be heavier than air. Stagnant air may cause vapors to accumulate and travel along the ground to an ignition source which may result in a flash back to the source of the vapors.

Unusual Fire or Explosion Hazards: Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO₂ formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

Extinguishing Media: Dry chemical; carbon dioxide; foam; water spray for large fires.

6 ACCIDENTAL RELEASE MEASURES

Spill or leak procedures:

Evacuate nonessential personnel. Remove all sources of ignition and ventilate the area. Notify appropriate authorities if necessary. Put on appropriate personal protective equipment (see Section 8). Dike or impound spilled material and control further spillage if feasible. Cover the spill with absorbent material (e.g. sawdust, vermiculite, kitty litter, fullers earth or other absorbent material). Pour decontamination solution over spill area and allow to react for at least 10 minutes. Collect material in open containers and add further amounts of decontamination solution. Remove containers to a safe place, cover loosely, allow to stand for 24 to 48 hours. Wash down spill area with decontamination solutions.

Additional Spill Procedures/Neutralization

Products or product mixtures that have been shown to be effective neutralization solutions for decontaminating surfaces, tools, or equipment that have been in contact with an isocyanate includes:

Products available through industrial suppliers:

U-217 Part B

- Spartan Chemical Company: 1-800-537-8990:
 - o Spartan® ShineLine Emulsifier Plus
 - o Spartan® SC-200 Heavy Duty Cleaner
- Colorimetric Laboratories, Inc. (CLI): 1-847-803-3737
 - o Isocyanate Decontamination Solution
- Mix equal amounts of the following:
 - o Mineral spirits (80%), VM&P Naphtha (15%), and household detergent (5%), and
 - o A 50-50 mixture of monoethanolamine and water

In a separate container, blend the two solutions in a 1:1 ratio by volume. Immediately prior to applying this blended neutralization solution onto the contaminated surface area, mix or agitate the container to help ensure uniform mixing of the ingredients.

If the above products are not available, the following products can be obtained through retail outlets:

- ZEP® Commercial Heavy-Duty Floor Stripper
- Greased Lightning® Super Strength Cleaner and Degreaser
- EASY OFF® Grill and Oven Cleaner or EASY OFF® Fume Free Oven Cleaner
- A mixture of 50% Simple Green® Pro HD Heavy-Duty Cleaner and 50% household ammonia
- A mixture of 90% Fantastic® Heavy Duty All Purpose Cleaner and 10% household ammonia.

Waste disposal method:

Waste must be disposed of in accordance with federal, state, and local environmental control regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue and flammable solvent vapor. Decontaminate containers prior to disposal. Do not heat or cut empty container with electric or gas torch.

7	HANDLING AND STORAGE
----------	-----------------------------

Handling Precautions:	Avoid breathing vapors or mist. Avoid contact with eyes, skin, or clothing. Consider normal working hygiene. Do not expose containers to open flame, excessive heat, or direct sunlight. Keep away from sources of ignition. Keep material out of reach of children. Wash clothing before reuse and decontaminate or discard contaminated shoes. Wash thoroughly after handling.
Storage Requirements:	Storage Temperature (min/max): 30° F. (-34° C)/122° F. (50° C) Shelf Life: One year, if unopened Special Sensitivity: If container is exposed to high heat, it can be pressurized and possibly rupture explosively. HDI reacts slowly with water to form CO ₂ gas. This gas can cause sealed containers to expand and possibly rupture explosively. Handling/Storage Precautions: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. At maximum storage temperatures noted, material may slowly polymerize without hazard. Ideal storage temperature range for ease of handling is 50-81° F. (10-27° C.). Avoid contact with skin and eyes. Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard.

U-217 Part B

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Industrial Hygiene/Ventilation Measures

Good industrial hygiene practice dictates that worker protection should be achieved through engineering controls, such as ventilation, whenever feasible. When such controls are not feasible to achieve full protection, the use of respirators and other personal protective equipment is mandated. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric HDI.

Personal Protective Equipment:

Respiratory Protection

A respirator that is recommended or approved for use in isocyanate-containing environments (air-purifying or fresh air-supplied) may be necessary for spray applications or other situations such as high temperature use which may produce inhalation exposures. A supplied-air respirator (either positive pressure or continuous flow-type) is recommended. Before an air-purifying respirator can be used, air monitoring must be performed to measure airborne concentrations of HDI monomer and HDI polyisocyanate. Specific conditions under which air-purifying respirators can be used are outlined in the following sections. Observe OSHA regulations for respirator use (29 CFR 1910.134).

SPRAY APPLICATION: A. Good industrial hygiene practice dictates that when isocyanate-based coatings are spray applied, some form of respiratory protection should be worn. During the spray application of coatings containing this product the use of a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: -the airborne isocyanate concentrations are not known; or -the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or -the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or -operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: -The airborne isocyanate monomer concentrations are known to be below 0.05 ppm averaged over eight (8) hours (10 times 8 hour TWA exposure limit); and -the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

NON-SPRAY OPERATIONS: A. During non-spray operations such as mixing, batch-making, brush or roller application, etc., at elevated temperatures (for example, heating of material or application to a hot substrate), it is possible to be exposed to airborne isocyanate vapors. Therefore, when the coatings system will be applied in a non-spray manner, a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: - the airborne isocyanate concentrations are not known; or - the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or - the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or - operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: -the airborne concentrations of the isocyanate monomer are below 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); and - the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m³ averaged over eight (8) hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

U-217 Part B

Hexane, 1,6-diisocyanato-, homopolymer (28182-81-2): no data available

Hexamethylene-1,6-diisocyanate (822-06-0) [0.1-1%]:

Components with workplace control parameters

TWA 0.0050 ppm USA. ACGIH Threshold Limit Values (TLV)
Upper Respiratory Tract irritation Respiratory sensitization

TWA 0.0050 ppm USA. NIOSH Recommended Exposure Limits
0.035 mg/m3 10 minute ceiling value

C 0.02 ppm USA. NIOSH Recommended Exposure Limits
0.14 mg/m3 10 minute ceiling value

Carbonic acid, dimethyl ester (616-38-6) : no data available

9	PHYSICAL AND CHEMICAL PROPERTIES
----------	---

Appearance:	Clear to slightly yellow	Odor:	Solvent ester type odor
Physical State:	Liquid	Solubility:	Resin is insoluble - reacts slowly with water
Spec Grav./Density:	1.0 - 1.2 @ 68° F. (20° C.)	Percent Volatile:	By Volume: 30-50%
Molecular weight:	Approx. 500 (Polyisocyanate)	Flash Point:	18C (64F)

10	STABILITY AND REACTIVITY
-----------	---------------------------------

Chemical Stability:	Product is stable under normal conditions.
Conditions to Avoid:	Heat, flames and sparks.
Materials to Avoid:	Water, Amines, Strong bases, Alcohols, Copper alloys
Hazardous Decomposition:	By Fire and High Heat: Carbon dioxide (CO ₂), carbon monoxide (CO), oxides of nitrogen (NO _x), dense black smoke., Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds
Hazardous Polymerization:	May occur; contact with moisture or other materials which react with isocyanates or temperatures over 350° F. (177° C) may cause polymerization.

11

TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:

Skin Contact, Inhalation, Eye Contact

Health Effects and Symptoms

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.

Chronic:

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

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

Prolonged vapor contact with the eyes may cause conjunctivitis.

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

Hexane, 1,6-diisocyanato-, homopolymer (28182-81-2) [85-97%]

Toxicity Note: Data is based on a similar product, including residual monomer.

Acute Oral Toxicity: LD50: > 5000 mg/kg (rat, female) (OECD Test Guideline 423)

U-217 Part B

Acute Inhalation Toxicity: LC50: 0.554 mg/l, 4 h (rat)

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

Skin Irritation: rabbit, slight irritant

Eye Irritation: rabbit, slight irritant

Sensitization: Skin sensitisation according to Magnusson/Kligmann (maximizing test):: positive (guinea pig, OECD Test Guideline 406)

Repeated Dose Toxicity:

Subchronic inhalation toxicity, rat:

Test concentration - 0,4 ; 3,4 and 21,0 mg aerosol/m³exposure time - 13 weeks(6 hours a day, 5 days a week)3,4 mg/m³ was tolerated without damage (NOEL),21,0 mg/m³ caused increase of lung weight.No evidence of histopathological changes in the upper and central respiratory passages.Unspecific changes in the lower respiratory tract; these are attributed to the product's primary irritation potential.Evidence of damage to organs other than the organs of respiration was not found.

Mutagenicity:

Genetic Toxicity in Vitro: Salmonella/microsome test (Ames test): No indication of mutagenic effects.

Genetic Toxicity in Vivo: Micronucleus test: negative (mouse)

Hexamethylene-1,6-Diisocyanate (822-06-0) [0.1-1.0%]

Acute Oral Toxicity: LD50: 746 mg/kg (rat, male) (OECD Test Guideline 401)

Acute Inhalation Toxicity: LC50: 0.124 mg/l, 4 h (rat, male/female) (OECD Test Guideline 403)

Acute Dermal Toxicity: LD50: > 7000 mg/kg (rat, male/female) (OECD Test Guideline 402)

Skin Irritation: rabbit, OECD Test Guideline 404, Corrosive

Eye Irritation: rabbit, OECD Test Guideline 405, Corrosive

Sensitization: dermal: sensitizer (guinea pig, Maximisation Test (GPMT))

Other isocyanates have been shown to produce dermal and respiratory sensitization in several species (guinea pigs, mice, rabbits, dogs). In addition, there is some evidence to suggest that cross-sensitization between different types of diisocyanates may occur.

dermal: sensitizer (Human, Case Report)

Respiratory sensitization: sensitizer (guinea pig)

Repeated Dose Toxicity

2 years, inhalation: NOAEL: < 0.005 ppm, LOAEL: 0.005 ppm, (rat, Male/Female, 6 hrs/day 5 days/week). Irritation to lungs

U-217 Part B

and nasal cavity.

Mutagenicity

Genetic Toxicity in Vitro: Salmonella/microsome test (Ames test): negative (Salmonella typhimurium, Metabolic Activation: with/without)

Point mutation in mammalian cells (HPRT test): negative (Metabolic Activation: with/without)

Genetic Toxicity in Vivo: Micronucleus test: negative (mouse, male/female, Inhalative)

Carcinogenicity

rat, male/female, Inhalative, 2 yrs, 6 hours/day, 5 days/week, Did not show carcinogenic effects in animal experiments.

Toxicity to Reproduction/Fertility Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test, Inhalative, 6 hours/day 7 days/week, (rat, male/female) NOAEL (F2): 0.3 ppm Fertility and developmental toxicity tests did not reveal any effect on reproduction.

Developmental Toxicity/Teratogenicity: Rat, female, inhalation, gestation days 0 - 19, daily, NOAEL (teratogenicity): >0.3 ppm, NOAEL (maternal): < 0.3 ppm No Teratogenic effects observed at doses tested.

No fetotoxicity observed at doses tested.

Neurological Effects

Rats exposed by inhalation, 6 hours/day, for approximately 3 weeks, to concentrations as high as 0.3 ppm showed no neurobehavioral effects or damage to nerve tissues.

Carcinogenicity:

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

Carbonic acid, dimethyl ester (616-38-6)

Information on toxicological effects

Acute toxicity:

LD50 Oral - rat - 13,000 mg/kg

Inhalation: no data available

LD50 Dermal - rabbit - > 5,000 mg/kg

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation: no data available

Respiratory or skin sensitisation: no data available

Germ cell mutagenicity: no data available

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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

U-217 Part B

carcinogen by OSHA.

Reproductive toxicity: no data available
Specific target organ toxicity - single exposure: no data available
Specific target organ toxicity - repeated exposure: no data available
Aspiration hazard: no data available

Additional Information:

Symptoms/injuries after inhalation: Irritation of the respiratory tract. Dry/sore throat. Coughing. Dizziness. Narcosis. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema.

Symptoms/injuries after skin contact: Red skin. Tingling/irritation of the skin.

Symptoms/injuries after eye contact: Irritation of the eye tissue.

Symptoms/injuries after ingestion: Risk of aspiration pneumonia. Dry/sore throat. Nausea. Abdominal pain. Diarrhoea.

RTECS: FG0450000

12

ECOLOGICAL INFORMATION

Hexane, 1,6-diisocyanato-, homopolymer (28182-81-2) [85-97%]

Biodegradation: 1 %, Exposure time: 28 d, i.e. not readily degradable

Acute and Prolonged Toxicity to Fish: LC50: > 100 mg/l (Danio rerio (zebra fish), 96 h)

Acute Toxicity to Aquatic Invertebrates: EC50: > 100 mg/l (Daphnia magna (Water flea), 48 h)

Toxicity to Aquatic Plants: ErC50: > 100 mg/l, (scenedesmus subspicatus, 72 h)

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

Additional Ecotoxicological Remarks: Data is based on a similar product, including residual monomer.

Hexamethylene-1,6-Diisocyanate (822-06-0) [0.1-1.0%]

Biodegradation: aerobic, 42 %, Exposure time: 28 d, i.e. not readily degradable

Bioaccumulation: value calculated, 57.6 BCF

An accumulation in aquatic organisms is not to be expected. Value calculated, 3.2 BCF

An accumulation in aquatic organisms is not to be expected. Studies of hydrolysis products.

Acute and Prolonged Toxicity to Fish: LC0: >= 82.8 mg/l (Danio rerio (zebra fish), 96 h)

Acute Toxicity to Aquatic Invertebrates: EC0: >= 89.1 mg/l (Daphnia magna (Water flea), 48 h)

Toxicity to Aquatic Plants: ErC50: > 77.4 mg/l, (Desmodesmus subspicatus (Green algae), 72 h)

Toxicity to Microorganisms: EC50: 842 mg/l, (activated sludge, 3 h)

U-217 Part B

Carbonic acid, dimethyl ester (616-38-6)

Ecology - general:

The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Ecology - air:

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water:

Water pollutant (surface water). Ground water pollutant. Slightly harmful to fishes (LC50(96h) 100-1000 mg/l). Slightly harmful to aquatic organisms (EC50: 100 - 1000 mg/l). Insufficient data available on ecotoxicity.

LC50 fish 1: 100 - 1000 mg/l (96 h; Pisces)

LC50 other aquatic organisms 1: 100 - 1000 mg/l (96 h)

Threshold limit other aquatic organisms 1: 100 - 1000,96 h

Persistence and degradability

Biodegradability in water: no data available.

Bioaccumulative potential: Not bioaccumulative.

13	DISPOSAL CONSIDERATIONS
-----------	--------------------------------

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

Empty Container Precautions

Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

14	TRANSPORT INFORMATION
-----------	------------------------------

UN1263, Paint, 3, PGII

If quantity is in a non bulk packaging (less than 119 gallons), this material ships as non regulated unless the combustible liquid is a hazardous substance of a hazardous waste.

IMO/IMDG

ICAO/IATA

Hazard Label ~~~~~Flammable Liquid

Hazard Placard ~~~~~Flammable Liquid

U-217 Part B

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Hexane, 1,6-diisocyanato-, homopolymer (28182-81-2) [55-65%] MASS, NJHS, PA, TSCA

RQ(100LBS), Hexamethylene-1,6-diisocyanate (822-06-0) [0.1-1%] CERCLA, HAP, MASS, NJHS, PA, SARA313, TSCA, TXAIR

Carbonic acid, dimethyl ester (616-38-6) [35-45%] MASS, PA, TSCA

Regulatory CODE Descriptions

- RQ = Reportable Quantity
- MASS = MA Massachusetts Hazardous Substances List
- NJHS = NJ Right-to-Know Hazardous Substances
- PA = PA Right-To-Know List of Hazardous Substances
- TSCA = Toxic Substances Control Act
- CERCLA = Superfund clean up substance
- HAP = Hazardous Air Pollutants
- SARA313 = SARA 313 Title III Toxic Chemicals
- TXAIR = TX Air Contaminants with Health Effects Screening Level

16 OTHER INFORMATION

NOTICE: This information is presented in good faith and believed to be accurate as of the effective date below. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. Coatings For Industry, Inc. assumes no responsibility for personal injury or property damage to vendees, users, or third parties caused by the material. Such vendees or users assume all risks associated with the use of the material. Regulatory requirements are subject to change and may differ from one location to another: it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The preceding specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.