

MATERIAL SAFETY DATA SHEET

PRODUCT CODE: 321

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ARMORULTRA TOPCOAT PART A
PRODUCT CODES: ARM321X

MANUFACTURER: ARMORPOXY
STREET ADDRESS: 805 Lehigh Ave
CITY, STATE, ZIP: Union, NJ 07083

INFORMATION PHONE: 724-483-9300
EMERGENCY PHONE: Chemtrec 800-424-9300
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PREPARED BY: Harry Jackson

DATE REVISED: 2/29/12

SECTION 2: HAZARDS IDENTIFICATION

HMIS HAZARD CLASSIFICATION

HEALTH: 2 **FLAMMIBILITY:** 3 **REACTIVITY:** 0 **PERSONAL PROTECTIVE EQUIPMENT:** G

POTENTIAL HEALTH EFFECTS

EYES:

May cause corneal damage if left untreated which is slow to heal but usually reversible.

SKIN:

May cause irritation or allergic response. May cause defatting, dryness, cracking, rash or redness or dermatitis.

SKIN ABSORPTION:

Solvents can penetrate the skin causing effects similar to those for acute inhalation symptoms.

INGESTION:

Can cause irritation to the digestive tract including sore throat, abdominal pain, nausea, vomiting and diarrhea.

Vomiting may Cause Aspiration of solvents resulting in chemical pneumonitis.

INHALATION health risks and symptoms of exposure:

Solvent vapors are irritating to the eyes, nose and throat and respiratory

tract resulting in dryness of the throat and tightness in the chest. Other symptoms include headache, nausea, narcosis, fatigue and loss of appetite.

HEALTH HAZARDS (ACUTE AND CHRONIC):

Chronic Exposure to organic solvents has been associated with various neurotoxic effects including brain damage, nervous system damage or death. Prolonged vapor contact may cause conjunctivitis. Chronic inhalation may also include loss of memory, loss of intellectual ability and loss of coordination. Corneal damage is possible but usually reversible. Repeated Exposure to solvents can cause anemia, liver abnormalities, kidney damage or cardiac abnormalities.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Respiratory conditions or other allergic response.

CARCINOGENICITY

OSHA: NO NTP: NO IARC: yes

ADDITIONAL CARCINOGENICITY INFORMATION:

Some colors may contain carbon black - Explanation Of Carcinogenicity: IARC MONOGRAPHS ON EVALUATION OF CARCINOGENIC RISK OF CHEMICALS TO MAN, VOL 65, PG 149, 1996: GROUP 2B. May Contain Ethyl Benzene (IARC possible carcinogen)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT</u>	<u>CAS NO.</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>OSHA STEL</u>	<u>WEIGHT %</u>
Propylene Glycol Monomethyl Ether Acetate	108-65-6	none	none	none	
Saturated Polyester Polyol	67815-82-1	none	none	none	
Saturated Polyester Resin (non-hazardous)	unknown	none	none	none	
Siloxanes and silicones, di-me reactions products with silica (non-hazardous)	67762-90-7	none	none	none	
siloxanes and silicones, di-methyl (non-hazardous)	63148-62-9	none	none	none	
*Xylene	1330-20-7	100 ppm	100 ppm	150 ppm	<0.5%
2,6-Dimethyl-4-Heptanone	108-83-8	25 ppm	25 ppm	none	
*Ethyl benzene	100-41-4	100 ppm	100 ppm	125 ppm	<0.5%
polyalkylene glycol	9038-95-3	none	none	none	<0.5%
4,6-dimethyl-2-heptanone	19549-80-5	none	none	none	<0.5%
Additive	NJTSRN 800963-5023	none	none	none	
Dibutyltin Dilurate	77-58-7	0.1mg / m3	0.1mg / m3	0.1mg / m3	
Methyl N-Amyl Ketone	110-43-0	100 ppm	50 ppm	none	
Cellulose Acetate Butyrate Ester	9004-36-8	none	none	none	

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Pigment (non hazardous in liquid form)	N/A	10mg / m3	10mg / m3	5mg /m3
Ethyl 3-Ethoxypropionate	763-69-9	none	none	none
Copper Phthalocyanate	147-14-8	none	none	none
Carbon black	1333-86-4	3.5 ppm	3.5 ppm	none

SECTION 3 NOTES: *Indicates toxic chemical(s) subject to reporting requirements of section 313 of Title III and of 40 CFR 372. All components are on the TSCA list
Xylene Stel= 150PPM (ACGIH) Methyl N-Amyl Ketone Stel (ACGIH)= 100PPM

SECTION 4 FIRST AID MEASURES

EYES:

Flush eyes with water for at least fifteen minutes and consult a physician.

SKIN:

Wash affected area with soap and water and remove contaminated clothing promptly.

INGESTION:

Do not induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician.

INHALATION:

Remove victim to fresh air area and administer oxygen if necessary. Consult a physician if necessary.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR, UPPER: not available
(% BY VOLUME) LOWER: not available

FLASH POINT: 100F

METHOD USED:

Seta Flash

EXTINGUISHING MEDIA:

Foam, alcohol foam, CO2, dry chemical, water fog.

SPECIAL FIRE FIGHTING PROCEDURES:

Do not enter confined fire area without full bunker gear including a positive pressure NIOSH approved self-contained breathing apparatus. Cool all fire exposed containers with water. Minimize contact with material.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Closed containers may explode when exposed to extreme heat. Solvent vapors may be heavier than air. Under conditions of stagnant air, vapors may build up and travel along the ground to an ignition source which can result in flash back to the source of the vapors. Toxic vapors could be evolved from the combustion of this material.

SECTION 6: RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Remove all sources of ignition and ventilate the area. Wear appropriate protective equipment such as vapor cartridge or air supplied respirator when necessary. Dike and absorb the material with absorbent such as clay and place in disposal containers.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store in cool dry area. Seal all partially used containers. Wash with soap and water before eating, drinking, smoking or using the toilet facilities. Mixed materials contain the hazards of all the components, therefore, read the MSDS's of all the components prior to using the material. Properly label all containers.

OTHER PRECAUTIONS:

Avoid all skin contact. Avoid breathing vapors generated from the material. Observe conditions of good general hygiene and safe working practices. Contaminated leather articles cannot be cleaned and must be discarded if contaminated with this product. Wash all contaminated clothing prior to the reuse thereof. Supply appropriate ventilation or engineering controls prior to using this product.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

Use a NIOSH approved respirator as required to prevent over-exposure to vapor in accordance with 29 CFR 1910.134. Use a positive pressure respirator when airborne concentrations are not known or if exceeding TLV's or if working in a confined space. Always consider the hazards from all components in the mixed material state.

VENTILATION :

Exhaust ventilation sufficient to keep the airborne concentrations of the solvents and other hazardous materials below the toxic level concentrations.

PROTECTIVE GLOVES:

Impervious gloves – neoprene or rubber.

EYE PROTECTION:

Splash goggles or glasses with side shields. If the environment warrants, a full face shield should be employed.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

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Wear body covering clothing and other coverings as necessary such as an apron and appropriate footwear to avoid contact.

WORK HYGIENIC PRACTICES:

Observe good general hygienic practices.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: low viscosity liquid with ketone solvent odor.

BOILING POINT OR RANGE: 279 to 329F

VAPOR DENSITY (AIR = 1): not available

SPECIFIC GRAVITY (H₂O = 1): 1.2 typical (varies by color)

EVAPORATION RATE: not available

SOLUBILITY IN WATER: negligible

SECTION 10: STABILITY AND REACTIVITY

STABILITY:

stable

CONDITIONS TO AVOID (STABILITY):

Avoid excessive heat or open flames. This material should not be mixed with phosphorous containing material or oxidizers.

INCOMPATIBILITY (MATERIAL TO AVOID):

Can react Vigorously with strong oxidizing agents and phosphorous containing materials.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

carbon monoxide and carbon dioxide.

HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Component Saturated Polyester CAS# 67815-82-1: Acute Oral Toxicity LD50 > 2500 mg/kg (rat); Skin irritation rabbit, exposure time 8 hours, slightly irritating.

Component CAS# 108-65-6: Acute Oral Toxicity LD50 > 5000 mg/kg (rat); Acute Inhalation Toxicity LD50 4345 ppm, vapor, 6 hrs (rat); Acute dermal Toxicity LD50 > 5000 mg/kg (rat); Skin Irritation rabbit – non-irritating; Eye irritation rabbit – slightly irritating; Sensitization dermal: non-sensitizer (guinea pig, maximization test); repeated dose toxicity 14 days, inhalation NOAEL: 1000 ppm, rat; Mutagenicity Genetic Toxicity in Vitro: Ames test – negative (salmonella typhimurium, metabolic activation: with/without); Developmental Toxicity/Teratogenicity: rat female inhalation, 6 hrs/day 7 days/week, NOAEL (teratogenicity) > 4000 ppm. No Teratogenicity effects observed at doses tested.

Component Xylene: Inhalation LC50 26800ppm, Skin LD50 2000 mg/kg, Ingestion LD50 4.3 g/kg. Exposure may effect skin, eye, liver, kidney, nervous system, respiratory system and lungs. High concentrations may lead to nervous system effects. Repeated overexposure has produced toxic effects in developing and young laboratory animals. Aspiration into lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal. Xylene may contain ethyl benzene, and toluene. Ethyl benzene has shown limited evidence of a carcinogenic effect.

COMPONENT Ethyl Benzene: Acute Oral toxicity LD50: ca. 3500 mg/kg (rat); Acute inhalation LC50: 17.2 mg/l 4h (rat); Acute Dermal Toxicity: 17,800 mg/kg (rabbit); Skin Irritation rabbit Draize exposure time 24h – slightly irritating. Eye Irritation rabbit Draize – severely irritating. Sensitization dermal (human patch test) non-sensitizer. Repeated Dose toxicity 28 days inhalation NOAEL: 3.4 mg/l (rabbit). Mutagenicity Genetic Toxicity in Vitro: Ames: Negative (salmonella typhimurium, metabolic activation with/without). Carcinogenicity: Ethyl benzene was tested by inhalation exposure in mice and rats. In mice, there was an increased incidence of lung adenomas in males and liver adenomas in females. In male rats, there was an increased incidence of renal tubule adenomas and carcinomas. Two Studies of workers potentially exposed to ethyl benzene in a production plant and a styrene polymerization plant, showed no excess cancer incidence and no excess cancer mortality during a 15 year follow-up. Toxicity to Reproduction/Fertility: Inhalation (monkey, male) Reproductive effects have been observed in animal studies, In a generation study, inhalation (rat/female) NOAEL (parental): 100ppm NOAEL (F2): 100ppm. Developmental Toxicity/Teratogenicity rat, female, inhalation, gestation, daily, NOAEL (teratogenicity): 100ppm (maternal): 100ppm. Teratogenic effects seen only with maternal toxicity., Fetotoxicity seen only with maternal toxicity. Rabbit, female, inhalation, gestation, daily, NOAEL (teratogenicity) < 1000 mg/m³, NOAEL (maternal) < 1000 mg/m³.

Component CAS# 110-43-0: Oral LD 50 (rat): 1600 mg/kg; Oral LD50 (mouse) 730 mg/kg; Inhalation LC50 (rat) 2000-4000 ppm, 4 hr. Dermal LD50 (rabbit) 10206 mg/kg; Dermal LD50 (guinea pig) >16200 mg/kg; Skin irritation (Rabbit) – slight to moderate; Eye irritation (rabbit) slight; Skin sensitization (human) none

Component Titanium Dioxide: Inhalation 4 h LC50 > 6.82 mg/l; Oral LD50 > 5000 mg/kg, rat; In February 2006, IARC listed titanium dioxide as possibly carcinogenic to humans Group 2B.

Component Carbon: IARC lists carbon as a possible human carcinogen Category 2B.

Component 763-69-9: Acute oral toxicity LD50 = 5000 mg/kg (rat); acute dermal toxicity LD50 = 10000 mg/kg (rabbit). Component is a skin irritant.

SECTION 12: ECOLOGICAL INFORMATION

Component CAS# 108-65-6: Biodegradation Aerobic: 100% exposure time 8 days. Acute and prolonged Toxicity to Fish LC50: 161 mg/l (fathead minnow, 96 hrs; Acute toxicity to Aquatic Invertebrates EC50: 408 mg/l (water flea, 48 hrs))

Component Xylene: Acute Toxicity: Fish: Toxic 1 < LC/EC/IC50 < 10mg/l, Aquatic Invertebrates: Toxic 1 < LC/EC/IC50 < 10mg/l, Algae: Toxic 1 < LC/EC/IC50 < 10 mg/l. Mobility – floats on water. If it enters the soil it will be highly mobile and may contaminate groundwater. Oxidises rapidly by photo-chemical reactions in air.

COMPONENT Ethyl Benzene: Biodegradation, Aerobic, 50%, Exposure time 28 days. Biochemical Oxygen demand (BOD) 5 days, 2.8% and 35 days, 1780 mg/g. Bioaccumulation: Cyprinus carpio (Carp), 15 BCF. Acute and Prolonged Toxicity to Fish LC50: 12.1 mg/l (fathead minnow, 96 h). Acute Toxicity to Aquatic Invertebrates EC50: 1.8-2.9 mg/l (water flea, 48 h). Toxicity to Aquatic Plants EC50: 4.6 mg/l (green algae, 72 h). Toxicity to microorganisms EC50: 130 mg/l (activated sludge microorganisms, 48 hr).

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Component CAS# 110-43-0: BOD-5: 1770 mg/kg; BOD-20: 2000 mg/kg; COD: 2420 mg/kg. Acute Aquatic Effects: 96 hr LC50 (fathead minnow) 131 mg/l and 48 hr EC50 (daphnia) >90 mg/l (highest concentration tested)

Titanium Dioxide: Pimephales promelas (fathead minnow) < 1000 mg/l @ 96h LC50; Pseudokirchneriella subcapitata (green algae) 61 mg/l @ 72h EC50; Daphnia magna (water flea) > 1000 mg/l @ 48h EC50

Component Carbon LD50 – Intravenous, mouse = 440 mg/kg

Component 763-69-9: Possibly hazardous short term degradation products are not likely, however long term degradation products may arise. The product itself and its products of degradation are not toxic.

SECTION 13: WASTE DISPOSAL

WASTE DISPOSAL METHOD:

Dispose of the material in a waste disposal site in accordance with local, state, and federal laws. Empty containers should be handled with care due to product residue and possible vapor from organic solvents. Never use a gas or electric torch to cut the drums.

SECTION 14: Transport Information

DOT: UN1993, FLAMMABLE LIQUID N.O.S. (CONTAINS XYLENE, ETHYL BENZENE), 3, PG III

IMO/IMDG: UN1993, FLAMMABLE LIQUID N.O.S. (CONTAINS XYLENE, ETHYL BENZENE), 3, PG III

SECTION 15: REGULATORY INFORMATION

Component Saturated Polyester CAS# 67815-82-1 On the Massachusetts, New Jersey or Pennsylvania right to know list at = or > 1% (CAS# 67815-82-1)

Component CAS# 108-65-6: on the TSCA list. Component is on the Pennsylvania, Massachusetts or New Jersey Right to know substance list.

Component Siloxanes and silicones, di-me reactions products with silica: Included on TSCA, EINECS, MITI, ACOIN, and Canadian DSL inventory or lists.

Component siloxanes and silicones, di-methyl: Included on TSCA, EINECS, MITI, ACOIN, and Canadian DSL inventory or lists.

Component Xylene: Xylene contains EPCRA section 313 chemicals subject to the reporting requirements of the emergency planning and community right to know act of 1968. (Maximum wt % for components of xylene are: M-Xylene CAS# 108-38-3 is 46%, P-Xylene CAS# 106-42-3 is 20%, Ethyl Benzene CAS# 100-41-4 is 19%, O-Xylene CAS# 95-47-6 is 16%.. Xylene and its components are on the California Proposition 65 list for developmental toxicity, Reproductive toxicity and carcinogen list. Ingredients are on the TSCA list, DSL Canada, AICS, China, EINECS, ENCS, Korea, New Zealand, Phillipines inventory lists and on the Massachusetts, New Jersey, Pennsylvania right to know lists. Ethyl Benzene a component of xylene has been designated by IARC as a possible carcinogen to humans based on increased tumor incidence in laboratory animals. risk phrases R10 Flammable R20/21 Harmful by inhalation and in contact with skin, R38 irritating to skin, S25 Avoid contact with eyes.

COMPONENT Ethyl Benzene: US EPA CERCLA Hazardous Substances (40 CFR 302); Ethyl Benzene reportable quantity 1000 lbs. US EPA Emergency Planning and Community Right to Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.5) components, Ethyl Benzene. California Prop 65: This product contains chemicals known to the State of California to be carcinogenic: Ethyl Benzene CAS# 100-41-4 @ 1-5%.

Massachusetts, New York, Pennsylvania Right to Know list includes the following components: Ethyl Benzene CAS# 100-41-4. Massachusetts, New York, Pennsylvania Special hazardous Substance includes the following components: Ethyl Benzene CAS# 100-41-4

Component CAS# 110-43-0: On DSL and TSCA, EINECS, AICS, MITI and ECL lists.

Titanium Dioxide: Contains Proposition 65 Chemicals, is on the PA Hazardous substance list, is on the NJ right to know Regulated chemical List. Titanium Dioxide is on inventory or in compliance with EINECS, TSCA, AICS, DSL, ENCS (JP), KECI (KR), PICCS (PH) and INV (CN).

Component Carbon: Contains Proposition 65 Chemicals. Carbon: is listed on TSCA and DSL Canada

Component 763-69-9: is on the TSCA EINECS and DSL Lists

Component additive NJTSRN 800963-5023: on TSCA List. Not a California Prop 65 chemical

Component Copper Phthalocyanate CAS# 147-14-8: On TSCA list and not controlled under WHMIS. Component is a CERCLA hazardous substance

SECTION 16: OTHER INFORMATION

DISCLAIMER: The information Contained herein is based on the data available and is believed to be accurate, However, the manufacturer makes no warranty expressed or implied regarding the accuracy of this data or the results obtained from the use thereof. Accordingly, we assume no responsibility for injury from the use of this product.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ARMORULTRA TOPCOAT PART B

PRODUCT CODES: ARM321X

MANUFACTURER: ARMORPOXY

STREET ADDRESS: 805 Lehigh Ave

CITY, STATE, ZIP: Union, NJ 07083

INFORMATION PHONE: 724-483-9300

EMERGENCY PHONE: Chemtrec 800-424-9300

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PREPARED BY: Harry Jackson

DATE REVISED: 2/29/12

SECTION 2: HAZARDS IDENTIFICATION

HMIS HAZARD CLASSIFICATION

HEALTH: 2 FLAMMIBILITY: 3 REACTIVITY: 1 PERSONAL PROTECTIVE EQUIPMENT: G

POTENTIAL HEALTH EFFECTS

EYES:

Can cause severe irritation, redness, tearing or blurred vision as well as corneal opacity and conjunctivitis.

SKIN:

May cause irritation, defatting, and dermatitis.

SKIN ABSORPTION:

Can cause reddening, swelling, rash, scaling or blistering. Overexposure may cause sensitization resulting in reaction to contact of small amounts.

INGESTION:

Can cause gastrointestinal irritation, nausea, vomiting, diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal. Can cause corrosive action to mucous membranes and digestive tracts.

INHALATION health risks and symptoms of exposure:

Can cause nausea and respiratory irritation, dizziness, weakness, fatigue, nausea, headache, and possible unconsciousness. Burning sensation to mucous membranes, shortness of breath and flu like symptoms may occur.

HEALTH HAZARDS (ACUTE AND CHRONIC):

Can cause sensitization by exposure through contact or high concentrations of vapor. Over-exposure to this material can cause cardiac abnormalities. Overexposure can possibly cause anemia. Liver abnormalities, kidney damage or eye damage. May cause asthma or other respiratory disorders, bronchitis, emphysema, hyperactivity and eczema.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Respiratory conditions or other allergic response.

CARCINOGENICITY

OSHA: NO NTP: NO IARC: YES

Product may contain ethyl benzene as a component of xylene (IARC 2B)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	OSHA PEL	ACGIH TLV	OSHA STEL	WEIGHT %
Hopolymer of HDI	28182-81-2	1 mg/m3	NONE	NONE	
*Xylene	1330-20-7	100 PPM	150 PPM	12	
*Ethyl benzene (as a component of xylene)	100-41-4				<2%
n-Butyl Acetate	123-86-4	150 PPM	150 PPM	200 PPM	
*Hexamethylene Diisocyanate (HDI)	822-06-0	NONE	.005 PPM	NONE	<1%

*Indicates toxic chemical (s) subject to the reporting requirements of section 313 Title III and of 40 CFR 372. XYLENE ACGIH STEL= 150PPM.

SECTION 4: FIRST AID MEASURES

EYES:

Flush eyes with water for at least fifteen minutes and consult a physician.

SKIN:

For extreme exposure use a safety shower immediately. Wash affected area with soap and water and remove contaminated clothing promptly.

INGESTION:

Do not induce vomiting. Keep person warm and consult a physician immediately. Give 1-2 cups of milk or water to drink.

INHALATION:

Remove victim to fresh air area and administer oxygen if necessary. Obtain medical assistance, asthmatic type symptoms may occur immediately or be delayed for several hours. Treatment is symptomatic.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR,
(% BY VOLUME)

UPPER: not available
LOWER: not available

FLASH POINT: 91F

METHOD USED:

Seta Flash

EXTINGUISHING MEDIA:

Foam, alcohol foam, CO2, dry chemical

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SPECIAL FIRE FIGHTING PROCEDURES:

Do not enter confined fire area without full bunker gear including a positive pressure NIOSH approved self-contained breathing apparatus. Presence of solvents in product may require grounding. Remove all sources of ignition.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

If fire occurs, solvents may produce excessive pressure. Sealed drums may rupture and ignite. Vapors are heavier than air and may travel along the ground and ignite by any source of ignition. During a fire, HDI vapors and other toxic gasses may be evolved. Containers may burst if contaminated with water. Vapor flashback to source is possible.

SECTION 6: RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Wear respirator and protective clothing. Remove all sources of ignitions. Remove excess with spark proof equipment, and the remainder with an absorbent such as clay and place in disposal containers. Contained air respirator may be necessary.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Store in cool dry place, seal all partially used containers. Wash with soap and water before eating, drinking, smoking, or using the toilet facilities. Mixed materials contain the hazards of all the components, therefore, read the MSDS's of all the components prior to using material. Properly label all containers. Keep material away from all sources of ignition.

OTHER PRECAUTIONS:

Avoid all skin contact. Avoid breathing vapors generated from the material. Observe conditions of good general hygiene and safe working practices. Contaminated leather articles cannot be cleaned and must be discarded if contaminated with this product. Wash all contaminated clothing prior to the reuse thereof. Wear appropriate safety equipment and respirator at all times when ventilation is not sufficient to control vapors. Observe OSHA regulations for respirator use (29 CFR 1910.134). When spraying material avoid exposure to all mists generated by using air supplied respirator.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

Use a NIOSH approved respirator as required to prevent over-exposure to vapor in accordance with 29 CFR 1910.134. Engineering or administrative measures should be taken to reduce the risk and exposure. Use a positive pressure supplied air respirator when exceeding TLV's or if HDI Monomer concentrations exceed acceptable limits or when spraying material.

VENTILATION :

Exhaust ventilation sufficient to keep airborne concentrations of HDI below their TLV and MGL maximum. Refer to Patty's Industrial Hygiene and Toxicology- Volume 1 (3rd edition) Chapter 17 and Volume III (1st edition) Chapter 3 for details.

PROTECTIVE GLOVES:

Impervious gloves – neoprene or rubber.

EYE PROTECTION:

Splash goggles or glasses with side shields. Do not wear contact lenses when using this product.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

Wear body covering clothing and other coverings as necessary such as an apron and appropriate footwear to avoid contact.

WORK HYGIENIC PRACTICES:

Observe good general hygienic practices.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Pale yellow liquids with solvent odor

BOILING POINT OR RANGE: 279 ° F

VAPOR DENSITY (AIR = 1): not available

SPECIFIC GRAVITY (H₂O = 1): 1.1

EVAPORATION RATE: not available

SOLUBILITY IN WATER: negligible

SECTION 10: STABILITY AND REACTIVITY

STABILITY:

stable

CONDITIONS TO AVOID (STABILITY):

Avoid excessive heat or open flames as well as all sources of ignition such as sparks, heaters, static discharges, etc.

INCOMPATIBILITY (MATERIAL TO AVOID):

Avoid water, amines, strong bases, alcohols, metal compounds, and surface active compounds.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

May form toxic chemicals, carbon dioxide carbon monoxide, oxides of nitrogen, HCN and HDI.

HAZARDOUS POLYMERIZATION:

Moisture or materials that react with isocyanates and temperatures above 400 degrees F may cause polymerization.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Oral Toxicity LD50 >5000 mg/kg (rat) (estimated value)

Acute Inhalation Toxicity LC50 390-453 mg/m3, 4h (rat)

Acute Dermal Toxicity LD50 >5000 mg/kg (rabbit)

Skin Irritation, rabbit, Draize, slightly irritating

Eye Irritation, rabbit, Draize, slightly irritating

Sensitization: Dermal – Sensitizer (Guinea Pig, Maximization Test). Dermal – Non-Sensitizer (Guinea Pig, Buehler).

Sensitization Inhalation – Non-sensitizer (Guinea Pig)

Repeated Dose Toxicity: 3 wks, inhalation NOAEL: 3.7-4.3 mg/m3 (rat)

Repeated Dose Toxicity: 90 d, inhalation NOAEL: 3.3-3.4 mg/m3 (rat)

Repeated Dose toxicity: Irritation to lungs and nasal cavity

Mutagenicity: Genetic Toxicity in Vitro, Ames: negative (salmonell typhimurium, metabolic Activation: with,without)

COMPONENT n-Butyl Acetate: Acute oral LD50 > 5000 mg/kg (rat), Acute Inhalation Toxicity: LC50 > 23.4 mg/l, 4h (rat), Acute Dermal Toxicity LD50 > 5000 mg/kg (rabbit), Skin Irritation Guinea pig Acute Dermal Irritation exposure time 24h – Non-irritating, Skin Irritation Human patch test exposure time 48h – Non-irritating, Eye Irritation rabbit Draize exposure time 24h – slightly irritating, Sensitization dermal – non-sensitizing (guinea pig, human – 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).

COMPONENT Xylene: Inhalation LC50 26800ppm, Skin LD50 2000 mg/kg, Ingestion LD50 4.3 g/kg. Exposure may effect skin, eye, liver, kidney, nervous system, respiratory system and lungs. High concentrations may lead to nervous system effects. Repeated overexposure has produced toxic effects in developing and young laboratory animals. Aspiration into lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal. Xylene may contain ethyl benzene.. Ethyl benzene has shown limited evidence of a carcinogenic effect.

COMPONENT Ethyl Benzene: Acute Oral toxicity LD50: ca. 3500 mg/kg (rat); Acute inhalation LC50: 17.2 mg/l 4h (rat); Acute Dermal Toxicity: 17,800 mg/kg (rabbit); Skin Irritation rabbit Draize exposure time 24h – slightly irritating. Eye Irritation rabbit Draize – severely irritating. Sensitization dermal (human patch test) non-sensitizer.Repeated Dose toxicity 28 days inhalation NOAEL: 3.4 mg/l (rabbit). Mutagenicity Genetic Toxicity in Vitro: Ames: Negative (salmonella typhimurium, metabolic activation with/without). Carcinogenicity: Ethyl benzene was tested by inhalation exposure in mice and rats. In mice, there was an increased incidence of lung adenomas in males and liver adenomas in females. In male rats, there was an increased incidence of renal tubule adenomas and carcinomas. Two Studies of workers potentially exposed to ethyl benzene in a production plant and a styrene polymerization plant, showed no excess cancer incidence and no excess cancer mortality during a 15 year follow-up. Toxicity to Reproduction/Fertility: Inhalation (monkey, male) Reproductive effects have been observed in animal studies, In a generation study, inhalation (rat/female) NOAEL (parental): 100ppm NOAEL (F2): 100ppm. Developmental Toxicity/Teratogenicity rat, female, inhalation, gestation, daily, NOAEL (teratogenicity): 100ppm (maternal): 100ppm. Teratogenic effects seen only with maternal toxicity., Fetotoxicity seen only with maternal toxicity. Rabbit, female, inhalation, gestation, daily, NOAEL (teratogenicity) < 1000 mg/m3, NOAEL (maternal) < 1000 mg/m3.

SECTION 12: ECOLOGICAL INFORMATION

COMPONENT Homopolymer of HDI: Biodegradation: 0%, Exposure time: 28 days, not readily biodegradable. Acute and Prolonged Toxicity to fish LC0 > 100 mg/l (zebra fish, 96 h). Acute toxicity to aquatic invertebrates: EC0 > 100 mg/l (water flea, 48 h). Toxicity to aquatic plants EC50 > 1000 mg/l (green algae, 72 h). Toxicity to Microorganisms: EC50 > 1000 mg/l (activated sludge microorganisms, 3 h).

COMPONENT n-Butyl Acetate: Biodegradation: aerobic, 98%, exposure time 28 days. Biochemical oxygen demand (BOD) 1020 mg/g. Chemical Oxygen demand (COD) 2,320 mg/g. Bioaccumulation: ca. 4-14 BCF. Acute and Prolonged Toxicity to Fish LC50: 18 mg/l (fathead Minnow, 96 h). Acute Toxicity to Aquatic Invertebrate EC50: 72.8 mg/l (water flea, 48 h). Toxicity to aquatic plants EC50: 670 mg/l, end point: growth (Cryptomonad, 48 h). Toxicity to Microorganisms EC50: 959 mg/l (Pseudomonas putida, 48 h).

COMPONENT Xylene: Acute Toxicity: Fish: Toxic 1 < LC/EC/IC50 < 10mg/l, Aquatic Invertebrates: Toxic 1 < LC/EC/IC50 < 10mg/l, Algae: Toxic 1 < LC/EC/IC50 < 10 mg/l. Mobility – floats on water. If it enters the soil it will be highly mobile and may contaminate groundwater. Oxidises rapidly by photo-chemical reactions in air.

COMPONENT Ethyl Benzene: Biodegradation, Aerobic, 50%, Exposure time 28 days. Biochemical Oxygen demand (BOD) 5 days, 2.8% and 35 days, 1780 mg/g. Bioaccumulation: Cyprinus carpio (Carp), 15 BCF. Acute and Prolonged Toxicity to Fish LC50: 12.1 mg/l (fathead minnow, 96 h). Acute Toxicity to Aquatic Invertebrates EC50: 1.8-2.9 mg/l (water flea, 48 h). Toxicity to Aquatic Plants EC50: 4.6 mg/l (green algae, 72 h). Toxicity to microorganisms EC50: 130 mg/l (activated sludge microorganisms, 48 hr).

SECTION 13: WASTE DISPOSAL**WASTE DISPOSAL METHOD:**

Dispose of the material in a waste disposal site in accordance with local, state, and federal laws.

SECTION 14: Transport Information

DOT: UN1993, FLAMMABLE LIQUID N.O.S. (CONTAINS XYLENE, BUTYL ACETATE), 3, PG III

IMO/MDG: UN1993, FLAMMABLE LIQUID N.O.S. (CONTAINS XYLENE, BUTYL ACETATE), 3, PG III

SECTION 15: REGULATORY INFORMATION

OSHA HAZCOM STANDARD RATING: Hazardous.

All components on TSCA

US EPA CERCLA Hazardous Substances (40 CFR 302): n-butyl acetate reportable quantity 5000 lbs

US EPA CERCLA Hazardous Substances (40 CFR 302): Xylene reportable quantity 100 lbs.

US EPA CERCLA Hazardous Substances (40 CFR 302): Ethyl Benzene reportable quantity 1000 lbs.

MATERIAL SAFETY DATA SHEET

PRODUCT CODE: 321

US EPA Emergency Planning and Community Right to Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.5) components, Xylene and Ethyl Benzene.

Massachusetts, New York, Pennsylvania Right to Know list includes the following components: Homopolymer of HDI CAS# 28182-81-2 @ 60-100%; n-Butyl Acetate CAS# 123-86-4 @ 10-20%; Xylene CAS# 1330-20-7 @ 7-13%; Ethyl Benzene CAS# 100-41-4 @ 1-5%.

Massachusetts, New York, Pennsylvania Special Hazardous Substance includes the following components: n-Butyl Acetate CAS# 123-86-4 @ 10-20%; Xylene CAS# 1330-20-7 @ 7-13%; Ethyl Benzene CAS# 100-41-4 @ 1-5%; hexamethylene diisocyanate (HDI) CAS# 822-06-0 @ <0.6%.

California Prop 65: This product contains chemicals known to the State of California to be carcinogenic: Ethyl Benzene CAS# 100-41-4 @ 1-5%.

SECTION 16: OTHER INFORMATION

DISCLAIMER: The information contained herein is based on the data available and is believed to be accurate. However, the manufacturer makes no warranty expressed or implied regarding the accuracy of this data or the results obtained from the use thereof. Accordingly, we assume no responsibility for injury from the use of this product.