

## Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations



Printing date: April 26, 2018

Revision: April 26, 2018

### 1 Identification

- **Product identifier**
- **Trade name:** Armor-Hard Extreme
- **Other means of identification:** Armor-Hard Extreme Part A
- **Recommended use and restriction on use**
- **Recommended use:** Epoxy binder
- **Restrictions on use:** For professional use only.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
METZGER/McGUIRE  
Mailing Address:  
PO Box 2217  
Concord, NH 03302  
Shipping Address:  
807 Route 3-A  
Bow, NH 03304  
Phone: 603-224-6122  
Toll Free: 800-223-6680  
Email: info@metzgermcguire.com
- **Emergency telephone number:**  
ChemTel Inc.  
(800)255-3924 (North America)  
+1 (813)248-0585 (International)

### 2 Hazard(s) identification

- **Classification of the substance or mixture**  
Skin Corr. 1B H314 Causes severe skin burns and eye damage.  
Skin Sens. 1 H317 May cause an allergic skin reaction.
- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**  
  
  
GHS05 GHS07
- **Signal word:** Danger
- **Hazard statements:**  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.
- **Precautionary statements:**  
P260 Do not breathe mist/vapors/spray.  
P264 Wash thoroughly after handling.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves and eye protection.  
P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

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- (Cont'd. of page 1)
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P310 Immediately call a poison center/doctor.
  - P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
  - P363 Wash contaminated clothing before reuse.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

### 3 Composition/information on ingredients

- **Chemical characterization:** Mixtures

#### · Components:

25068-38-6	4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317	70-90%
1070-70-8	tetramethylene diacrylate ⚠ Skin Corr. 1B, H314 ⚠ Acute Tox. 4, H312; Skin Sens. 1, H317	5-15%
15625-89-5	2,2-bis(acryloyloxymethyl)butyl acrylate ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317	5-15%

#### · Additional information:

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret. For the wording of the listed Hazard Statements, refer to section 16.

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Immediately remove any clothing soiled by the product.  
Immediately rinse with water.  
If skin irritation continues, consult a doctor.  
Seek immediate medical help for blistering or open wounds.
- **After eye contact:**  
Protect unharmed eye.  
Rinse opened eye for several minutes under running water. Then consult a doctor.  
Remove contact lenses if worn.
- **After swallowing:**  
Rinse out mouth and then drink plenty of water.  
Do not induce vomiting; immediately call for medical help.
- **Most important symptoms and effects, both acute and delayed:**  
Coughing

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Breathing difficulty  
 Cramp  
 Allergic reactions  
 Strong caustic effect on skin and mucous membranes.  
 Gastric or intestinal disorders when ingested.  
 Nausea in case of ingestion.

**Danger:**

Danger of gastric perforation.  
 Causes serious eye damage.

**Indication of any immediate medical attention and special treatment needed:**

Medical supervision for at least 48 hours.  
 Contains tetramethylene diacrylate. May produce an allergic reaction.

### 5 Fire-fighting measures

**Extinguishing media**
**Suitable extinguishing agents:**

Foam  
 Carbon dioxide  
 Gaseous extinguishing agents  
 Fire-extinguishing powder

**For safety reasons unsuitable extinguishing agents:** Water stream.

**Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

**Advice for firefighters**
**Protective equipment:**

Wear self-contained respiratory protective device.  
 Wear fully protective suit.

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Use respiratory protective device against the effects of fumes/dust/aerosol.  
 Wear protective equipment. Keep unprotected persons away.  
 Ensure adequate ventilation.

**Environmental precautions**

Do not allow to enter sewers/ surface or ground water.  
 Inform respective authorities in case of seepage into water course or sewage system.

**Methods and material for containment and cleaning up**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
 Send for recovery or disposal in suitable receptacles.

**Reference to other sections**

See Section 7 for information on safe handling.  
 See Section 8 for information on personal protection equipment.  
 See Section 13 for disposal information.

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### 7 Handling and storage

**Handling**
**Precautions for safe handling:**

Open and handle receptacle with care.  
 Use only in well ventilated areas.  
 Avoid contact with the eyes and skin.  
 Avoid breathing mist, vapors, or spray.

**Information about protection against explosions and fires:** No special measures required.

**Conditions for safe storage, including any incompatibilities**
**Requirements to be met by storerooms and receptacles:**

Avoid storage near extreme heat, ignition sources or open flame.

**Information about storage in one common storage facility:**

Store away from foodstuffs.  
 Do not store together with oxidizing and acidic materials.

**Further information about storage conditions:**

Keep containers tightly sealed.  
 Protect from heat and direct sunlight.

**Specific end use(s)** No relevant information available.

### 8 Exposure controls/personal protection

**Control parameters**
**Components with limit values that require monitoring at the workplace:**

**15625-89-5 2,2-bis(acryloyloxymethyl)butyl acrylate**

WEEL (USA)	Long-term value: 1 mg/m <sup>3</sup>
	Skin

**Exposure controls**
**General protective and hygienic measures:**

The usual precautionary measures for handling chemicals should be followed.  
 Keep away from foodstuffs, beverages and feed.  
 Immediately remove all soiled and contaminated clothing.  
 Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

**Engineering controls:** No relevant information available.

**Breathing equipment:**

Use suitable respiratory protective device in case of insufficient ventilation.  
 Use suitable respiratory protective device when aerosol or mist is formed.  
 NIOSH or EN approved organic vapor respirator equipped with a dust/mist prefilter should be used.

**Protection of hands:**


Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

**Eye protection:**

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Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment**  
No relevant information available.
- **Risk management measures** No relevant information available.

### 9 Physical and chemical properties

#### · Information on basic physical and chemical properties

- **Appearance:**
  - **Form:** Liquid
  - **Color:** Colorless
- **Odor:** Sweet-Acrylic like
- **Odor threshold:** Not determined.
- **pH-value:** Not determined.
- **Melting point/Melting range:** Not determined.
- **Boiling point/Boiling range:** Not determined.
- **Flash point:** >94 °C (>201.2 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Auto-ignition temperature:** Not determined.
- **Decomposition temperature:** Not determined.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits**
  - **Lower:** Not determined.
  - **Upper:** Not determined.
- **Oxidizing properties:** Not determined.
- **Vapor pressure:** Not determined.
- **Density:**
  - **Relative density at 20 °C (68 °F):** 1.15 g/cm<sup>3</sup> (9.6 lbs/gal)
  - **Vapor density:** Not determined.
  - **Evaporation rate:** Not determined.
- **Solubility in / Miscibility with**
  - **Water:** Not miscible or difficult to mix.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity**
  - **Dynamic at 20 °C (68 °F):** 900 - 1400 cps
  - **Kinematic:** Not determined.
- **Other information** No relevant information available.

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### 10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:** Avoid temperatures above 120 °F / 49 °C.
- **Possibility of hazardous reactions**  
Toxic fumes may be released if heated above the decomposition point.  
Exothermic polymerization.  
Reacts with peroxides and other radical forming substances.  
Reacts with alkali, amines and strong acids.  
Reacts with strong oxidizing agents.
- **Conditions to avoid** Excessive heat.
- **Incompatible materials** Oxidizers, strong bases, strong acids
- **Hazardous decomposition products** Carbon monoxide and carbon dioxide

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **LD/LC50 values that are relevant for classification:** None.
- **Primary irritant effect:**
- **On the skin:** Strong caustic effect on skin and mucous membranes.
- **On the eye:** Strong caustic effect.
- **Sensitization:** May cause sensitisation by skin contact.
- **IARC (International Agency for Research on Cancer):**  
None of the ingredients are listed.
- **NTP (National Toxicology Program):**  
None of the ingredients are listed.
- **OSHA-Ca (Occupational Safety & Health Administration):**  
None of the ingredients are listed.
- **Probable route(s) of exposure:**  
Ingestion.  
Inhalation.  
Eye contact.  
Skin contact.
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

### 12 Ecological information

- **Toxicity**

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**Aquatic toxicity**

Toxic for aquatic organisms

**25068-38-6 4,4'-Isopropylidenediphenol, oligomeric reaction products with 1-chloro-2,3-epoxypropane**

EC50	2.7 mg/kg (daphnia) (48hr)
LC50	1.2 mg/l (Oncorhynchus mykiss) (96hr)
	2.4 mg/l (zebra fish) (96hr)

- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Toxic for fish
- **Additional ecological information**
- **General notes:** Do not allow product to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No relevant information available.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation:**  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

· <b>UN-Number</b>	
· <b>DOT, ADR, IMDG, IATA</b>	UN1760
· <b>UN proper shipping name</b>	
· <b>DOT</b>	Corrosive liquids, n.o.s. (tetramethylene diacrylate, reaction product: bisphenol-A-(epichlorhydrin) epoxy resin)
· <b>ADR, IMDG</b>	CORROSIVE LIQUID, N.O.S. (tetramethylene diacrylate, reaction product: bisphenol-A-(epichlorhydrin) epoxy resin)
· <b>IATA</b>	Corrosive liquid, n.o.s. (tetramethylene diacrylate, reaction product: bisphenol-A-(epichlorhydrin) epoxy resin)

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**Transport hazard class(es)**

## · DOT


 · **Class** 8 Corrosive substances  
 · **Label** 8

## · ADR


 · **Class** 8 (C9) Corrosive substances  
 · **Label** 8

## · IMDG, IATA


 · **Class** 8 Corrosive substances  
 · **Label** 8

**Packing group**

· DOT, ADR, IMDG, IATA II

**Environmental hazards**

 · **Marine pollutant:**


Yes

 · **Special precautions for user**

Warning: Corrosive substances

 · **Danger code (Kemler):**

80

 · **EMS Number:**

F-A,S-B

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

**Transport/Additional information:**

## · DOT

Labeling as a Marine Pollutant is only required for bulk single package shipments. Bulk packaging consists of a maximum capacity of greater than 450 L (119 gallons) for a liquid and a maximum net mass greater than 400 kg (882 pounds) for a solid. (See 171.4(c))

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Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

**ADR**

Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to provisions relevant to marine pollutants. (See 5.2.1.8.1)



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

**IMDG**

Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to provisions relevant to marine pollutants. (See 2.10.2.7)



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

**IATA**


Limited Quantity for packages less than 30 kg gross and inner packagings less than 0.1 L each / 0.5 L net.

### 15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

- United States (USA)
- SARA

**Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

**TSCA (Toxic Substances Control Act)**

All ingredients are listed.

**Proposition 65 (California)**

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**Chemicals known to cause cancer:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**EPA (Environmental Protection Agency):**

None of the ingredients are listed.

**IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

**Canadian Domestic Substances List (DSL):**

All ingredients listed on DSL or NDSL.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Date of preparation / last revision** April 26, 2018 / -

**Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bio-accumulable, Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 OSHA: Occupational Safety & Health Administration  
 Acute Tox. 4: Acute toxicity – Category 4  
 Skin Corr. 1B: Skin corrosion/irritation – Category 1B  
 Skin Irrit. 2: Skin corrosion/irritation – Category 2  
 Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A  
 Skin Sens. 1: Skin sensitisation – Category 1

**Sources**

Website, European Chemicals Agency (echa.europa.eu)  
 Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)  
 Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)  
 Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6  
 Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN: 978-0-07-176923-5.  
 Safety Data Sheets, Individual Manufacturers

SDS Prepared by:  
 ChemTel Inc.  
 1305 North Florida Avenue

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Tampa, Florida USA 33602-2902  
 Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573  
 Website: www.chemtelinc.com

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#### 1 Identification

- **Product identifier**
- **Trade name:** Armor-Hard Extreme
- **Other means of identification:** Armor-Hard Extreme Part B
- **Recommended use and restriction on use**
- **Recommended use:** Epoxy binder
- **Restrictions on use:** For professional use only.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
 METZGER/McGUIRE  
 Mailing Address:  
 PO Box 2217  
 Concord, NH 03302  
 Shipping Address:  
 807 Route 3-A  
 Bow, NH 03304  
 Phone: 603-224-6122  
 Toll Free: 800-223-6680  
 Email: info@metzgermcguire.com
- **Emergency telephone number:**  
 ChemTel Inc.  
 (800)255-3924 (North America)  
 +1 (813)248-0585 (International)

#### 2 Hazard(s) identification

- **Classification of the substance or mixture**  
 Acute Tox. 4 H302 Harmful if swallowed.  
 Acute Tox. 4 H312 Harmful in contact with skin.  
 Acute Tox. 2 H330 Fatal if inhaled.  
 Skin Corr. 1B H314 Causes severe skin burns and eye damage.  
 Skin Sens. 1 H317 May cause an allergic skin reaction.  
 Repr. 1A H360 May damage fertility or the unborn child.  
 STOT SE 3 H335 May cause respiratory irritation.
- **Label elements**
- **GHS label elements**  
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**  

GHS05 GHS06 GHS07 GHS08
- **Signal word:** Danger
- **Hazard statements:**  
 H302+H312 Harmful if swallowed or in contact with skin.  
 H330 Fatal if inhaled.

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- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H360 May damage fertility or the unborn child.
- H335 May cause respiratory irritation.
- Precautionary statements:**
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P272 Contaminated work clothing must not be allowed out of the workplace.
- P280 Wear protective gloves and eye protection.
- P284 [In case of inadequate ventilation] wear respiratory protection.
- P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a poison center/doctor.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Other hazards** There are no other hazards not otherwise classified that have been identified.

### 3 Composition/information on ingredients

**Chemical characterization: Mixtures**

**Components:**

111-40-0	2,2'-iminodiethylamine <ul style="list-style-type: none"> <li>◆ Acute Tox. 2, H330</li> <li>◆ Skin Corr. 1B, H314</li> <li>◆ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317; STOT SE 3, H335</li> </ul>	40-70%
80-05-7	bisphenol A <ul style="list-style-type: none"> <li>◆ Repr. 1B, H360</li> <li>◆ Eye Dam. 1, H318</li> <li>◆ Skin Sens. 1, H317; STOT SE 3, H335</li> </ul>	30-50%

**Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.  
 For the wording of the listed Hazard Statements, refer to section 16.

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### 4 First-aid measures

**Description of first aid measures**

**After inhalation:**

- Supply fresh air or oxygen; call for doctor.
- Provide oxygen treatment if affected person has difficulty breathing.
- In case of irregular breathing or respiratory arrest provide artificial respiration.
- In case of unconsciousness place patient stably in side position for transportation.

**After skin contact:**

- Immediately remove any clothing soiled by the product.
- Immediately rinse with water.
- If skin irritation continues, consult a doctor.
- Seek immediate medical help for blistering or open wounds.

**After eye contact:**

- Protect unharmed eye.
- Rinse opened eye for several minutes under running water. Then consult a doctor.
- Remove contact lenses if worn.

**After swallowing:**

- Rinse out mouth and then drink plenty of water.
- Do not induce vomiting; immediately call for medical help.

**Most important symptoms and effects, both acute and delayed:**

- Headache
- Breathing difficulty
- Coughing
- Dizziness
- Allergic reactions
- May cause respiratory irritation.
- Strong caustic effect on skin and mucous membranes.
- Gastric or intestinal disorders when ingested.
- Nausea in case of ingestion.

**Danger:**

- Danger of gastric perforation.
- Danger of impaired breathing.
- Danger of disturbed cardiac rhythm.
- Causes serious eye damage.
- Fatal if inhaled.
- Harmful if swallowed or in contact with skin.

**Indication of any immediate medical attention and special treatment needed:**

- Medical supervision for at least 48 hours.
- If necessary oxygen respiration treatment.
- Later observation for pneumonia and pulmonary edema.
- Contains 2,2'-iminodiethylamine, bisphenol A. May produce an allergic reaction.

### 5 Fire-fighting measures

**Extinguishing media**

**Suitable extinguishing agents:**

- Foam
- Carbon dioxide

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- Fire-extinguishing powder
- Water fog / haze
- **For safety reasons unsuitable extinguishing agents:** Water stream.
- **Special hazards arising from the substance or mixture**
- Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**
- Wear self-contained respiratory protective device.
- Do not inhale explosion gases or combustion gases.
- Wear fully protective suit.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- Use respiratory protective device against the effects of fumes/dust/aerosol.
- Wear protective equipment. Keep unprotected persons away.
- Ensure adequate ventilation.
- Isolate area and prevent access.
- **Environmental precautions**
- Do not allow to enter sewers/ surface or ground water.
- Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up**
- Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- Send for recovery or disposal in suitable receptacles.
- **Reference to other sections**
- See Section 7 for information on safe handling.
- See Section 8 for information on personal protection equipment.
- See Section 13 for disposal information.

### 7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
- Open and handle receptacle with care.
- Prevent formation of aerosols.
- Use only in well ventilated areas.
- **Information about protection against explosions and fires:**
- Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**
- Use only receptacles specifically permitted for this substance/product.
- Unsuitable material for receptacle: aluminium.
- Avoid storage near extreme heat, ignition sources or open flame.
- **Information about storage in one common storage facility:**
- Store away from foodstuffs.
- Do not store together with oxidizing and acidic materials.
- **Further information about storage conditions:**

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- Keep containers tightly sealed.
- Protect from heat and direct sunlight.
- **Specific end use(s)** No relevant information available.

### 8 Exposure controls/personal protection

#### Control parameters

#### Components with limit values that require monitoring at the workplace:

#### 111-40-0 2,2'-iminodiethylamine

REL (USA)	Long-term value: 4 mg/m <sup>3</sup> , 1 ppm Skin
TLV (USA)	Long-term value: 4.2 mg/m <sup>3</sup> , 1 ppm Skin
EL (Canada)	Long-term value: 1 ppm Skin; S
EV (Canada)	Long-term value: 4 mg/m <sup>3</sup> , 1 ppm Skin
LMPE (Mexico)	Long-term value: 1 ppm PIEL

#### Exposure controls

#### General protective and hygienic measures:

- The usual precautionary measures for handling chemicals should be followed.
- Keep away from foodstuffs, beverages and feed.
- Wash hands before breaks and at the end of work.
- Pregnant women should strictly avoid inhalation or skin contact.
- Do not inhale gases / fumes / aerosols.
- Avoid contact with the eyes and skin.

 · **Engineering controls:** No relevant information available.

#### Breathing equipment:



Combined Organic Vapor and Particulate Respirator is recommended for use during all processing activities.

#### Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

#### Eye protection:



Safety glasses

 · **Body protection:** Protective work clothing

#### Limitation and supervision of exposure into the environment

No relevant information available.

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 · **Risk management measures** No relevant information available.

### 9 Physical and chemical properties

**Information on basic physical and chemical properties**
**Appearance:**

**Form:** Liquid  
**Color:** Straw  
**Odor:** Amine-like  
**Odor threshold:** Not determined.

**pH-value:** Alkaline  
**Melting point/Melting range:** Not determined.  
**Boiling point/Boiling range:** >200 °C (>392 °F)

**Flash point:** >100 °C (>212 °F)

**Flammability (solid, gaseous):** Not applicable.

**Auto-ignition temperature:** Not determined.

**Decomposition temperature:** Not determined.

**Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits**

**Lower:** Not determined.  
**Upper:** Not determined.  
**Oxidizing properties:** Not determined.

**Vapor pressure:** Not determined.

**Density:**

**Relative density at 20 °C (68 °F):** 1.03 g/cm<sup>3</sup> (8.6 lbs/gal)  
**Vapor density:** Not determined.  
**Evaporation rate:** Not determined.

**Solubility in / Miscibility with**

**Water:** Not miscible or difficult to mix.

**Partition coefficient (n-octanol/water):** Not determined.

**Viscosity**

**Dynamic at 20 °C (68 °F):** 70 - 150 cps  
**Kinematic:** Not determined.  
**Other information** No relevant information available.

### 10 Stability and reactivity

**Reactivity:** No relevant information available.  
**Chemical stability:** Stable under normal temperatures and pressures.  
**Thermal decomposition / conditions to be avoided:** Avoid temperatures above 120 °F / 49 °C.

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**Possibility of hazardous reactions**

Toxic fumes may be released if heated above the decomposition point.  
 Exothermic polymerization.  
 Reacts with halogenated compounds.  
 Reacts with strong alkali.  
 Reacts with strong acids and oxidizing agents.

**Conditions to avoid** Excessive heat.

**Incompatible materials** Oxidizers, strong bases, strong acids

**Hazardous decomposition products**

Carbon monoxide and carbon dioxide  
 Nitrogen oxides (NOx)  
 Ammonia

### 11 Toxicological information

**Information on toxicological effects**
**Acute toxicity:**

Harmful if swallowed or in contact with skin.  
 Fatal if inhaled.

**LD/LC50 values that are relevant for classification:**
**ATE (Acute Toxicity Estimate)**

Oral	LD50	1800 mg/kg (rat)
Dermal	LD50	1817 mg/kg (rabbit)
Inhalative	LC50/4h	0.5 mg/l (rat)

**111-40-0 2,2'-iminodiethylamine**

Oral	LD50	1080 mg/kg (rat)
Dermal	LD50	1090 mg/kg (rabbit)
Inhalative	LC50/4h	0.3 mg/l (rat)

**80-05-7 bisphenol A**

Oral	LD50	3250 mg/kg (rat)
Dermal	LD50	3000 mg/kg (rabbit)

**Primary irritant effect:**

**On the skin:** Strong caustic effect on skin and mucous membranes.  
**On the eye:** Strong caustic effect.

**IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

**NTP (National Toxicology Program):**

None of the ingredients are listed.

**OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

**Probable route(s) of exposure:**

Ingestion.  
 Inhalation.  
 Eye contact.

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- Skin contact.
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** May damage fertility or the unborn child.
- **STOT-single exposure:** May cause respiratory irritation.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

#### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity** Toxic for aquatic organisms
- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:** Do not allow product to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No relevant information available.

#### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

#### 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN2079
- **UN proper shipping name**
- **DOT, IATA** Diethylenetriamine mixture
- **ADR, IMDG** DIETHYLENTRIAMINE MIXTURE
- **Transport hazard class(es)**

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#### · DOT



· **Class** 8 Corrosive substances  
· **Label** 8

#### · ADR



· **Class** 8 (C7) Corrosive substances  
· **Label** 8

#### · IMDG, IATA



· **Class** 8 Corrosive substances  
· **Label** 8

· **Packing group** II  
· **DOT, ADR, IMDG, IATA**

· **Environmental hazards** Product contains environmentally hazardous substances: bisphenol A

#### · Marine pollutant:



Yes

· **Special precautions for user** Warning: Corrosive substances  
· **Danger code (Kemler):** 80  
· **EMS Number:** F-A,S-B  
· **Segregation groups** Alkalis

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

#### · Transport/Additional information:

· **DOT** Labeling as a Marine Pollutant is only required for bulk single package shipments. Bulk packaging consists of a maximum capacity of greater than 450 L (119 gallons) for a liquid and a maximum net mass greater than 400 kg (882 pounds) for a solid. (See 171.4(c))

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Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

**· ADR**

Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to provisions relevant to marine pollutants. (See 5.2.1.8.1)



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

**· IMDG**

Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to provisions relevant to marine pollutants. (See 2.10.2.7)



Limited Quantity for packages less than 30 kg gross and inner packagings less than 1 L each.

**· IATA**


Limited Quantity for packages less than 30 kg gross and inner packagings less than 0.1 L each / 0.5 L net.

**15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

**· Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

**· Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**· Section 313 (Specific toxic chemical listings):**

80-05-7 | bisphenol A

**· TSCA (Toxic Substances Control Act)**

All ingredients are listed.

**· Proposition 65 (California)**

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**· Chemicals known to cause cancer:**

None of the ingredients are listed.

**· Chemicals known to cause developmental toxicity for females:**

80-05-7 | bisphenol A

**· Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

**· Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**· EPA (Environmental Protection Agency):**

None of the ingredients are listed.

**· IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

**· Canadian Domestic Substances List (DSL):**

All ingredients are listed.

**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**· Date of preparation / last revision** April 26, 2018 / -

**· Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bio-accumulable, Toxic

vPvB: very Persistent and very Bioaccumulative

OSHA: Occupational Safety &amp; Health Administration

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 2: Acute toxicity – Category 2

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Repr. 1A: Reproductive toxicity – Category 1A

Repr. 1B: Reproductive toxicity – Category 1B

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

**· Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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SDS Prepared by:  
ChemTel Inc.  
1305 North Florida Avenue  
Tampa, Florida USA 33602-2902  
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573  
Website: www.chemtelinc.com

**Safety Data Sheet**

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**1 Identification**

- **Product identifier**
- **Trade name:** Armor-Hard Extreme
- **Other means of identification:**  
Armor-Hard Extreme Part C  
Aggregate Filler
- **Recommended use and restriction on use**
- **Recommended use:** Epoxy aggregate filler
- **Restrictions on use:** For professional use only.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
METZGER/McGUIRE  
Mailing Address:  
PO Box 2217  
Concord, NH 03302  
Shipping Address:  
807 Route 3-A  
Bow, NH 03304  
Phone: 603-224-6122  
Toll Free: 800-223-6680  
Email: info@metzgermcguire.com
- **Emergency telephone number:**  
ChemTel Inc.  
(800)255-3924 (North America)  
+1 (813)248-0585 (International)

**2 Hazard(s) identification**

- **Classification of the substance or mixture**  
Carc. 1A H350 May cause cancer. Route of exposure: Inhalation.
- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**  
  
GHS08
- **Signal word:** Danger
- **Hazard statements:**  
H350 May cause cancer. Route of exposure: Inhalation.
- **Precautionary statements:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P280 Wear protective gloves and eye protection.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P405 Store locked up.

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P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

### 3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

14808-60-7	Quartz (SiO <sub>2</sub> )	Carc. 1A, H350	50-100%
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· **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret. For the wording of the listed Hazard Statements, refer to section 16.

### 4 First-aid measures

· **Description of first aid measures**

· **After inhalation:**

Supply fresh air; consult doctor in case of complaints.  
Provide oxygen treatment if affected person has difficulty breathing.

· **After skin contact:**

Brush off loose particles from skin.  
Wash with soap and water.  
If skin irritation is experienced, consult a doctor.

· **After eye contact:**

Remove contact lenses if worn.  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.  
Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**

Coughing  
Breathing difficulty

· **Danger:**

Danger of impaired breathing.  
May cause cancer by inhalation. Route of exposure: Inhalation.

· **Indication of any immediate medical attention and special treatment needed:**

If necessary oxygen respiration treatment.

### 5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

The product is not flammable.  
Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents:** None.

· **Special hazards arising from the substance or mixture**

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Formation of toxic gases is possible during heating or in case of fire.

· **Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.  
Wear fully protective suit.

### 6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation.  
For large spills, wear protective clothing.  
For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

· **Environmental precautions** No special measures required.

· **Methods and material for containment and cleaning up**

Pick up mechanically.  
Send for recovery or disposal in suitable receptacles.

· **Reference to other sections**

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

· **Handling**

· **Precautions for safe handling:**

Use personal protective equipment as required.  
Prevent formation of dust.  
Any deposit of dust which cannot be avoided must be regularly removed.  
Use only in well ventilated areas.

· **Information about protection against explosions and fires:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**

· **Requirements to be met by storerooms and receptacles:**

Store in cool, dry conditions in well sealed receptacles.

· **Information about storage in one common storage facility:**

Store away from foodstuffs.  
Store away from oxidizing agents.

· **Specific end use(s)** No relevant information available.

### 8 Exposure controls/personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

14808-60-7 Quartz (SiO<sub>2</sub>)

PEL (USA)	Long-term value: 0.05* mg/m <sup>3</sup> *resp. dust; 30mg/m <sup>3</sup> /%SiO <sub>2</sub> +2
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REL (USA)	Long-term value: 0.05* mg/m <sup>3</sup> *respirable dust; See Pocket Guide App. A
TLV (USA)	Long-term value: 0.025* mg/m <sup>3</sup> *as respirable fraction
EL (Canada)	Long-term value: 0.025 mg/m <sup>3</sup> ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.10* mg/m <sup>3</sup> *respirable fraction
LMPE (Mexico)	Long-term value: 0.025* mg/m <sup>3</sup> A2, *fracción respirable

### Exposure controls

#### General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.  
Keep away from foodstuffs, beverages and feed.  
Wash hands before breaks and at the end of work.  
Do not breathe dust.

· **Engineering controls:** No relevant information available.

#### Breathing equipment:

NIOSH or EU approved dust respirator should be used for operations generating dust.  
Particulate mask should filter at least 99% of airborne particles.

#### Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

#### Eye protection:



Safety glasses

#### Body protection:

Not required under normal conditions of use.  
Protection may be required for spills.

#### Limitation and supervision of exposure into the environment

No relevant information available.

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### Appearance:

· **Form:** Granulate  
· **Color:** Various colors  
· **Odor:** Odorless  
· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

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· <b>Melting point/Melting range:</b>	>1000 °C (>1,832 °F)
· <b>Boiling point/Boiling range:</b>	>1000 °C (>1,832 °F)
· <b>Flash point:</b>	Not applicable.
· <b>Flammability (solid, gaseous):</b>	Not determined.
· <b>Auto-ignition temperature:</b>	Not determined.
· <b>Decomposition temperature:</b>	Not determined.
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Explosion limits</b>	
Lower:	Not determined.
Upper:	Not determined.
· <b>Oxidizing properties:</b>	Not determined.
· <b>Vapor pressure:</b>	Not determined.
· <b>Density:</b>	
Relative density at 20 °C (68 °F):	2.65 g/cm <sup>3</sup> (22.11 lbs/gal)
Vapor density:	Not applicable.
Evaporation rate:	Not applicable.
· <b>Solubility in / Miscibility with</b>	
Water:	Insoluble.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity</b>	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· <b>Other information</b>	No relevant information available.

## 10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions** Reacts with strong oxidizing agents.
- **Conditions to avoid** Prevent formation of dust.
- **Incompatible materials** No relevant information available.
- **Hazardous decomposition products** Possible in traces.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **LD/LC50 values that are relevant for classification:** None.
- **Primary irritant effect:**

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- **On the skin:** Based on available data, the classification criteria are not met.
- **On the eye:** Based on available data, the classification criteria are not met.

· <b>IARC (International Agency for Research on Cancer):</b>	
14808-60-7   Quartz (SiO2)	1

· <b>NTP (National Toxicology Program):</b>	
14808-60-7   Quartz (SiO2)	K

· <b>OSHA-Ca (Occupational Safety &amp; Health Administration):</b>	
None of the ingredients are listed.	

· **Probable route(s) of exposure:**

- Ingestion.
- Inhalation.
- Eye contact.
- Skin contact.

· **Repeated dose toxicity:**

Long-term inhalation of silica dusts may cause obstructive pulmonary disease including silicosis.

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** May cause cancer. Route of exposure: Inhalation.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Causes damage to organs through prolonged or repeated exposure.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

#### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity** No relevant information available.
- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:**  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No relevant information available.

#### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Contact waste processors for recycling information.  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

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- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

#### 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** Not regulated.
- **UN proper shipping name**
- **DOT, ADR, IMDG, IATA** Not regulated.
- **Transport hazard class(es)**
- **DOT, ADR, IMDG, IATA**
- **Class** Not regulated.
- **Packing group**
- **DOT, ADR, IMDG, IATA** Not regulated.
- **Environmental hazards**
- **Marine pollutant:** No
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

#### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**
- **Section 302 (extremely hazardous substances):**  
None of the ingredients are listed.
- **Section 355 (extremely hazardous substances):**  
None of the ingredients are listed.
- **Section 313 (Specific toxic chemical listings):**  
None of the ingredients are listed.
- **TSCA (Toxic Substances Control Act)**  
All ingredients are listed.
- **Proposition 65 (California)**
- **Chemicals known to cause cancer:**  
14808-60-7 | Quartz (SiO2)
- **Chemicals known to cause developmental toxicity for females:**

(Cont'd. on page 8)

## Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: April 26, 2018

Revision: April 26, 2018

<b>Trade name: Armor-Hard Extreme</b>
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(Cont'd. of page 7)
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None of the ingredients are listed.
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<b>· Chemicals known to cause developmental toxicity for males:</b>
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None of the ingredients are listed.
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<b>· Chemicals known to cause developmental toxicity:</b>
---

None of the ingredients are listed.
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<b>· EPA (Environmental Protection Agency):</b>
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None of the ingredients are listed.
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<b>· IARC (International Agency for Research on Cancer):</b>
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14808-60-7   Quartz (SiO <sub>2</sub> )	1
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<b>· Canadian Domestic Substances List (DSL):</b>
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All ingredients are listed.
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### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** April 26, 2018 / -

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bio-accumulable, Toxic

vPvB: very Persistent and very Bioaccumulative

OSHA: Occupational Safety & Health Administration

Carc. 1A: Carcinogenicity – Category 1A

· **Sources**

Website, European Chemicals Agency ([echa.europa.eu](http://echa.europa.eu))

Website, US EPA Substance Registry Services ([ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do))

Website, Chemical Abstracts Registry, American Chemical Society ([www.cas.org](http://www.cas.org))

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN:

978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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