

SAFETY DATA SHEET

PRODUCT CODE: 110x

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ARM110x PART A
PRODUCT CODES: 110x A

MANUFACTURER: Armorpoxy Inc.
STREET ADDRESS: 1260 North Avenue
CITY, STATE, ZIP: Plainfield, NJ 07062

INFORMATION PHONE: 888-755-7361
EMERGENCY PHONE: Chemtrec 800-424-9300
FAX PHONE: (973) 453-8114

PREPARED BY: Armorpoxy Inc.

DATE REVISED: 11/11/20

Chemical Name or Class: Epoxy mixture

SECTION 2: HAZARDS IDENTIFICATION

Hazard Overview

GHS Classification: (Skin corrosion/irritation category 2), (Serious eye damage/Eye irritation category 2B), (Sensitization, skin category 1), (Hazardous to the aquatic environment, long term hazard Category 3)

GHS Label Elements and Precautionary Statements:

Label Elements: Exclamation Mark



Hazard Statements:

H315 Warning: Causes skin irritation
H320 Warning: Causes eye irritation.
H317 Warning: May cause an allergic skin reaction
H412 Harmful to aquatic life with long lasting effects

Precautionary statements:

P102 Keep out of reach of children.
P103 Read label before use
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.

Response:

P302+P352 IF ON SKIN: wash with plenty of soap and water.
P321 Specific treatment (see on this label)
P333+P313 IF SKIN irritation or rash occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 IF eye irritation persists: Get medical advice/attention.

Disposal:

P501 Dispose of contents/container to a waste disposal facility in accordance with local, state, federal or international laws
Other Non-classifiable potential hazards
Carcinogen category 2

HMIS HAZARD CLASSIFICATION

HEALTH: 2 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTIVE EQUIPMENT: G

POTENTIAL HEALTH EFFECTS

EYES:

MAY CAUSE IRRITATION BUT NO CORNEAL INJURY IS LIKELY.

SKIN:

MAY CAUSE IRRITATION OR ALLERGIC SKIN RESPONSE.

INGESTION:

THIS MATERIAL HAS A PROBABLE LOW ACUTE ORAL TOXICITY.

INHALATION:

NO GUIDE FOR CONTROL KNOWN, HOWEVER, EXPOSURE TO HEATED VAPORS CAN CAUSE IRRITATION TO THE NOSE, THROAT OR MUCOUS MEMBRANES.

HEALTH HAZARDS (ACUTE AND CHRONIC):

SAFETY DATA SHEET

PRODUCT CODE: 110x

EPOXY RESINS CAN CAUSE SENSITIZATION BY EXPOSURE THROUGH CONTACT OR HIGH CONCENTRATION OF VAPOR. EYES: INJURY IF UNLIKELY BUT STAIN FOR EVIDENCE OF CORNEAL INJURY.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

RESPIRATORY CONDITIONS OR OTHER ALLERGIC AILMENTS.

CARCINOGENICITY

OSHA: NO NTP: yes IARC: yes

ADDITIONAL CARCINOGENICITY INFORMATION:

Some colors may contain carbon black - Explanation of Carcinogenicity for carbon: IARC MONOGRAPHS ON EVALUATION OF CARCINOGENIC RISK OF CHEMICALS TO MAN, VOL 65, PG 149, 1996: GROUP 2B. Titanium Dioxide is listed by IARC as possibly carcinogenic to humans (group 2B).

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>
MODIFIED DIGLYCIDYL ETHER OF BISPENOL A	25068-38-6	NONE	NONE	NONE	60-100
ALKYL GLYCIDYL ETHER	68609-97-2	NONE	NONE	NONE	10-30
HYDROCARBON RESIN	PROPRIETARY	NONE	NONE	NONE	1-5
*Naphthalene	91-20-3	10ppm	10ppm	NONE	<0.01
HYDROXY MODIFIED RESIN	PROPRIETARY	NONE	NONE	NONE	1-5
BENZYL ALCOHOL	100-51-6	NONE	NONE	NONE	1-5
DIBENZYL ETHER	103-50-4	NONE	NONE	NONE	<0.01
NAPHTHA, PETROLEUM, HYDRODESULFURIZED HEAVY	64742-82-1	NONE	NONE	NONE	0.1-1
Polyphosphoric acids, reaction products with 2-oxepanone and polyethylene glycol monomethyl ether	162627-21-6	NONE	NONE	NONE	0.1-1
1-Methoxy-2-Propanol Acetate	108-65-6	NONE	NONE	NONE	<0.1
Solvent Naphtha, petroleum, Light Aromatic	64742-95-6	50PPM	400PPM	NONE	<0.1
Cumene (component of Solvent Naphtha, petroleum, light aromatic)	98-82-8	50ppm	50ppm	NONE	<0.01
Phosphoric acid (residual)	7664-38-2	1mg/m ³	3mg/m ³	3mg/m ³	<0.01
Colors may contain @ 3-7%:					
Titanium Dioxide	13463-67-7	15mg/m ³	10mg/m ³	NONE	
*CARBON	1333-86-4	3.5mg/m ³	3 mg/m ³	NONE	<1.0
Precipitated Silica	112926-00-8	NONE	80mg/m ³	NONE	
Iron III oxide	1309-37-1	5mg/m ³	5mg/m ³	NONE	
Yellow Pigment	Not available	NONE	NONE	NONE	
Zinc Sulfide (component of yellow pigment)	1314-98-3	NONE	NONE	NONE	
Barium Sulfate (component of yellow pigment)	7727-43-7	NONE	NONE	NONE	
Titanium Dioxide (component of yellow pigment)	13463-67-7	NONE	NONE	NONE	
Pigment yellow 65 (component of yellow pigment)	6528-34-3	NONE	NONE	NONE	
Iron III hydroxide	20344-49-4	15mg/m ³	5mg/m ³	NONE	
C.I. Pigment Blue	147-14-8	1mg/m ³	1mg/m ³	NONE	
Aluminum Oxide	1344-28-1	15mg/m ³	10mg/m ³	NONE	
Silica, amorphous	7631-86-9	80mg/m ³	10mg/m ³	NONE	
Iron Oxide Yellow	51274-00-1	15mg/m ³	10mg/m ³	NONE	

SECTION 3 NOTES: *Indicates toxic chemical(s) subject to reporting requirements of section 313 of Title III and of 40 CFR 372. This products contains trace amounts the following toxic chemicals: 1,2,4-Trimethylbenzene (CAS# 95-63-6) @ 0.016%

Note: Ingredients listed without percentages, the percentages are considered a trade secret.

SECTION 4: FIRST AID MEASURES

EYES:

FLUSH EYES THOROUGHLY WITH WATER FOR SEVERAL MINUTES. REMOVE CONTACT LENSES AFTER THE INITIAL 1-2 MINUTES AND CONTINUE FLUSHING FOR SEVERAL ADDITIONAL MINUTES. IF EFFECTS OCCUR, CONSULT A PHYSICIAN, PREFERABLY AN OPHTHALMOLOGIST. SUITABLE EMERGENCY EYE WASH FACILITY SHOULD BE AVAILABLE IN WORK AREA.

SKIN:

REMOVE MATERIAL FROM SKIN IMMEDIATELY BY WASHING WITH SOAP AND PLENTY OF WATER. REMOVE CONTAMINATED CLOTHING AND SHOES WHILE WASHING. SEEK MEDICAL ATTENTION IF IRRITATION PERSISTS. WASH CLOTHING BEFORE REUSE. DISCARD ITEMS WHICH CANNOT BE DECONTAMINATED, INCLUDING LEATHER ARTICLES SUCH AS SHOES, BELTS AND WATCHBANDS.

INGESTION:

SAFETY DATA SHEET

PRODUCT CODE: 110x

LOW IN TOXICITY, INDUCE VOMITING ONLY IF LARGE AMOUNTS OF MATERIAL ARE INGESTED, AND OTHERWISE DO NOT INDUCE VOMITING. IN EITHER CASE CONSULT WITH A PHYSICIAN.

INHALATION:

REMOVE VICTIM TO FRESH AIR AND ADMINISTER OXYGEN IF NECESSARY. IF EFFECTS OCCUR, CONSULT A PHYSICIAN.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:

IF BURN IS PRESENT, TREAT AS ANY THERMAL BURN AFTER DECONTAMINATION. NO SPECIFIC ANTIDOTE. TREATMENT OF EXPOSURE SHOULD BE DIRECTED AT THE CONTROL OF SYMPTOMS AND THE CLINICAL CONDITION OF THE PATIENT.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR,
(% by volume)

UPPER: not available

LOWER: not available

FLASH POINT: 200+F

METHOD USED:

SETA FLASH

EXTINGUISHING MEDIA:

FOAM, ALCOHOL FOAM, CO2, DRY CHEMICAL, WATER FOG. DO NOT USE DIRECT WATER STREAM, MAY SPREAD FIRE.

SPECIAL PROTECTIVE EQUIPMENT:

WEAR POSITIVE-PRESSURE SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE FIRE FIGHTING CLOTHING. AVOID CONTACT WITH THIS MATERIAL DURING FIRE FIGHTING OPERATIONS. IF CONTACT IS LIKELY, CHANGE TO FULL CHEMICAL RESISTANT FIRE FIGHTING CLOTHING WITH SELF-CONTAINED BREATHING APPARATUS. IF THIS IS NOT AVAILABLE, WEAR FULL CHEMICAL RESISTANT CLOTHING WITH SELF-CONTAINED BREATHING APPARATUS AND FIGHT FIRE FROM A REMOTE LOCATION.

SPECIAL FIRE FIGHTING PROCEDURES:

KEEP PEOPLE AWAY. ISOLATE FIRE AND DENY UNNECESSARY ENTRY. USE WATER SPRAY TO COOL FIRE EXPOSED CONTAINERS AND FIRE AFFECTED ZONE UNTIL FIRE IS OUT AND DANGER OF REIGNITION HAS PASSED. FIGHT FIRE FROM PROTECTED LOCATION AT SAFE DISTANCE. CONSIDER THE USE OF UNMANNED HOSE HOLDERS OR MONITOR NOZZLES. IMMEDIATELY WITHDRAW ALL PERSONNEL FROM THE AREA IN CASE OF RISING SOUND FROM VENTING SAFETY DEVICE OR DISCOLORATION OF THE CONTAINER. DO NOT USE DIRECT WATER STREAM, IT MAY SPREAD THE FIRE. MOVE CONTAINER FROM FIRE AREA IF POSSIBLE WITHOUT HAZARD. BURNING LIQUIDS MAY BE MOVED BY FLUSHING WITH WATER TO PROTECT PERSONNEL AND MINIMIZE PROPERTY DAMAGE. WATER FOG, APPLIED GENTLY MAY BE USED AS A BLANKET FOR FIRE EXTINGUISHMENT. CONTAIN FIRE WATER RUN-OFF IF POSSIBLE. FIRE WATER RUN-OFF, IF NOT CONTAINED, MAY CAUSE ENVIRONMENTAL DAMAGE.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

CONTAINER MAY RUPTURE FROM GAS GENERATION IN A FIRE SITUATION. VIOLENT STEAM GENERATION OR ERUPTION MAY OCCUR UPON APPLICATION OF DIRECT WATER STREAM TO HOT LIQUIDS. DENSE SMOKE IS EMITTED WHEN BURNED WITHOUT SUFFICIENT OXYGEN.

SECTION 6: RELEASE MEASURES

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

ISOLATE THE AREA. KEEP UNNECESSARY AND UNPROTECTED PERSONNEL FROM ENTERING THE AREA. USE APPROPRIATE SAFETY EQUIPMENT. CONTAIN SPILLED MATERIAL IF POSSIBLE. PREVENT FROM ENTERING INTO SOIL, DITCHES, SEWARS, WATERWAYS AND/OR GROUNDWATER. ABSORB WITH MATERIALS SUCH AS: SAND, POLYPROPYLENE FIBER PRODUCTS OR POLYETHYLENE FIBER PRODUCTS. REMOVE RESIDUAL WITH SOAP AND HOT WATER. COLLECT IN SUITABLE AND PROPERLY LABELED CONTAINERS. RESIDUAL CAN BE REMOVED WITH SOLVENT AS LONG AS EXPOSURE GUIDELINES AND SAFE HANDLING MEASURES ARE FOLLOWED.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

STORE IN A COOL DRY PLACE. SEAL ALL PARTIALLY USED CONTAINERS. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING OR USING TOILET FACILITIES. MIXED MATERIALS CONTAIN THE HAZARDS OF ALL THE COMPONENTS, THEREFORE, READ THE SDS'S OF ALL THE COMPONENTS PRIOR TO USING MATERIAL. PROPERLY LABEL ALL CONTAINERS

OTHER PRECAUTIONS:

AVOID CONTACT WITH EYES, SKIN AND CLOTHING. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. AVOID BREATHING VAPORS GENERATED FROM THE MATERIAL. OBSERVE CONDITIONS OF GOOD GENERAL HYGIENE AND SAFE WORKING PRACTICES. CONTAMINATED LEATHER ARTICLES CAN NOT BE CLEANED AND MUST BE DISCARDED IF CONTAMINATED WITH THIS PRODUCT. WASH ALL CONTAMINATED CLOTHING PRIOR TO THE REUSE THEREOF.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

RESPIRATORY PROTECTION SHOULD BE WORN WHEN THERE IS A POTENTIAL TO EXCEED THE EXPOSURE LIMIT REQUIREMENTS OR GUIDELINES. IF THERE ARE NO APPLICABLE EXPOSURE LIMIT REQUIREMENTS OR GUIDELINES, WEAR RESPIRATORY PROTECTION WHEN ADVERSE EFFECTS, SUCH AS RESPIRATORY IRRITATION OR DISCOMFORT HAVE BEEN EXPERIENCED OR WHERE INDICATED BY YOUR RISK ASSESSMENT PROCESS. FOR MOST CONDITIONS, NO RESPIRATORY

SAFETY DATA SHEET

PRODUCT CODE: 110x

PROTECTION SHOULD BE NEEDED; HOWEVER, IF MATERIAL IS HEATED OR SPRAYED, USE AN APPROVED AIR-PURIFYING RESPIRATOR (ORGANIC VAPOR CARTRIDGE WITH A PARTICULATE PRE-FILTER).

VENTILATION:

GENERAL EXHAUST IS USUALLY SUFFICIENT TO CONTROL VAPORS AND EXPOSURE HAZARDS

PROTECTIVE GLOVES:

IMPERVIOUS GLOVES – NEOPRENE OR RUBBER

EYE PROTECTION:

SPLASH GOGGLES OR GLASSES WITH SIDE SHIELDS.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

WEAR BODY COVERING CLOTHING AND OTHER COVERINGS AS NECESSARY SUCH AS APRON AND APPROPRIATE FOOTWEAR TO AVOID CONTACT WITH MATERIAL.

WORK HYGIENIC PRACTICES:

OBSERVE GOOD GENERAL HYGIENIC PRACTICES.

SEE SECTION THREE FOR OCCPATONAL EXPOSURE LIMIT VALUES.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: MEDIUM VISCOSITY LIQUID IN VARYING COLORS

BOILING POINT OR RANGE: 200 TO 279F

VAPOR DENSITY (AIR = 1): N/A

SPECIFIC GRAVITY (H2O = 1): 1.1 - 1.2

EVAPORATION RATE: N/A

SOLUBILITY IN WATER: NEGLIGIBLE

Odor Threshold: N/A

pH: N/A

Melting point/freezing point: N/A

Vapor Pressure: N/A

Auto Ignition Temperature: N/A

Partition Coefficient: n-octanol/water: N/A

Decomposition Temperature: N/A

SECTION 10: STABILITY AND REACTIVITY

STABILITY:

STABLE UNDER RECOMMENDED STORAGE CONDITIONS

CONDITIONS TO AVOID (STABILITY):

AVOID EXCESSIVE HEAT OR OPEN FLAMES.

INCOMPATIBILITY (MATERIAL TO AVOID):

CAN REACT VIGOROUSLY WITH STRONG OXIDIZING AGENTS AND STRONG LEWIS ACIDS OR MINERAL ACIDS.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

CO₂, ALDEHYDES, ACIDS. REACTION WITH SOME CURING AGENTS CAN GENERATE LARGE AMOUNTS OF HEAT.

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR BY ITSELF

SECTION 11: TOXICOLOGICAL INFORMATION

No data for the product itself.

Component data:

Acute Oral Toxicity:

Component data MODIFIED DIGLYCIDYL ETHER OF BISPHENOL A (CAS# 25068-38-6): LD50, rat > 5000 mg/kg

Component Benzyl Alcohol (CAS# 100-51-6): LD50, oral, rat, male, 1620 mg/kg

Component Dibenzyl Ether (CAS# 103-50-4): LD50, oral, rat, male/female, 3860 mg/kg (OECD 401)

Component Naphtha, Petroleum, Hydrodesulfurized Heavy (CAS# 64742-82-1): LD50 rat, > 5000 mg/kg

Component 1-Methoxy-2-Propanol Acetate (CAS# 108-65-6): LD50 rat, female: 5155 mg/kg

Component Solvent Naphtha, petroleum, Light Aromatic (CAS# 64742-95-6): LD50 rat, > 4000 mg/kg

Component Phosphoric acid (residual) (CAS# 7664-38-2): LD50 rat: 1530 mg/kg

Component Cumene (component of Solvent Naphtha, petroleum, light aromatic) (CAS# 98-82-8): LD50 rat: 1400 mg/kg

Component Carbon (CAS# 1333-86-4): LD50 rat: > 8000 mg/kg

Component Titanium Dioxide (CAS# 13463-67-7): LD50 > 5000 mg/kg, rat

Component Iron III oxide CAS# 1309-37-1: LD50 >5000 mg/kg (rat)

Component Iron III hydroxide CAS# 20344-49-4: LD50 >5000 mg/kg (rat).

Component Precipitated silica CAS# 112926-00-8: LD50 (rat >5000 mg/kg)

Acute Dermal Toxicity:

Component data MODIFIED DIGLYCIDYL ETHER OF BISPHENOL A (CAS# 25068-38-6): LD50, rabbit > 20000 mg/kg

Component HYDROCARBON RESIN: Causes skin irritation through prolonged or repeated exposure

Component HYDROXY MODIFIED RESIN: Causes skin irritation. May cause allergic skin reaction.

Component Naphtha, Petroleum, Hydrodesulfurized Heavy (CAS# 64742-82-1): LD50 rabbit, > 3000 mg/kg

Component 1-Methoxy-2-Propanol Acetate (CAS# 108-65-6): LD50 rabbit: > 5000 mg/kg

SAFETY DATA SHEET

PRODUCT CODE: 110x

Component Solvent Naphtha, petroleum, Light Aromatic (CAS# 64742-95-6): LD50 rabbit: > 3480 mg/kg

Component Precipitated silica CAS# 112926-00-8: LD50 (rat) >2000 mg/kg

Acute Inhalation Toxicity:

At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material, mist or aerosols may cause respiratory irritation.

Component data ALKYL GLYCIDYL ETHER (CAS# 68609-97-2): Excessive exposure may cause irritation to upper respiratory tract (nose and throat). LC50, rat, 4h, dust/mist, 0.206 mg/l, no deaths occurred following exposure to a saturated atmosphere.

Component Benzyl Alcohol (CAS# 100-51-6): LC50, inhalation dusts and mists, rat, >4178 mg/m³, 4h (OECD 403)

Component Naphtha, Petroleum, Hydrodesulfurized Heavy (CAS# 64742-82-1): LC50 rat, > 11.6 mg/l

Component 1-Methoxy-2-Propanol Acetate (CAS# 108-65-6): LC50 rat, 4h > 100ppm

Component Solvent Naphtha, petroleum, Light Aromatic (CAS# 64742-95-6): LC50 rat, 4h: 3670 ppm

Component Titanium Dioxide (CAS# 13463-67-7): 4 h LC50 > 6.82 mg/l

Skin Corrosion/Irritation:

Prolonged contact may cause skin irritation with local redness. Repeated contact may cause burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Serious eye damage/irritation:

May cause eye irritation. Corneal injury is unlikely.

Sensitization:

Component Dibenzyl Ether (CAS# 103-50-4): guinea pig, skin, sensitizing. Mouse, skin, sensitizing.

Specific Target Organ Toxicity (single exposure):

Component Benzyl Alcohol (CAS# 100-51-6): Chronic NOAEL Oral, rat, male/female, 400 mg/kg, 103 weeks; 5 days/week

Sub-acute NOAEC Inhalation dusts and mists, rat, male/female, 1072 mg/m³, 4 weeks; 6 hours/day

Component Dibenzyl Ether (CAS# 103-50-4): Sub-chronic NOAEL oral, rat, male/female, 620 mg/kg, 91 days; 7 days/week

Specific Target Organ Toxicity (repeated exposure):

Except for skin sensitization, repeated exposures to low molecular weight epoxy resins of this type are not anticipated to cause any significant adverse effects. Solvent absorption by inhalation and/or repeated skin contact may cause injury to liver, kidney and respiratory system.

Carcinogenicity:

product contains trace amounts of Cumene CAS# 98-82-8, which is an IARC Group 2B (possibly carcinogenic to humans) and listed by NTP as reasonably anticipated to be a human carcinogen

Component Carbon (CAS# 1333-86-4): IARC Group 2B (possibly carcinogenic to humans), NTP (reasonably anticipated to be a human carcinogen)

Component Titanium Dioxide (CAS# 13463-67-7): IARC Group 2B (possibly carcinogenic to humans)

Teratogenicity:

Component data MODIFIED DIGLYCIDYL ETHER OF BISPHENOL A (CAS# 25068-38-6): no birth defects or other adverse effects found

Reproductive Toxicity:

Component Benzyl Alcohol (CAS# 100-51-6): mouse, female, oral: 550 mg/kg NOAEL, 10 days; 7 days/week

Mouse, female, oral: 750 mg/kg LOAEL, 8 days; 7 days/week

Mutagenicity:

Component Benzyl Alcohol (CAS# 100-51-6): OECD 471 Bacterial Reverse Mutation test, in vitro, mammalian-animal, positive result

OECD 476 Mammalian Cell Gene Mutation Test with metabolic activation, in vitro, mammalian-animal, negative result

OECD 473 Mammalian Chromosomal Aberration Test without metabolic activation, in vitro, mammalian-animal, negative result

OECD 477 Genetic Toxicology: Sex-linked recessive lethal test in Drosophila Melanogaster, in vivo, insect, negative result

OECD 474 Mammalian Erythrocyte Micronucleus Test, in vitro, mammalian animal, negative result

Component Dibenzyl Ether (CAS# 103-50-4): OECD 471 Bacterial Reverse Mutation Test, in vitro, bacteria w/wo S9 mix, negative result

OECD 476 Mammalian Cell Gene Mutation Test, in vitro, mammalian animal, negative result

OECD 487 Micronucleus Test, in vitro, mammalian-human, negative

Aspiration Hazard:

Component Solvent Naphtha, petroleum, Light Aromatic (CAS# 64742-95-6): This component is known to cause or has to be regarded as if it causes a human aspiration toxicity hazard.

SECTION 12: ECOLOGICAL INFORMATION

No data for the product itself.

Component data:

MODIFIED DIGLYCIDYL ETHER OF BISPHENOL A (CAS# 25068-38-6):

Acute toxicity to Fish: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L is the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96h, 2mg/l

Acute toxicity to aquatic invertebrates: EC50, daphnia magna (water flea), static test, 48h, 1.8 mg/l

Acute toxicity to algae/aquatic plants: ErC50, Scenedesmus capricornutum (fresh water algae), static test, 72h, growth rate inhibition, 11mg/l

Toxicity to bacteria: IC50, bacteria, 18h, respiration rates > 42.6 mg/l

Chronic toxicity to aquatic invertebrates: NOEC, daphnia magna (water flea), semi-static test, 21d, number of offspring, 0.3 mg/l

MATC (Maximum Acceptable Toxicant Level), daphnia magna (water flea), semi-static test, 21d, number of offspring, 0.55mg/l

Biodegradability: not considered readily biodegradable (12%), 28d (OECD 302B)

Photodegradation: half-life (indirect photolysis), OH radicals, Atmospheric half-life 1.92h (estimated)

Bioaccumulation: moderate (BCF 100-3000 or Log Pow 3-5)

Partition coefficient: n-octanol/water(log Pow): 3.242 @ 25C (estimated)

Mobility in soil: low potential (Koc 500-2000)

Partition coefficient (Koc): 1800-4400 (estimated)

ALKYL GLYCIDYL ETHER (CAS# 68609-97-2):

SAFETY DATA SHEET

PRODUCT CODE: 110x

Acute toxicity to fish: Not expected to be acutely toxic, but material in pellet or bead form may mechanically cause adverse effects if ingested by waterfowl or aquatic life. LC50, Oncornhynchus mykiss (rainbow trout), static test, 96h, >5000 mg/l

LC50, Lepomis macrochirus (bluegill sunfish), static test, 96h, 1800 mg/l

Acute toxicity to algae/aquatic plants: EbC50, Pseudokirchneriella subcapitata (green algae), 72h, growth inhibition (cell density reduction), 843 mg/l

NOEC, Pseudokirchneriella subcapitata (green algae), 72h, growth inhibition (cell density reduction), 500mg/l

Toxicity to bacteria: EC50, activated sludge, static test, 3h, respiration rates > 100 mg/l

Biodegradability: moderate (87%), 28d (OECD 301F)

Bioaccumulation: moderate (BCF 100-3000 or Log Pow 3-5) – No relevant data found

Partition coefficient: n-octanol/water(log Pow): 3.77 @ 20C (OECD 107)

Bioconcentration factor (BCF): 160 fish (estimated)

Mobility in soil: relatively immobile (Koc > 5000)

Partition coefficient (Koc): > 5000 (OECD 121) HPLC Method

Hydrocarbon Resin (proprietary):

May be harmful to aquatic life with lasting effects – not classified

Hydroxy Modified Resin (proprietary):

Harmful to aquatic life with long lasting effects. Do not allow to enter sewers or waterways.

Component Benzyl Alcohol (CAS# 100-51-6):

Toxicity: (ISO 8192, bacteria, 24h, result: acute EC50 390 mg/l), (OECD 202, daphnia magna, 48h, result: acute EC50 230 mg/l), (OECD 201, pseudokirchneriella subcapitata, result: acute IC50 770 mg/l), (Mortality, pimephales promelas, 96h, result: acute LC50 460 mg/l), (OECD 201, pseudokirchneriella subcapitata algae, 72h, result: Chronic NOEC 310 mg/l), (OECD 211, daphnia magna, 21d, result: Chronic NOEC 51 mg/l)

Persistence and degradability: (OECD 301A Ready Biodegradability – DOC Die-Away Test, activated sludge, result: 95-97% - readily – 21d), (OECD 301C Ready Biodegradability – Modified MITI Test, activated sludge, result: 92-96% - readily – 14 days)

Bioaccumulative potential: Log Pow – 1.05, BCF – 1.37, Potential - low

Component Dibenzyl Ether (CAS# 103-50-4):

Toxicity: (OECD 201, pseudokirchneriella subcapitata, 72h, result: NOEC 0.32 mg/l), (OECD 209, activated sludge, 30m, result: acute EC50 138 mg/l), (OECD 202, Daphnia magna, 72h, result: acute EC50 0.77 mg/l), (OECD 201, pseudokirchneriella subcapitata, 72h, result: acute IC50 4.1 mg/l), (OECD 203, oryzias latipes, 96h, result: Acute LC50 6.8 mg/l), (OECD211, daphnia magna, 21d, result: chronic NOEC 0.098 mg/l)

Persistence and degradability: (OECD 301C Ready Biodegradability – Modified MITI Test, activated sludge, result: 0% - not readily – 14 days) (Photolysis: 50%; 0.8 days, result: not readily)

Bioaccumulative potential: Log Pow – 3.31, BCF – 171-429, Potential - low

Component Carbon (CAS# 1333-86-4):

Toxicity: Fish (Brachydanio rerio): LC50, 96h > 1000 mg/l (OECD 203), daphnia magna: EC50, 24h, > 5600 mg/l (OECD 202), algae (scenedesmus subspicatus): EC50, 72h, > 10000 mg/l, algae (scenedesmus subspicatus): NOEC >= 10000 mg/l, activated sludge: EC0, 3h, >= 800 mg/l (DEV L3 TTC)

Component Iron III hydroxide CAS# 20344-49-4:

Acute and Prolonged Toxicity to fish LC0 >1000 mg/l (golden Orfe). Toxicity to Microorganisms EC0 > 10000mg/l (pseudomonas putida)

Component Precipitated Silica CAS# 112926-00-8: Ecotoxicity: EC50 (fish) .10000 mg/l (daphnia >10000 mg/l)

SECTION 13: WASTE DISPOSAL

WASTE DISPOSAL METHOD:

DISPOSE OF THE MATERIAL IN A WASTE DISPOSAL SITE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAW.

SECTION 14: Transport Information

DOT: Not Regulated

IMO/IMDG: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A Diglycidyl Ether Polymer), 9, PGIII

IATA/ICAO: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A Diglycidyl Ether Polymer), 9, PGIII

SECTION 15: REGULATORY INFORMATION

No data for the product itself.

Component data:

Component CAS# 25068-38-6: Considered a hazardous chemical; is on the TSCA list; is on the DSL Canada

Component CAS# 68609-97-2: Considered a hazardous chemical; is on the TSCA list; is on the DSL Canada

Component HYDROCARBON RESIN: Component contains 0.01-0.05 wt. % Naphthalene CAS# 91-20-3 with a CERCLA RQ of 100 pounds. Component is on the TSCA list and Canadian DSL list. Component does not contain any reportable chemicals above the de minimus level for section 313. Component is not hazardous as defined by CFR 1910.1200 or Title III section 312/313 of the superfund amendment. Naphthalene is known to the state of California to cause cancer. Naphthalene is on the Pennsylvania, Massachusetts and New Jersey right to know lists.

Component HYDROXY MODIFIED RESIN: Component is not hazardous as defined by CFR 1910.1200 and under the provisions of Title III Section 311/312 of the Superfund amendments and Reauthorization Act. Component is on the TSCA list and Canadian DSL list.

Component Benzyl Alcohol (CAS# 100-51-6):

SARA 311/312: Immediate (acute) health hazard

Listed on PA Right to Know Hazardous substance list and on Massachusetts substance list. Listed on TSCA Inventory and Canadian DSL.

Component Naphtha, Petroleum, Hydrodesulfurized Heavy (CAS# 64742-82-1): on TSCA and Canadian DSL

SAFETY DATA SHEET

PRODUCT CODE: 110x

California Prop 65: This product can expose you to chemicals including Cumene (CAS# 98-82-8), Ethyl Benzene (CAS# 100-41-4), Naphthalene (CAS# 91-20-3), 1,4-Dioxane (CAS# 123-91-1), Benzene (CAS# 71-43-2), which are known to the State of California to cause cancer; and Toluene and Benzene, which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Component Phosphoric acid (residual) (CAS# 7664-38-2) – Listed on MA, PA, NJ Right to Know Lists. Listed on TSCA.

Component Polyphosphoric acids, reaction products with 2-oxepanone and polyethylene glycol monomethyl ether (CAS# 162627-21-6) – Listed on PA & NJ Right to Know Lists. Listed on TSCA.

Component Methoxy-2-Propanol Acetate (CAS# 108-65-6) – Listed on PA & NJ Right to Know Lists. Listed on TSCA.

Component Solvent Naphtha, petroleum, Light Aromatic (CAS# 64742-95-6) – Listed on PA & NJ Right to Know Lists. Listed on TSCA.

Component Cumene (Component of Solvent Naphtha, petroleum, light aromatic) (CAS 98-82-8) – SARA 313 chemical @ 0.001%, listed as HAP under Clean Air Act, Section 12 (40 CFR 61), Listed on PA & NJ Right to Know Lists. California Prop 65 WARNING! This chemical is known to the State of California to cause cancer. Listed on TSCA.

Component Carbon (CAS# 1333-86-4): not considered a Prop 65 chemical when bound within the matrix of a product. However, when in respirable form, it is known to the State of California to cause cancer. On the Massachusetts, Rhode Island, Minnesota, New Jersey and Pennsylvania Right to Know Lists. Carbon is listed or exempted on TSCA, EINECS & Canadian DSL Inventories.

Component Titanium Dioxide (CAS# 13463-67-7): Contains Proposition 65 Chemicals, is on the PA Hazardous substance list; is on the NJ & MA right to know Regulated chemical List. Titanium Dioxide is on inventory or in compliance with TSCA, DSL, EINECS, ENCS, IECSC, KECL, PICCS, AICS, NZIoC, TCSI.

Component Yellow Pigment: Not Hazardous as defined by OSHA HC Standard 29 CFR 1810.1200.

Component Iron III oxide CAS# 1309-37-1 Listed on TSCA Inventory. Section 313/312 hazard category: Chronic health hazard. Potential exposure to all of the California proposition 65 have been determined to be below the No significant risk level (NSRL). Component and its impurities (1%) are on the Pennsylvania, New Jersey right to know substance lists. Component contains the following chemicals listed on the New Jersey and Pennsylvania RTK special hazardous Substance lists: Manganese CAS# 7439-96-5 (0.7%) and Aluminum CAS# 7429-90-5 (0.29%). Component contains the following ingredients which are on the Pennsylvania, Massachusetts hazardous substance lists: Chromium CAS# 7440-47-3 (0.075%) and Nickel CAS# 7440-02-0 (0.04%) Component contains the following chemicals on the California Proposition 65 list known to the state of California to be carcinogenic: Nickel CAS# 7440-02-0 (0.04%) and Cobalt CAS# 7440-48-4 (30 ppm).

Component Iron III hydroxide CAS# 20344-49-4: Listed on TSCA Inventory. Potential exposure to all of the California proposition 65 chemicals have been determined to be below the No significant risk level (NSRL). Components are on the Pennsylvania right to know substance list. Component contains the following chemicals listed on the Pennsylvania RTK special hazardous Substance lists: chromium CAS# 7440-47-3 (0.02%) and nickel CAS# 7440-02-0 (0.015%). Component contains the following ingredients which are on the Massachusetts hazardous substance lists: Chromium CAS# 7440-47-3 (0.02%), arsenic CAS# 7440-38-2 (60ppm), Beryllium CAS# 7440-41-7 (1ppm) and Nickel CAS# 7440-02-0 (0.015%) Component contains the following chemicals on the California Proposition 65 list known to the state of California to be carcinogenic: Nickel CAS# 7440-02-0 (0.015%), arsenic CAS# 7440-38-2 (60ppm), Beryllium CAS# 7440-41-7 (1ppm) and Cobalt CAS# 7440-48-4 (70ppm)..

Component C.I. Pigment Blue CAS# 147-14-8: Component is on the TSCA List and not controlled under WHMIS. Component is a CERCLA hazardous substance

Component Aluminum Oxide CAS# 1344-28-1: Component is on the Massachusetts, New Jersey, Pennsylvania right to know lists.

Component is on TSCA list and Canada DSL.

Component Silica, amorphous CAS# 7631-86-9: Component is on the Minnesota right to know list. Component is on TSCA list and Canada DSL.

Component Iron Oxide Yellow CAS# 51274-00-1: Component is on the TSCA list and Canada DSL.

Component Precipitated Silica CAS# 112926-00-8: Is not classified as dangerous. National Chemical Inventory listings include – AICS, DSL, IECSC, EINECS, ENCS, KECL, NZLOC, PICCS, TSCA

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.

No data for the product itself.

Component data:

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ARM110x PART B
PRODUCT CODES: 110x B

MANUFACTURER: Armorpoxy Inc.
STREET ADDRESS: 1260 North Avenue
CITY, STATE, ZIP: Plainfield, NJ 07062

INFORMATION PHONE: 888-755-7361
EMERGENCY PHONE: Chemtrec 800-424-9300
FAX PHONE: (973) 453-8114

PREPARED BY: Armorpoxy Inc.

DATE REVISED: 11/11/20

Chemical Name or Class: Polyamine mixture

SECTION 2: HAZARDS IDENTIFICATION

Hazard Overview

GHS Classification: (Skin corrosion/irritation category 1C), (serious eye damage/eye irritation category 1), (sensitization, skin category 1)

GHS Label Elements and Precautionary Statements:

Label Elements: Exclamation Mark, Corrosion

**Hazard Statements:**

H314 Danger: Causes severe skin burns and eye damage.
H318 Danger: Causes serious eye damage.
H317 Warning: May cause an allergic skin reaction.

Precautionary statements:

P102 Keep out of reach of children.
P103 Read label before use.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.

Response:

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P321 Specific treatment (see on this label)
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P391 Collect spillage.

Storage:

P405 Store locked up

Disposal:

P501 Dispose of contents/container to a waste disposal facility in accordance with local, state, federal or international laws.

SAFETY DATA SHEET

PRODUCT CODE: 110x

HMIS HAZARD CLASSIFICATION

HEALTH: 3 FLAMMABILITY: 1 REACTIVITY: 0 PERSONAL PROTECTIVE EQUIPMENT: B

POTENTIAL HEALTH EFFECTS

EYES:

WILL CAUSE BURNS TO THE EYES. HIGH VAPOR CONCENTRATIONS CAN CAUSE SEVERE IRRITATION TO THE EYES.

SKIN:

CAN CAUSE SKIN IRRITATION OR POSSIBLE BURNS TO THE SKIN.

INGESTION:

LIQUID CAN CAUSE SEVERE DAMAGE TO MUCOUS MEMBRANES IF SWALLOWED.

INHALATION:

HIGH CONCENTRATIONS OF VAPOR CAN CAUSE IRRITATION TO THE RESPIRATORY TRACT, NAUSEA, AND DIZZINESS.

HEALTH HAZARDS (ACUTE AND CHRONIC):

PROLONGED OR REPEATED EXPOSURE MAY CAUSE ASTHMA AND SKIN SENSITIZATION OR OTHER ALLERGIC RESPONSES.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

RESPIRATORY CONDITIONS OR OTHER ALLERGIC AILMENTS.

CARCINOGENICITY

OSHA: NO NTP: NO IARC: NO

ADDITIONAL CARCINOGENICITY INFORMATION:

NO LISTED INGREDIENTS OF THIS PRODUCT ARE REGULATED AS CARCINOGENS.

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>
Aliphatic amine	trade secret	NONE	NONE	NONE	50 - <100%
Triethylenetetramine	112-24-3	NONE	NONE	NONE	25 - <50%
Tertiary Amine	trade secret	NONE	NONE	NONE	3 - <5%

*INDICATES TOXIC CHEMICAL(S) SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III AND OF 40 CFR 372.

Note: Chemical Family; Amines. A specific chemical identity and/or percentage of composition has been withheld as a trade secret.

SECTION 4: FIRST AID MEASURES

GENERAL INFORMATION:

SEEK MEDICAL ATTENTION. IF BREATHING IS IRREGULAR OR STOPPED, ADMINISTER ARTIFICIAL RESPIRATION.

EYES:

RINSE THOROUGHLY WITH PLENTY OF WATER, ALSO UNDER THE EYELIDS. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN:

WASH THE SKIN IMMEDIATELY WITH SOAP AND WATER. TAKE OFF IMMEDIATELY ALL CONTAMINATED CLOTHING. COVER WOUND WITH STERILE DRESSING. SEEK MEDICAL ADVICE.

INGESTION:

DO NOT INDUCE VOMITING AND SEEK MEDICAL ADVICE IMMEDIATELY. IF A PERSON VOMITS WHEN LYING ON THEIR BACK, PLACE THEM IN A RECOVERY POSITION. PREVENT ASPIRATION OF VOMIT. TURN VICTIM'S HEAD TO THE SIDE.

INHALATION:

MOVE TO FRESH AIR. IF BREATHING STOPS, PROVIDE ARTIFICIAL RESPIRATION. SEEK MEDICAL ADVICE.

PERSONAL PROTECTION FOR FIRST AID RESPONDERS:

IN CASE OF FIRE: WEAR A SELF CONTAINED RESPIRATORY APPARATUS. AVOID CONTACT WITH SKIN. A FACE SHIELD SHOULD BE WORN.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR,
(% by volume)

UPPER: not available

LOWER: not available

FLASH POINT: >93.3°C

METHOD USED:

SETA FLASH

GENERAL FIRE HAZARDS:

FIRE RESIDUES AND CONTAMINATED FIRE EXTINGUISHING WATER MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL REGULATIONS.

SUITABLE EXTINGUISHING MEDIA:

FOAM, DRY POWDER, CO₂, WATER SPRAY, DRY SAND, LIMESTONE POWDER

UNSUITABLE EXTINGUISHING MEDIA:

HIGH VOLUME WATER JET

SPECIAL FIRE FIGHTING PROCEDURES:

A SELF-CONTAINED BREATHING APPARATUS, AND FACE SHIELD SHOULD BE WORN FOR FIRE FIGHTING. AVOID SKIN CONTACT. COOL FIRE EXPOSED CONTAINERS WITH WATER.

SAFETY DATA SHEET

PRODUCT CODE: 110x

UNUSUAL FIRE AND EXPLOSION HAZARDS:

TOXIC FUMES MAY BE PRODUCED WHEN THIS MATERIAL IS INVOLVED IN A FIRE, SUCH AS CARBON MONOXIDE, CARBON DIOXIDE AND NITROGEN OXIDES. UNDER CERTAIN CONDITIONS, TRACES OF OTHER TOXIC PRODUCTS MAY OCCUR.

SECTION 6: RELEASE MEASURES

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

AVOID CONTACT WITH SKIN AND EYES. USE PERSONAL PROTECTIVE EQUIPMENT. IF POSSIBLE, STOP FLOW OF PRODUCT. EVACUATE AREA. DO NOT ALLOW TO ENTER DRAINS, SEWERS OR WATERCOURSES. APPROACH SUSPECTED LEAK AREAS WITH CAUTION. ABSORB IN VERMICULITE, DRY SAND OR EARTH AND PLACE INTO CONTAINERS. DISPOSE OF ABSORBED MATERIAL IN ACCORDANCE WITH THE REGULATIONS. DO NOT ALLOW TO BE INTRODUCED INTO SEWAGE WATER, SOIL, WATERBODIES, GROUND WATER OR SURFACE WATERS. DISPOSE ACCORDING TO LOCAL AUTHORITY REGULATIONS.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

AVOID ALL CONTACT WITH SKIN AND EYES. EMERGENCY SHOWERS AND EYE WASH STATIONS SHOULD BE READILY ACCESSIBLE. USE PROTECTIVE CLOTHING/FACE SHIELD IF NECESSARY. DISCARD CONTAMINATED SHOES AND CLOTHING. RESEAL PARTIALLY USED CONTAINERS AND STORE IN A COOL, WELL-VENTILATED AREA. PROPERLY LABEL ALL CONTAINERS. WASH HANDS WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. OBSERVE CONDITIONS OF GOOD INDUSTRIAL HYGIENE AND SAFE WORKING PRACTICES.

OTHER PRECAUTIONS:

KEEP AWAY FROM OXIDIZERS AND ACIDS. MIXED MATERIALS CONTAIN THE HAZARDS OF ALL THE COMPONENTS, THEREFORE, READ THE SDS OF ALL COMPONENTS TO BECOME FAMILIAR WITH ALL HAZARDS PRIOR TO USING THIS PRODUCT.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

NIOSH APPROVED RESPIRATOR PROTECTION REQUIRED IN THE ABSENCE OF PROPER ENVIRONMENTAL CONTROLS. FOR EMERGENCIES A SELF-CONTAINED BREATHING APPARATUS OR A FULL FACE RESPIRATOR IS RECOMMENDED.

VENTILATION:

AVOID BREATHING VAPORS. VENTILATION MUST BE SUFFICIENT TO CONTROL VAPORS.

PROTECTIVE GLOVES:

IMPERVIOUS GLOVES – NEOPRENE OR RUBBER

EYE PROTECTION:

FULL FACE SHIELD WITH SPLASH GOGGLES OR GLASSES WITH SIDE SHIELDS UNDERNEATH.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

WEAR BODY COVERING CLOTHING AND OTHER COVERINGS AS NECESSARY SUCH AS APRON AND APPROPRIATE FOOTWEAR TO AVOID CONTACT WITH MATERIAL.

WORK HYGIENIC PRACTICES:

OBSERVE GOOD GENERAL HYGIENIC PRACTICES.

SEE SECTION THREE FOR OCCPATONAL EXPOSURE LIMIT VALUES.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: AMBER CLEAR LIQUID WITH AMINE ODOR.

BOILING POINT OR RANGE: >35°C

VAPOR DENSITY (AIR = 1): N/A

SPECIFIC GRAVITY (H₂O = 1): 1.0

EVAPORATION RATE: N/A

SOLUBILITY IN WATER: SLIGHT

Odor Threshold: N/A

pH: 9-11

Melting point/freezing point: N/A

Vapor Pressure: N/A

Auto Ignition Temperature: N/A

Partition Coefficient: n-octanol/water: N/A

Decomposition Temperature: N/A

SECTION 10: STABILITY AND REACTIVITY

STABILITY:

STABLE UNDER NORMAL USE & STORAGE CONDITIONS.

CONDITIONS TO AVOID (STABILITY):

AVOID EXCESSIVE HEAT OR OPEN FLAMES.

SAFETY DATA SHEET

PRODUCT CODE: 110x

INCOMPATIBILITY (MATERIAL TO AVOID):

STRONG ACIDS, MINERAL ACID, SODIUM HYPOCHLORITE AND OXIDIZING AGENTS. PRODUCT SLOWLY CORRODES COPPER, ALUMINUM, ZINC AND GALVANIZED SURFACES.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

CARBON MONOXIDE, CARBON DIOXIDE, NITROGEN OXIDES, NITRIC ACID, AMMONIA.

POSSIBILITY OF HAZARDOUS REACTIONS:

NO DANGEROUS REACTION KNOWN UNDER CONDITIONS OF NORMAL USE.

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

ORAL

PRODUCT: ATEmix: 3,092.04 mg/kg

DERMAL

PRODUCT: ATEmix: 5,711.5 mg/kg

INHALATION

PRODUCT: Not classified based on available data

SKIN CORROSION/IRRITATION:

PRODUCT: CORROSIVE INFORMATION GIVEN IS BASED ON DATA ON THE COMPONENTS AND THE TOXICOLOGY OF SIMILAR PRODUCTS.

SERIOUS EYE DAMAGE/EYE IRRITATION:

PRODUCT: NO DATA

COMPONENT: ALIPHATIC AMINE – RABBIT: IRRITATING.

RESPIRATORY OR SKIN SENSITIZATION:

PRODUCT: NO DATA

COMPONENT: ALIPHATIC AMINE – LOCAL LYMPH NODE ASSAY (LLNA) (MOUSE): SKIN SENSITIZER (ANALOGY)

COMPONENT: TRIETHYLENETETRAMINE CAS# 112-24-3 – (GUINEA PIG) MAY CAUSE SENSITIZATION BY SKIN CONTACT.

COMPONENT: TERTIARY AMINE – MAXIMIZATION TEST, OECD 406 (GUINEA PIG): NOT A SKIN SENSITIZER.

CARCINOGENICITY:

PRODUCT: NO DATA

IARC MONOGRAPHS ON THE EVALUATION OF CARCINOGENIC RISK TO HUMANS: NO CARCINOGENS PRESENT OR NONE PRESENT IN REGULATED QUANTITIES.

US. NATIONAL TOXICOLOGY PROGRAM (NTP) REPORT ON CARCINOGENS: NO CARCINOGENS PRESENT OR NONE PRESENT IN REGULATED QUANTITIES.

US. OSHA SPECIFICALLY REGULATED SUBSTANCES (29 CFR 1910.1001-1050), AS AMENDED: NO CARCINOGENS PRESENT OR NONE PRESENT IN REGULATED QUANTITIES.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY:

ACUTE HAZARDS TO THE AQUATIC ENVIRONMENT

FISH – PRODUCT: NO DATA

FISH - COMPONENT: TERTIARY AMINE – LC 50 (FISH, 96 H): 175 mg/l

AQUATIC INVERTEBRATES

PRODUCT – NO DATA

COMPONENT: TERTIARY AMINE – LC 50 (DAPHNIA MAGNA, 96 H): 718 mg/l

CHRONIC HAZARDS TO THE AQUATIC ENVIRONMENT

FISH – PRODUCT: NO DATA

AQUATIC INVERTEBRATES – PRODUCT: NO DATA

TOXICITY TO AQUATIC PLANTS – PRODUCT: NO DATA

TOXICITY TO AQUATIC PLANTS – COMPONENT: TERTIARY AMINE – EC50 (DESMODESMUS SUBSPICATUS (SCENEDESMUS SUBSPICATUS), 72 H): 84 mg/l

PERSISTANCE AND DEGRADABILITY

BIODEGRADATION – PRODUCT: NO DATA

BIODEGRADATION – COMPONENT: TERTIARY AMINE – 4% (28 D, OECD 301 D)

BOD/COD RATIO – PRODUCT: NO DATA

BIOACCUMULATIVE POTENTIAL

BIOCONCENTRATION FACTOR (BCF) – PRODUCT: NO DATA

BIOCONCENTRATION FACTOR (BCF) – COMPONENT: TERTIARY AMINE – DUE TO THE DISTRIBUTION COEFFICIENT N-OCTANOL/WATER, ACCUMULATION IN ORGANISMS IS POSSIBLE.

SECTION 13: WASTE DISPOSAL

WASTE DISPOSAL METHOD:

DISPOSE OF MATERIAL AS A HAZARDOUS WASTE ACCORDING TO FEDERAL, STATE, AND LOCAL REGULATIONS.

SECTION 14: Transport Information

DOT: UN2735, AMINES, LIQUID, CORROSIVE, N.O.S. (TERTIARY AMINE), 8, PG III

IMO/MDG : UN2735, AMINES, LIQUID, CORROSIVE, N.O.S. (TERTIARY AMINE), 8, PG III

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS:

TSCA SECTION 12(b) EXPORT NOTIFICATION (40 CFR 707, SUBPART D) - NONE PRESENT OR NONE PRESENT IN REGULATED QUANTITIES.

US. TOXIC SUBSTANCES CONTROL ACT (TSCA) SECTION 5(a)(2) FINAL SIGNIFICANT NEW USE RULES (SNURs) (40 CFR, SUBPART E) - NONE PRESENT OR NONE PRESENT IN REGULATED QUANTITIES

US. OSHA SPECIFICALLY REGULATED SUBSTANCES (29 CFR 1910.1001-1050), AS AMENDED – NONE PRESENT OR NONE PRESENT IN REGULATED QUANTITIES.

CERCLA HAZARDOUS SUBSTANCE LIST (40 CFR 302.4) – NONE PRESENT OR NONE PRESENT IN REGULATED QUANTITIES.

Superfund Amendments and Reauthorization Act of 1986 (SARA) – Hazard categories (Skin Corrosion or Irritation, Serious eye damage or eye irritation, Respiratory or Skin Sensitization)

US. EPCRA (SARA TITLE III) SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES REPORTING QUANTITIES AND THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) HAZARDOUS SUBSTANCES – None present or none present in regulated quantities.

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 – None present or none present in regulated quantities.

CLEAN AIR ACT (CAA) SECTION 112(r) ACCIDENTAL RELEASE PREVENTION (40 CFR 68.130) – None present or none present in regulated quantities.

CLEAN WATER ACT SECTION 311 HAZARDOUS SUBSTANCES (40 CFR 117.3) – None present or none present in regulated quantities.

US STATE REGULATIONS:

CALIFORNIA PROPOSITION 65 – No ingredient requiring a warning under CA Prop 65.

NEW JERSEY WORKER AND COMMUNITY RIGHT-TO-KNOW ACT - TRIETHYLENETETRAMINE CAS# 112-24-3

MASSACHUSETTS RTK – SUBSTANCE LIST - TRIETHYLENETETRAMINE CAS# 112-24-3

PENNSYLVANIA RTK – HAZARDOUS SUBSTANCES - TRIETHYLENETETRAMINE CAS# 112-24-3

RHODE ISLAND RTK – No ingredient regulated by RI Right-To-Know Law present.

INVENTORY STATUS:

Australia AICS: On or in compliance with the inventory

Canada DSL: On or in compliance with the inventory

China Inv. Existing Chemical Substances: On or in compliance with the inventory

Japan (ENCS) List: On or in compliance with the inventory

Japan ISHL Listing: On or in compliance with the inventory

Korea Existing Chemicals Inv. (KECI): On or in compliance with the inventory

New Zealand Inventory of Chemicals: On or in compliance with the inventory

Philippines PICCS: Not in compliance with the inventory

Taiwan Chemical Substance Inventory: On or in compliance with the inventory

US TSCA Inventory: On or in compliance with the inventory

EINECS, ELINCS or NLP: On or in compliance with the inventory

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.

N/A = Not Available

See Section 1 for date of preparation

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ARM110x PART C
PRODUCT CODES: 110x C

MANUFACTURER: Armorpoxy Inc.
STREET ADDRESS: 1260 North Avenue
CITY, STATE, ZIP: Plainfield, NJ 07062

INFORMATION PHONE: 888-755-7361
EMERGENCY PHONE: Chemtrec 800-424-9300
FAX PHONE: (973) 453-8114

PREPARED BY: Armorpoxy Inc.

DATE REVISED: 11/11/20

Chemical Name or Class: sand

SECTION 2: HAZARDS IDENTIFICATION

Hazard Overview

GHS Classification: (Carcinogenicity category 1A), (Specific target organ toxicity - repeated exposure category 1)

GHS Label Elements and Precautionary Statements:

Label Elements: Health hazard

SAFETY DATA SHEET

PRODUCT CODE: 110x



Hazard Statements:

H350i DANGER: May cause cancer by inhalation

H372 DANGER: Causes damage to lungs through prolonged or repeated exposure by inhalation

Precautionary statements:

P102 Keep out of reach of children.

P103 Read label before use.

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P281 Use personal protective equipment as required (protective gloves and safety glasses or goggles).

P260 Do not breathe dust.

P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P285 In case of inadequate ventilation wear respiratory protection.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/attention.

P314 Get medical advice/attention if you feel unwell

Storage:

P405 Store locked up

Disposal:

P501 Dispose of contents/container to a waste disposal facility in accordance with local, state, federal or international laws

HMIS HAZARD CLASSIFICATION

HEALTH: * FLAMMABILITY: 0 REACTIVITY: 0 PERSONAL PROTECTIVE EQUIPMENT: E

*For further information on health effects, see Sections 2, 3, 8 & 11

POTENTIAL HEALTH EFFECTS

EYES:

MAY CAUSE REDDENING OF THE EYES OR EYE IRRITATION FROM AIRBORNE PARTICLES.

SKIN:

NONE KNOWN

INGESTION:

NONE KNOWN

INHALATION:

PROLONGED EXPOSURE TO RESPIRABLE CRYSTALLINE QUARTZ MAY CAUSE DELAYED LUNG INJURY (SILICOSIS). ACUTE OR RAPIDLY DEVELOPING SILICOSIS MAY OCCUR IN A SHORT PERIOD OF TIME IN HEAVY EXPOSURE IN SOME APPLICATIONS SUCH AS SAND BLASTING.

HEALTH HAZARDS (ACUTE AND CHRONIC):

MAY CAUSE DELAYED SILICOSIS OR RAPID SILICOSIS IN SOME OCCUPATIONS SUCH AS SANDBLASTING, SILICOSIS IS A FORM OF A DISABLING PULMONARY FIBROSIS WHICH CAN BE PROGRESSIVE AND COULD LEAD TO DEATH. INHALATION MAY LEAD TO LUNG SCARRING AND MASSIVE FIBROSIS WHICH COULD BE ACCOMPANIED BY RIGHT HEART ENLARGEMENT, HEART FAILURE, OR PULMONARY FAILURE, SMOKING AGGRAVATES THE EFFECTS OF EXPOSURE.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

RESPIRATORY CONDITIONS OR OTHER ALLERGIC AILMENTS CAN BE AGGRAVATED BY EXPOSURE

CARCINOGENICITY

OSHA: NO NTP: YES IARC: YES

ADDITIONAL CARCINOGENICITY INFORMATION:

IARC HAS DETERMINED THAT CRYSTALLINE SILICA INHALED IN THE FORM OF QUARTZ IS CARCINOGENIC TO HUMANS (GROUP 1- CARCINOGENIC TO HUMANS). THE NTP CLASSIFIES RESPIRABLE CRYSTALLINE SILICA AS REASONABLY ANTICIPATED TO BE A 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>
CRYSTALLINE SILICA (quartz)	14808-60-7	0.05 mg/m3	0.025 mg/m3	0.05 mg/m3	100

SECTION 2 NOTES:

No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372 are present

FOLLOW OSHA HAZARD COMMUNICATION RULE 29CFR SECTIONS 1910.1200, 1915.99, 1917.28, 1918.9, 1926.59, AND STATE AND LOCAL COMMUNITY RIGHT TO KNOW LAWS. WE RECOMMEND THAT SMOKING BE PROHIBITED IN AREAS WHERE RESPIRATORS MUST BE USED.

SECTION 4: FIRST AID MEASURES

EYES:

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Wash immediately with plenty of water. Do not rub eyes! If irritation persists, seek medical attention.

SKIN:

First aid is not required.

INGESTION:

First aid is not required.

INHALATION:

First aid is not generally required. If irritation develops from breathing dust, move the person from the overexposure and seek medical attention if needed.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED:

Particulates may cause abrasive eye injury. Inhalation of dust may cause respiratory tract irritation. Symptoms of exposure may include cough, sore throat, nasal congestion, sneezing, wheezing and shortness of breath. Prolonged inhalation of respirable crystalline silica above certain concentrations may cause lung diseases, including silicosis and lung cancer.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR,
(% by volume)

UPPER: not available

LOWER: not available

FLASH POINT^o F: N/A

METHOD USED:

N/A

EXTINGUISHING MEDIA:

USE EXTINGUISHING MEDIA APPROPRIATE FOR THE SURROUNDING FIRE.

SPECIAL FIRE FIGHTING PROCEDURES:

CRYSTALLINE SILICA IS NEITHER A FIRE NOR AN EXPLOSION HAZARD

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NONE KNOWN.

SECTION 6: RELEASE MEASURES

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

Wear appropriate protective clothing and respiratory protection (see sections 3 & 8). Avoid dry sweeping and the use of compressed air, as it will generate airborne dust. Use water spraying/flushing or ventilated/HEPA filtered vacuum cleaning system. Wet before sweeping. Dispose of in closed containers.

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid generating dust. Do not breathe dust. Do not rely on your sight to determine if dust is in the air. Respirable crystalline silica dust may be in the air without a visible dust cloud. Use adequate exhaust ventilation and dust collection to reduce respirable crystalline silica dust levels to below the permissible exposure limit (PEL). Maintain and test ventilation and dust collection equipment. Use all available work practices to control dust exposures, such as water sprays. Practice good housekeeping. Do not permit dust to collect on the walls, floors, sills, ledges, machinery, or equipment. Keep airborne dust concentrations below PEL's. Where necessary to reduce exposures below PEL or other applicable limit (if lower than the PEL), wear a respirator approved for silica containing dust when using, handling, storing or disposing of this product or bag. See section 8 for further information on respirators. Do not alter respirator. Do not wear a tight-fitting respirator with facial hair such as a beard or mustache that prevents a good seal between the respirator and face. Maintain, clean, and fit test respirators in accordance with applicable standards. Wash or vacuum clothing that has become dusty. Participate in training, exposure monitoring, and health surveillance programs to monitor any potential adverse health effects that may be caused by breathing respirable crystalline silica. The OSHA Respirable Crystalline Silica Standards; 29CFR1910.1053, 1915.1053 and 1926.1053, the OSHA Hazard Communication Standard, 29CFR Sections 1910.1200, 1915.1200, 1917.28, 1918.90, 1926.59 and 1928.21, and state and local worker or community "right-to-know" laws and regulations should be strictly followed.

OTHER PRECAUTIONS:

OBSERVE CONDITIONS OF GOOD GENERAL HYGIENE AND SAFE WORKING PRACTICES. IF SANDBLASTING, USE ANY TYPE CE SUPPLIED AIR RESPIRATOR WITH FULL FACE PIECE OR HOOD.

Safety phrases

S22 Do not breathe dust

S25 Avoid contact with eyes

S38 In case of insufficient ventilation wear suitable respiratory equipment

S39 Wear eye/face protection

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:

If it is not possible to reduce airborne exposure levels to below the OSHA PEL or other applicable limit with ventilation, use the table below to assist you in selecting respirators that will reduce personal exposures to below the OSHA PEL. This table is part of the OSHA Respirator Standard 29CFR1910.134(d). Assigned protection factor (APF) means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by the Standard. For example, an APF of 10 means that the respirator should

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reduce the airborne concentration of a particulate by a factor of 10, so that if the workplace concentration of a particulate was 150 ug/m³, then a respirator with an APF of 10 should reduce the concentration of particulate to 15 ug/m³. In addition, a cartridge change-out schedule must be developed based on the concentrations in the workplace.

Table 1 – Assigned Protection Factors ^{*(5)}

Type of respirator ^{*(1),*(2)}	Quarter mask	Half mask	Full face-piece	Helmet/hood	Loose-fitting face-piece
1. Air-Purifying Respirator	5	^{*(3)} 10	50	.....	.....
2. Powered Air-Purifying Respirator (PAPR)	.....	50	1,000	^{*(4)} 25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode	.....	10	50	.....	.....
• Continuous flow mode	.....	50	1,000	^{*(4)} 25/1,000	25
• Pressure-demand or other positive-pressure mode	.....	50	1,000	.....	.....
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode	.....	10	50	50	.....
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)	.....	.....	10,000	10,000	.....

Notes:

- ^{*(1)} Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required, respirator use is independent of concentration.
- ^{*(2)} The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29CFR1910.134), including training, fit testing, maintenance, and use requirements.
- ^{*(3)} This APF category includes filtering face-pieces and half-masks with elastomeric face-pieces.
- ^{*(4)} The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting face-piece respirators and receive an APF of 25.
- ^{*(5)} These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29CFR1910 subpart Z, employers must refer to the appropriate substance specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29CFR1910.134(d)(2)(ii).

VENTILATION:

USE EXHAUST SUFFICIENT TO MAINTAIN AIRBORNE PARTICULATES BELOW THE ACGIH PEL LIMITS ESTABLISHED.

SKIN PROTECTION:

MAINTAIN GOOD INDUSTRIAL HYGIENE. PROTECTION RECOMMENDED FOR WORKERS SUFFERING FROM DERMATITIS OR SENSITIVE SKIN.

EYE PROTECTION:

SAFETY GLASSES WITH SIDE SHIELDS OR GOGGLES RECOMMENDED IF EYE CONTACT IS ANTICIPATED.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:

PROVIDE ANY EQUIPMENT NECESSARY TO PREVENT THE INHALATION OF QUARTZ DUST.

WORK HYGIENIC PRACTICES:

OBSERVE GOOD GENERAL HYGIENIC PRACTICES.

SEE SECTION THREE FOR OCCPATIONAL EXPOSURE LIMIT VALUES

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: WHITE OF TAN SAND GRANULAR CRUSHED OR GROUND- NO ODOR

BOILING POINT OR RANGE ° F: N/A

VAPOR DENSITY (AIR = 1): N/A

SPECIFIC GRAVITY (H2O = 1): 2.65

EVAPORATION RATE: N/A

SOLUBILITY IN WATER: INSOLUBLE IN WATER

Odor Threshold: N/A

pH: 6-8

Melting point/freezing point: N/A

Vapor Pressure: N/A

Auto Ignition Temperature: N/A

Partition Coefficient: n-octanol/water: N/A

Decomposition Temperature: N/A

SECTION 10: STABILITY AND REACTIVITY

STABILITY:

STABLE

CONDITIONS TO AVOID (STABILITY):

AVOID GENERATION OF DUST IN HANDLING AND USE.

INCOMPATIBILITY (MATERIAL TO AVOID):

CONTACT WITH POWERFUL OXIDIZING AGENTS SUCH AS FLUORINE, CHLORINE, TRIFLUORIDE, MANGANESE TRIOXIDE, OXYGEN TRIFLUORIDE MAY CAUSE FIRES.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

SILICA WILL DISSOLVE IN HYDROCHLORIC ACID TO FORM A CORROSIVE GAS- SILICON TETRAFLUORIDE

HAZARDOUS POLYMERIZATION:

NOT REACTIVE UNDER NORMAL CONDITIONS OF USE.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute effects of exposure:

Inhalation: Inhalation of dust may cause respiratory tract irritation. Symptoms of exposure may include cough, sore throat, nasal congestion, sneezing, wheezing and shortness of breath.

Ingestion: Ingestion is an unlikely route of exposure. If dust is swallowed, it may irritate the mouth and throat.

Skin Contact: No adverse effects are expected.

Eye Contact: Particulates may cause abrasive injury.

Chronic effects: Prolonged inhalation of respirable crystalline silica may cause lung disease, silicosis, lung cancer and other effects as indicated below. **The method of exposure that can lead to the adverse health effects described below is inhalation.**

- A. Silicosis** – Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute:
- Chronic or Ordinary Silicosis** is the most common form of silicosis and can occur after many years (10-20 or more) of prolonged repeated inhalation of relatively low levels of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Simple silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 cm in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated silicosis or PMF is characterized by lung lesions (shown or radiographic opacities) greater than 1 cm in diameter. Complicated silicosis or PMF symptoms, if present, are shortness of breath and cough. Complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pulmonale).
 - Accelerated Silicosis** can occur with prolonged repeated inhalation of high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of initial exposure. Progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that lung lesions appear earlier, and progression is more rapid.
 - Acute Silicosis** can occur after the repeated inhalation of very high concentrations of respirable crystalline silica over a short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough, weakness and weight loss. Acute silicosis is fatal.
- B. Cancer – IARC** – The International Agency for Research on Cancer (“IARC”) concluded that “crystalline silica in the form of quartz or cristobalite dust is *carcinogenic to humans (Group 1)*”. For further information on the IARC evaluation, see [IARC Monographs on the Evaluation of Carcinogenic Risk to Humans, Volume 100C, “A Review of Human Carcinogens: Arsenic, Metals, Fibres and Dusts” \(2011\)](#). **NTP** – classifies “Silica, Crystalline (respirable size)” as Known to be a human carcinogen.
- C. Autoimmune Diseases** – Several studies have reported excess cases of several autoimmune disorders – scleroderma, systemic lupus erythematosus, rheumatoid arthritis – among silica-exposed workers.
- D. Tuberculosis** – Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to tuberculosis bacteria. Individuals with chronic silicosis have a three-fold higher risk of contracting tuberculosis than similar individuals without silicosis.
- E. Kidney Disease** – Several studies have reported excess cases of kidney diseases, including end stage renal disease, among silica exposed workers. For additional information on the subject, the following may be consulted: “Kidney Disease and Silicosis”, Nephron, Volume 85, pp. 14-19 (2000).
- F. Non-Malignant Respiratory Diseases** – The reader is referred to Section 3.5 of the NIOSH Special Hazard Review cited below for information concerning the association between exposure to crystalline silica and chronic bronchitis, emphysema and small airway disease. There are studies that disclose an association between dusts found in various mining occupations and non-malignant respiratory diseases, particularly among smokers, or result from exposure to mineral dusts generally (independent of the presence or absence of crystalline silica, or the level of crystalline silica in the dust).

Sources of Information:

The **NIOSH Hazard Review – Occupational Effects of Occupational Exposure to Respirable Crystalline Silica** published in April 2002 summarizes and discusses the medical and epidemiological literature on the health risks and diseases associated with occupational exposures to respirable crystalline silica. The *NIOSH Hazard Review* is available from NIOSH – Publications Dissemination, 4676 Columbia Parkway, Cincinnati, OH 45226, or through the NIOSH website, www.cdc.gov/niosh/topics/silica, then click on the line “NIOSH Hazard Review: Health Effects of Occupational Exposures to Respirable Crystalline Silica” found under “Hazard Review”. For a more recent review of the health effects of respirable crystalline silica, the reader may consult *Fishman’s Pulmonary Diseases and Disorders*, Fourth Edition, Chapter 57. “Coal Workers’ Lung Diseases and Silicosis”. The US Occupational Safety and Health Administration (OSHA) Crystalline Silica Standards 29CFR1910.1053, 1915.1053 and 1926.1053, Appendix B describes the silica related diseases and provides resources and references.

Numerical measures of toxicity:

LD50 oral rat > 22,500 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Crystalline silica (quartz) is not known to be ecotoxic.

Persistence and degradability: Silica is not degradable.

Bioaccumulative potential: Silica is not bioaccumulative.

Mobility in soil: Silica is not mobile in soil.

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: Not Regulated

IMO/IMDG Not Regulated

SECTION 15: REGULATORY INFORMATION

Crystalline Silica (quartz) CAS# 14808-60-7: listed on EPA's TSCA inventory, the Canadian DSL, Australia's AICS, China's IECSC, Japan's MITI (registry # 1-548), Korea's KECI (registry # 9212-5667), New Zealand's HSNO, Philippines' PICCS, and Taiwan's CSNN inventories. Not classified as hazardous waste under RCRA, not classified as hazardous substance under CERCLA, does not meet de minimus concentrations for classification under SARA 302 or SARA 313, not processed with or does not contain Class I or Class II ozone depleting substances, is included in the FDA's list of substances that may be included in coatings used in food contact surfaces, (respirable particle size < 10 microns) considered "toxic" for purposes of the Massachusetts Toxic Use Reduction Act, listed as a hazardous substance by the Pennsylvania Worker and Community Right to Know Act.

- California Prop 65 lists crystalline silica (airborne particles of respirable size) as a substance known to the State of California to be a carcinogen.
- California Inhalation Reference Exposure Level (REL) established a chronic non-cancer effect REL of 3ug for respirable crystalline silica. A chronic REL is an airborne level of a substance at or below which no non-cancer health effects are anticipated in individuals indefinitely exposed to the substance at that level.
- Texas Commission on Environmental Quality: established chronic and acute Reference Values and short term and long term Effects Screening Levels for crystalline silica (quartz). The information can be accessed through www.tceq.texas.gov .

SECTION 16: OTHER INFORMATION

Web Sites with Information about Effects of Crystalline Silica Exposure

- The Occupational Safety and Health Administration (OSHA) web site contains information on the OSHA standard related to respirable crystalline silica at <http://www.osha.gov/dgs/topics/silicacrystalline/index.html> .
- The U.S. National Institute for Occupational Safety and Health (NIOSH) maintains a site with information about crystalline silica and its potential effects at <http://www.cdc.gov/niosh/topics/silica> .
- The IARC Monograph that includes crystalline silica, Volume 100C, can be accessed in PDF form at the IARC web site, <http://monographs.iarc.fr/ENG/Monographs/PDFs/index.php> .

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.

N/A = Not Available

See Section 1 for date of preparation