

MATERIAL SAFETY DATA SHEET

Crosslinker

FILE NO.: DM070
MSDS DATE: 02/15

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Crosslinker
SYNONYMS: N/A
PRODUCT CODES: SKU70014

MANUFACTURER: Shield Products, Inc.
DIVISION: N/A
ADDRESS: 6010 NW 99 Avenue, Suite 110, Doral, Florida 33178

EMERGENCY PHONE: 904-880-6060
CHEMTREC PHONE: 1-800-424-9300

CHEMICAL NAME: 1,6-Hexamethylene Diisocyanate Based Polyisocyanate in n-Butyl Acetate and Solvent 100 (AR100)
CHEMICAL FAMILY: Aliphatic Polyisocyanate in Organic Solvent

SECTION 1 NOTES: N/A

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS#	Wt.%<
Homopolymer of Hexamethylene	28182-81-2	60 - 100%
n-Butyl Acetate	123-86-4	3 - 7%
Petroleum solvent	64742-95-6	1 - 5%
1,2,4-Trimethylbenzene	95-63-6	1 - 5%
Hexamethylene- 1 ,6-Diisocyanate	822-06-0	<=0.15%

SECTION 2 NOTES:

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: WARNING! Color: Clear, Pale yellow Form: liquid Odor: Solvent. Flammable. Toxic gases/fumes may be given off during burning or thermal decomposition. Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling solvents may be harmful or fatal. Causes respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. Lung damage and respiratory sensitization may be permanent. Causes skin irritation. May cause allergic skin reaction. Skin sensitizer. Causes eye irritation. May cause lung damage

ROUTES OF ENTRY: Skin Contact, Inhalation, Eye Contact

POTENTIAL HEALTH EFFECTS

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

SKIN: Prolonged contact can cause reddening, swelling, rash, and, in some cases, skin sensitization.

INGESTION: Ingestion and/or vomiting may cause aspiration into the lungs resulting in chemical pneumonitis (inflammation of the lungs).

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INHALATION: Diisocyanate or polyisocyanate 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. Inhalation of the solvents may cause central nervous system depression with symptoms of nausea, lightheadedness, drowsiness, dizziness and loss of coordination.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Skin Allergies, Eczema, Asthma, Respiratory disorder

SECTION 3 NOTES:

SECTION 4: FIRST AID MEASURES

EYES: 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.

SKIN: Immediately remove contaminated clothing and shoes. In case of skin contact, wash affected areas with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops and persists.

INGESTION: Do not induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

INHALATION: Move to an area free from further exposure. 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. Extreme asthmatic reactions can be life threatening.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: 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 4 NOTES:

SECTION 5: FIRE-FIGHTING MEASURES

NFPA HAZARD CLASSIFICATION

HEALTH: 2

FLAMMABILITY: 2

REACTIVITY: 1

HMIS HAZARD CLASSIFICATION

HEALTH: 2

FLAMMABILITY: 2

REACTIVITY: 1

EXTINGUISHING MEDIA: dry chemical, carbon dioxide (CO₂), foam, water spray for large fires.

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SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained 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.

UNUSUAL FIRE AND 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. Flammable Liquid. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flashback.

SECTION 5 NOTES:

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Evacuate non-emergency personnel. Isolate the area and prevent access. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill to prevent spread into drains, sewers, water supplies, or soil. Call Shield at 904-880-6959 for assistance and advice. Major Spill or Leak (Standing liquid): To minimize vapor, cover the spillage with fire fighting foam (AFFF). Released material may be pumped into closed, but not sealed, metal container for disposal. Process can generate heat. Minor Spill or Leak (Wet surface): Cover spill area with suitable absorbent material (Kitty Litter, Oil-Dri, etc). Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination. Swype test kits have been used for this purpose. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO₂) escape.

SECTION 6 NOTES: Additional Spill Procedures/Neutralization Neutralization solutions:

- (1) Colorimetric Laboratories Inc. (CLI) decontamination solution.
- (2) A mixture of 75% water, 20% non-ionic surfactant (e.g. Poly-Tergent SL-62, Tergitol TMN-10) and 5% n-propanol.
- (3) A mixture of 80% water, 20% non-ionic surfactant (e.g. Poly-Tergent SL-62, Tergitol TMN- 10).
- (4) A mixture of 90% water, 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.

Shield requires that CHEMTREC be immediately notified (800-424-9300) when this product is unintentionally released from its container during its course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: 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. Ground and bond containers and equipment before transferring to avoid static sparks.

SECTION 7 NOTES: Storage Temperature:
minimum: -34.44 deg C (-30 deg F) maximum: 50 deg C (122 deg F)
Storage Period

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6 Months @ 25 deg C (77 deg F): after receipt of material by customer

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

VENTILATION : 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.

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.

EYE PROTECTION: When handling liquid product, chemical goggles should be worn. Chemical safety goggles in combination with a full face shield if a splash hazard exists.

SKIN PROTECTION: Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact., Gloves, long sleeved shirts and pants.

SECTION 8 NOTES:

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:

Form: liquid

Color: Clear, Pale yellow Odor: Solvent

pH: Not Established

Freezing Point: -48 deg C (-54.4 deg F)

Boiling Point/Range: 104.44 deg C (220 deg F) Estimated based on component(s)

Flash Point: 57.22 deg C (135.0 deg F) (Setflash (ASTM D-3243, D-3278, D - 3828))

Lower Explosion Limit: 1.0 %(V) for the solvent

Upper Explosion Limit: 7.5 %(V) for the solvent

Vapor Pressure: HDI Polyisocyanate: 5.2×10^{-9} @ 68 F (20 C) mmHg 15 mmHg @ 20 deg C (68 deg F) for the solvent, For a solvent. 4 mmHg @ 37.78 deg C (100 deg F) For a solvent.

Specific Gravity: Approximately 1.13 @ 20 deg C (68 deg F) Solubility in Water: Insoluble - Reacts slowly with water to liberate CO₂ gas

Autoignition Temperature: Approximately 470 deg C (878 deg F)

VOC Content: Approximately 5 - 15 % Estimated based on component(s) Viscosity, Dynamic: Approximately 550 mPa.s @

23 deg C (73.4 deg F) Bulk Density: Approximately 9.4 lb/gal

Molecular Weight: 500 Approximate Value, For the polyisocyanate

SECTION 9 NOTES:

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions of use and storage.

CONDITIONS TO AVOID (STABILITY): Heat, flames and sparks.

INCOMPATIBILITY (MATERIAL TO AVOID): Water, Amines, Strong bases, Alcohols, copper alloys

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: By Fire and High Heat: Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

SECTION 10 NOTES:

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: Acute Oral Toxicity

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

Acute Inhalation Toxicity

LC50: 430 - 450 mg/m³, aerosol, 4 h (Rat)

Skin Irritation

rabbit, Exposure Time: 24 h, Non-irritating

Eye Irritation

rabbit, Slightly irritating

Toxicity Data for Homopolymer of Hexamethylene Diisocyanate Acute Oral Toxicity

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

Estimated Value

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Acute Inhalation Toxicity

LC50: 390-453 mg/m³, aerosol, 4 hrs (Rat, Male/Female)
RD50: 20.8 mg/m³, 3 hrs

Acute dermal toxicity

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

Skin Irritation

rabbit, Draize, Slightly irritating

Eye Irritation

rabbit, Draize, Slightly irritating

Sensitization

dermal: sensitizer (guinea pig, Maximisation Test (GPMT)) dermal: non-sensitizer (Guinea pig, Buehler)
inhalation: non-sensitizer (guinea pig)

Repeated Dose Toxicity

3 wks, inhalation: NOAEL: 3.7 - 4.3 mg/m³, (Rat) 90 days, inhalation: NOAEL: 3.3 - 3.4 mg/m³, (Rat)
Irritation to lungs and nasal cavity.

Mutagenicity

Genetic Toxicity in Vitro:

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

Toxicity Data for n-Butyl Acetate Acute Oral Toxicity

LD50: > 5,000 mg/kg (Rat, Female)

Acute Inhalation Toxicity

LC50: > 29.2 mg/l, vapor, 4 hrs (Rat) LC50: > 23.4 mg/L, aerosol, 4 hrs (Rat)

Acute dermal toxicity

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

Skin Irritation

Guinea pig, Acute Dermal Irritation, Exposure Time: 24 hrs, Non-irritating Human, Patch Test, Exposure Time: 48 hrs, Non-irritating

Eye Irritation

rabbit, Draize, Exposure Time: 24 hrs, Non-irritating rabbit, Draize, Exposure Time: 24 hrs, Slightly irritating

Sensitization

dermal: non-sensitizer (Guinea pig, Maximization Test)
dermal: non-sensitizer (Human, Magnusson/Kligmann (Maximization Test))

Repeated Dose Toxicity

13 Weeks, inhalation: NOAEL: 500 ppm, (Rat,)

Mutagenicity

Genetic Toxicity in Vitro:

Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without) Cytogenetic assay: negative (other mammalian cell line, Metabolic Activation: without)

Developmental Toxicity/Teratogenicity

Rat, Female, inhalation, gestation days 1-16, 7 hrs/day, NOAEL (teratogenicity): 1,500 ppm,
Teratogenic effects seen only with maternal toxicity.
rabbit, female, inhalation, gestation days 1-19, 7 hrs/day, NOAEL (teratogenicity): 1500 ppm,

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No Teratogenic effects observed at doses tested.

Toxicity Data for Petroleum solvent Acute Oral Toxicity

LD50: 3,500 mg/kg (Rat, Female)

LD50: > 5,000 mg/kg (Rat, Male/Female)

Acute Inhalation Toxicity LC50: 10.2 mg/L, 4 hrs (Rat) LC50: 5.2 mg/L,
4 hrs (Rat)

Eye Irritation

rabbit, Draize, Exposure Time: 24 hrs, Slightly irritating

Sensitization

dermal: non-sensitizer (Guinea pig, Maximization Test) dermal: non-sensitizer (Human, Other method)

Repeated Dose Toxicity

90 Days, inhalation: NOAEL: 6.6 mg/L, (Rat) 14 Days, dermal: NOAEL: 3,750 mg/kg, (rabbit)

Mutagenicity

Genetic Toxicity in Vitro:

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

Carcinogenicity

mouse, Male, dermal, 2 Years,

negative

rat, Male/Female, inhalation, 109 weeks, 6 hrs/day 5 days/week

positive Kidney carcinomas were found in male rats only at all dose levels.

Toxicity to Reproduction/Fertility

Two generation study, inhalation, 6 hrs/day 7 days/week, (Rat, Male/Female) NOAEL (F1): 500 ppm,

NOAEL (F2): 500 ppm

No effects on Reproductive parameters observed at doses tested.

Three generation study, inhalation, 6 hrs/day 7 days/week, (Rat, Male/Female) No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity

Rat, Female, inhalation, NOAEL (teratogenicity): > 1,573 ppm, No Teratogenic effects observed at doses tested.

Toxicity Data for 1,2,4-Trimethylbenzene Acute Oral Toxicity

LD50: 3,400 - 6,000 mg/kg (Rat)

Acute Inhalation Toxicity

LC50: 18,000 mg/m³, 4 hrs (Rat)

rabbit, Moderately irritating

Eye Irritation

Rat, Slightly irritating

Sensitization

dermal: non-sensitizer (Guinea pig, Maximization Test)

Repeated Dose Toxicity

20 Days, inhalation: NOAEL: < 100 ppm, (rat,) CNS depression.

28 Days, oral: NOAEL: < 500 mg/kg, (rat,) Changes in: kidney

Mutagenicity

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Genetic Toxicity in Vitro:

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

Sister Chromatid Exchange: (mouse,)

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

Cytogenetic assay: negative (Rat,)

Developmental Toxicity/Teratogenicity

rat, female, inhalation, daily, NOAEL (teratogenicity): 0.19%,

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

SECTION 11 NOTES:

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Ecological Data for 70014 Crosslinker Additional
Ecotoxicological Remarks No data available for this product.

Ecological Data for Homopolymer of Hexamethylene Diisocyanate Biodegradation
0 %, Exposure time: 28 Days, Not readily biodegradable.

Acute and Prolonged Toxicity to Fish

LCO: > 100 mg/L (Zebra fish (Brachydanio rerio), 96 hrs)

Acute Toxicity to Aquatic Invertebrates

ECO: > 100 mg/L (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants

EC50: > 1,000 mg/L, (Green algae (Scenedesmus subspicatus), 72 hrs)

Toxicity to Microorganisms

EC50: > 1,000 mg/L, (Activated sludge microorganisms, 3 hrs)

Ecological Data for n-Butyl Acetate Biodegradation

aerobic, 98 %, Exposure time: 28 Days

Biological Oxygen Demand (BOD) 1,020 mg/g

Chemical Oxygen Demand (COD) 2,320 mg/g

Theoretical Biological Oxygen Demand (ThBOD) 2,207 mg/g

Bioaccumulation approximately 4 - 14 BCF

Acute and Prolonged Toxicity to Fish

LC50: 18 mg/L (Fathead minnow (Pimephales promelas), 96 hrs) LC50: 185 mg/L (Silverside Minnow (Menidia peninsulæ), 96 hrs)

Acute Toxicity to Aquatic Invertebrates

EC50: 72.8 mg/L (Water flea (Daphnia magna), 48 hrs) EC50: 32 mg/L (brine shrimp (Artemia salina), 48 hrs)

Toxicity to Aquatic Plants

EC50: 670 mg/L, End Point: growth (Cryptomonad (Chilomonas paramecium), 48 hrs)
674.7 mg/L, End Point: growth (Green algae (Scenedesmus subspicatus), 72 hrs)

Toxicity to Microorganisms

EC50: 959 mg/L, (Pseudomonas putida, 18 hrs)

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Additional Ecotoxicological Remarks No data available for this component.
Ecological Data for Petroleum solvent Biological Oxygen Demand (BOD) 5 Days, 190 mg/L

Chemical Oxygen Demand (COD) 440 mg/g

Acute and Prolonged Toxicity to Fish

LC50: 320 - 435 mg/L (Golden orfe (*Leuciscus idus*), 48 hrs)
LC50: 9.22 mg/L (Rainbow (Donaldson) Trout (*Oncorhynchus mykiss*), 96 hrs)

Acute Toxicity to Aquatic Invertebrates

EC50: 170 mg/L (Water flea (*Daphnia magna*), 24 hrs) EC50: 226 mg/L (Water flea (*Daphnia magna*), 24 hrs)

Toxicity to Aquatic Plants

EC50: 56 mg/L, (Green algae (*Selenastrum capricornutum*), 72 hrs) EC50: 19 mg/L, (Green algae (*Selenastrum capricornutum*), 72 hrs)

Toxicity Other Non-Mammal Terrestrial Species > 2,250 mg/kg, (Bobwhite quail)

Ecological Data for 1,2,4-Trimethylbenzene Biological Oxygen Demand (BOD) approximately 190 mg/L

Chemical Oxygen Demand (COD) approximately 440 mg/g

Bioaccumulation Carp, 31 - 207 BCF

Acute and Prolonged Toxicity to Fish

LC50: 7.72 mg/L (Fathead minnow (*Pimephales promelas*), 96 hrs)

Acute Toxicity to Aquatic Invertebrates

EC50: 3.6 mg/L (Water flea (*Daphnia magna*), 48 hrs)

13. Disposal considerations

SECTION 12 NOTES:

SECTION 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.

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SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

Proper Shipping Name: Combustible liquid, n.o.s., NA1993, PGIII

Hazard Class or Division: Combustible

UN/NA Number: NA1993 Packaging Group: III Hazard

Label(s): None

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Air transport (ICAO/IATA)

Proper Shipping Name: Combustible liquid, n.o.s., NA1993, PGIII Hazard Class or Division: Combustible

UN/NA Number: NA1993

Packaging Group: III

Hazard Label(s): None

SECTION 14 NOTES:

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302): Components
n-Butyl Acetate Reportable quantity: 5,000 lbs

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard, Fire Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title
III
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A): Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title
III
Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required: Components
1,2,4-Trimethylbenzene

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

SECTION 15 NOTES:

SECTION 16: OTHER INFORMATION

OTHER INFORMATION: When discarded in its purchased form, this product meets the criteria of ignitability, and should be managed as a hazardous waste (EPA Hazardous Waste Number D001). (40 CFR 261.20-24)