



# SAFETY DATA SHEET

## TOTALBOAT 5:1 SLOW HARDENER

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### SECTION 1: IDENTIFICATION

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#### GHS PRODUCT IDENTIFIERS:

**PRODUCT NAME:** TotalBoat 5:1 Epoxy Slow Hardener

**SYNONYMS, TRADE NAMES:** TotalBoat 5:1 Slow Hardener, 5:1 Slow Hardener, Part B

**OTHER MEANS OF IDENTIFICATION:** Not available

#### RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE:

**USES:** Polymer Matrix For Fiber-Reinforced Plastic (FRP)

**RESTRICTIONS ON USE:** None Identified

#### SUPPLIER'S DETAILS:

**SUPPLIER:** Jamestown Distributors  
17 Peckham Drive  
Bristol, RI 02809  
TELEPHONE: +1 401 253 3840  
FACSIMILE: +1 401 254 5829

**MANUFACTURER/SUPPLIER:** Endurance Technologies, Inc.  
275 Bridge Point Drive  
South Saint Paul, MN 55075, USA  
TELEPHONE: +1 651 451 8000  
FACSIMILE: +1 651 451 9728

**CONTACT PERSON:** Eric Frank

#### EMERGENCY PHONE NUMBER:

**CHEMTREC (24 HRS): USA** 1 800 424 9300

**CHEMTREC (24 HRS): INTERNATIONAL** +1 703 527 3887

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### SECTION 2: HAZARDS IDENTIFICATION

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#### GHS CLASSIFICATION OF SUBSTANCE OR MIXTURE:

Skin corrosion: Category 1, H314

Eye damage: Category 1, H318

Aspiration hazard: Category 1, H304

Acute toxicity, oral: Category 4, H302

Acute toxicity, dermal: Category 4, H312

Skin sensitization: Category 1, H317

Hazardous to the aquatic environment: Chronic Category 1, H410

Hazardous to the aquatic environment: Acute Category 1, H400

Specific target organ toxicity (SE): Single Exposure Category 3, H335

Toxic to reproduction: Category 2, H361

#### GHS LABEL ELEMENTS:

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**HAZARD SYMBOLS:**



**SIGNAL WORDS:**

Danger

**HAZARD STATEMENTS:**

H302 Harmful if swallowed.  
 H304 May be fatal if swallowed and enters airways.  
 H312 Harmful in contact with skin.  
 H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H332 Harmful if inhaled.  
 H335 May cause respiratory irritation.  
 H361 Suspected of damaging fertility or the unborn child  
 H400 Very toxic to aquatic life.  
 H410 Very Toxic to aquatic life with long lasting effects.

**PRECAUTIONARY STATEMENTS:**

**PREVENTION:**

P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe mists.  
 P264 Wash hands 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 should not be allowed out of the workplace.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves, clothing, and eye/face protection.

**RESPONSE:**

P301+P330+P331+P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.  
 P303+P361+P364+P353+P352 IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash before reuse. Rinse skin with water/shower. Wash with plenty of soap and water.  
 P333+P313 If skin irritation or rash occurs: Get medical attention.  
 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.  
 P337+P313 If eye irritation persists: Get medical attention.  
 P308+P313 IF exposed or concerned: Get medical attention.  
 P391 Collect spillage.

**STORAGE:**

P403+P233 Store in a well-ventilated place. Keep container tightly closed.  
 P405 Store locked up.

**DISPOSAL:**

P501 Dispose of contents and containers in accordance with local, regional and international regulations.

Precautionary statements are listed according to the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS) – Annex III

### SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME

CAS NUMBER

CONTENT



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Polyoxypropylenediamine	9046-10-0	30-50%
Diethylenetriamine	111-40-0	20-30%
Tetraethylenepentamine	112-57-2	15-25%
Polyethylene Polyamines	68131-73-7	10-20%
4,4'-isopropylidenediphenol	80-05-7	1-10%

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

### SECTION 4: FIRST-AID MEASURES

#### DESCRIPTION OF NECESSARY FIRST-AID MEASURES:

- INHALATION:** If affected, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration.
- SKIN:** Immediately remove contaminated clothing and shoes. Wash the affected area with plenty of soap and water until no evidence of the chemical remains (at least 15-20 minutes). Launder clothing before reuse. Get medical attention immediately.
- EYES:** Immediately flush eyes with plenty of clean water for an extended time, not less than fifteen (15) minutes. Flush longer if there is any indication of residual chemical in the eye. Ensure adequate flushing of the eyes by separating the eyelids with fingers and roll eyes in a circular motion. Get medical attention immediately.
- INGESTION:** Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse out the mouth with water. Get medical attention immediately.

#### MOST IMPORTANT SYMPTOMS AND EFFECTS, ACUTE AND DELAYED:

- SYMPTOMS:** Burns. Irritation. Pre-existing skin problems may be aggravated by prolonged or repeated contact. Persons with sensitive airways (e.g., asthmatics) may react to vapors. See section 11 for additional information.

#### INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY:

- TREATMENT:** Treat symptomatically.

### SECTION 5: FIRE-FIGHTING MEASURES

#### EXTINGUISHING MEDIA:

- SUITABLE:** Use water spray, foam, dry chemical or carbon dioxide.
- UNSUITABLE:** None known.

#### SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:

- UNUSUAL FIRE & EXPLOSION HAZARDS:** Product is not considered a fire hazard, but will burn if ignited. Closed container may rupture (due to build up in pressure) when exposed to extreme heat.
- HAZARDOUS COMBUSTION PRODUCTS:** Irritating or toxic substances may be emitted upon burning, combustion or decomposition. See Section 10 Hazardous decomposition products for additional information.

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE-FIGHTERS:** Wear self-contained breathing apparatus (SCBA) equipped with a full face piece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or



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decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations. See section 9 for additional information.

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

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**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:** See Section 8 for recommendations on the use of personal protective equipment. If spilled in an enclosed area, ventilate. Eliminate ignition sources. Personal Protective Equipment must be worn.

**ENVIRONMENTAL PRECAUTIONS:** Do not flush product into public sewer, water systems or surface waters.

**METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:** Stop leak if without risk. Move containers from spill area. Contain by diking with sand, earth or other non-combustible material. Wear proper personal protective clothing and equipment. Absorb spill with an inert material. Place into labeled, closed container; store in safe location to await disposal. Change contaminated clothing and laundry before reuse.

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### SECTION 7. HANDLING AND STORAGE

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**PRECAUTIONS FOR SAFE HANDLING:** As with any chemical product, use good laboratory/workplace procedures. Do not cut, puncture, or weld on or near the container. Use under well-ventilated conditions. Wash thoroughly after handling this product. Always wash up before eating, smoking or using the facilities. Avoid eye and skin contact. Avoid inhalation of aerosol, mist, spray, fume or vapor. Avoid drinking, tasting, swallowing or ingesting this product. Wash contaminated clothing before reuse. Discard shoes contaminated with this product.

**CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:** Keep away from heat, sparks and open flames. Store dry at 15-40°C, under well-ventilated conditions. Store this material away from incompatible substances (see section 10). Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Empty container contains residual product which may exhibit hazards of product. Do not reuse empty container without commercial cleaning or reconditioning.

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### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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#### CONTROL PARAMETERS:

#### OCCUPATIONAL EXPOSURE LIMITS:

CHEMICAL NAME	CAS NUMBER	ACGIH-TWA	ACGIH-STEL
Polyoxypropylenediamine	9046-10-0	Not available	Not available
Diethylenetriamine	111-40-0	1 ppm (8 hours)	Not available
Tetraethylenepentamine	112-57-2	Not available	Not available
Polyethylene Polyamines	68131-73-7	1 ppm	Not available
4,4'-isopropylidenediphenol	80-05-7	Not available	Not available

**APPROPRIATE ENGINEERING CONTROLS:** Always provide effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist and vapor away from workers to prevent routine inhalation. Ventilation must be adequate to maintain air concentrations below occupational exposure standards. When necessary use mechanical handling to reduce human contact with materials.

#### INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT (PPE):

**EYE/FACE PROTECTION:** Full face shield with safety glasses or goggles underneath are required.

**SKIN** Wear chemical resistant (impervious) gloves; PVC, neoprene, nitrile rubber, EVAL,



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<b>PROTECTION:</b>	butyl rubber. Wear chemical resistant protective clothing. Use good laboratory/workplace procedures including personal protective clothing: lab coat and protective gloves.
<b>RESPIRATORY PROTECTION:</b>	Wear an approved respirator (e.g., an organic vapor respirator, a full face air purifying respirator for organic vapors, or a self-contained breathing apparatus) whenever exposure to aerosol, mist, spray, fume or vapor exceed the applicable exposure limit(s) of any chemical substance listed in this SDS.
<b>GENERAL PROTECTION:</b>	Eyewash fountains and safety showers are recommended in the work area.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>APPEARANCE:</b>	Liquid	<b>UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS:</b>	Not available
<b>COLOR:</b>	Clear amber	<b>VAPOR PRESSURE:</b>	<0.675 mm Hg at 20°C
<b>ODOR:</b>	Mild	<b>VAPOR DENSITY:</b>	Heavier than air
<b>ODOR THRESHOLD:</b>	Not available	<b>RELATIVE DENSITY:</b>	1.01
<b>PH:</b>	Not available	<b>SOLUBILITY(IES):</b>	Soluble
<b>MELTING POINT/ FREEZING POINT</b>	Not available	<b>PARTITION COEFFICIENT (n-octanol/water):</b>	Not available
<b>INITIAL BOILING POINT AND BOILING RANGE:</b>	Not available	<b>AUTO-IGNITION TEMPERATURE:</b>	Not available
<b>FLASH POINT:</b>	>128°C	<b>DECOMPOSITION TEMPERATURE:</b>	Not available
<b>EVAPORATION RATE:</b>	Not available	<b>VISCOSITY:</b>	150 cP at 25°C
<b>FLAMMABILITY (SOLID, GAS):</b>	Not available		

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### SECTION 10. STABILITY AND REACTIVITY

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**REACTIVITY:** Exothermic reactions including polymerization may occur in contact with strong acids, strong bases, alcohols, strong oxidizing agents and excessive heat.

**CHEMICAL STABILITY:** This product is stable.

**POSSIBILITY OF HAZARDOUS REACTIONS:** Exothermic reactions including polymerization may occur in contact with strong acids, strong bases, alcohols, strong oxidizing agents and excessive heat.

**CONDITIONS TO AVOID:** Excessive heat and ignition sources.

**INCOMPATIBLE MATERIALS:** Avoid strong acids, bases, and oxidizing agents.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Thermal decomposition may produce smoke, carbon monoxide, carbon dioxide, aldehydes, oxides of nitrogen and other products of incomplete combustion.

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### SECTION 11. TOXICOLOGICAL INFORMATION

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**INFORMATION ON THE LIKELY ROUTES OF EXPOSURE:** Eyes, skin, inhalation and ingestion.

**SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:**

<b>EYES:</b>	Causes serious eye damage.
<b>SKIN:</b>	Harmful in contact with skin. Causes severe skin burns. May cause allergic skin reaction. Repeated or prolonged contact may cause skin irritation and dermatitis.



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**INHALATION:** Harmful if inhaled. May cause respiratory irritation. Exposure to vapors or mists may cause severe irritation and burns of the nose. Throat and respiratory tract.

**INGESTION:** Harmful if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause severe irritation and burns of the mouth, throat and digestive tract.

**DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE:** Suspected of damaging fertility or the unborn child.

**ACUTE TOXICITY:**

CHEMICAL NAME	LC <sub>50</sub> INHALATION (RAT)	LD <sub>50</sub> ORAL (RAT)	LD <sub>50</sub> DERMAL (RABBIT)
Polyoxypropylenediamine	Not available	2,885 mg/kg	2,978 mg/kg
Diethylenetriamine	>4,178 mg/m <sup>3</sup>	1,080 – 2,330 mg/kg	672 – 1,240 mg/kg
Tetraethylenepentamine	Not available	Not available	Not available
Polyethylene Polyamines	Not available	1,716 mg/kg	>1,000 mg/kg
4,4'-isopropylidenediphenol	Not available	>2,000 mg/kg	>2,000 mg/kg

**CORROSION / IRRITATION / SENSITIZATION INFORMATION:**

**SKIN CORROSION/IRRITATION:** Category 1  
**SERIOUS EYE DAMAGE/IRRITATION:** Category 1  
**RESPIRATORY OR SKIN SENSITIZATION:** Category 1

**CARCINOGENICITY / MUTAGENICITY / REPRODUCTIVE TOXICOLOGY INFORMATION:**

**GERM CELL MUTAGENICITY:** Information is not available.  
**CARCINOGENICITY:** Information is not available.  
**REPRODUCTIVE TOXICITY:** Category 2

**SPECIFIC TARGET ORGAN TOXICITY (STOT):**

**STOT-SINGLE EXPOSURE:** Category 3  
**STOT-REPEATED EXPOSRE:** Information is not available.

**ASPIRATION HAZARD:** Category 1

**OTHER INFORMATION:** Additional information is not available.

**SECTION 12. ECOLOGICAL INFORMATION**

**TOXICITY:**

CHEMICAL NAME	TEST	SPECIES	RESULT
Polyoxypropylenediamine	LC50 (95 hrs)	Fish	772 mg/L
	EC50 (48 hrs)	Daphnia	418 mg/L
	NOEC (3 hrs)	Bacteria	310 mg/L
Diethylenetriamine	Not available		
Tetraethylenepentamine	Not available		
Polyethylene Polyamines	LC50 (96 hrs)	Fathead Minnow	100 mg/L
	EC50 (48 hrs)	Daphina	2.2 mg/L
	ErC50 (72 hrs)	Green Algae	0.5 mg/L
	EC10 (18 hrs)	Bacteria	1120 mg/L



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4,4'-isopropylidenediphenol	LC50 (96 hrs)	Fish	7.5 mg/L
	EC50 (48 hrs)	Daphnia	3.9 - 10.2 mg/L
	EC50 (96 hrs)	Algae	2.5 - 3.1 mg/L

### PERSISTENCE AND DEGRADABILITY:

CHEMICAL NAME	TEST	PERIOD	RESULT
Polyoxypropylenediamine	OECD 301B Ready Biodegradability – CO2 Evolution Test	28 Days	0%
Diethylenetriamine	Not available		
Tetraethylenepentamine	Not available		
Polyethylene Polyamines	OECD 301B Test	28 days	9.5%
4,4'-isopropylidenediphenol	EU EC C.4-A Biodegradation: Determination of the "Read" Biodegradability: Dissolved Organic Carbon (DOC) Die-Away Test	28 Days	1 - 2%

### BIOACCUMULATIVE POTENTIAL:

CHEMICAL NAME	Log P <sub>ow</sub>	BCF	POTENTIAL
Polyoxypropylenediamine	1.34	Not available	Low
Diethylenetriamine	Not available	Not available	Not available
Tetraethylenepentamine	Not available	Not available	Not available
Polyethylene Polyamines	-3.67 (estimated)	<100	Low
4,4'-isopropylidenediphenol	Not available	Not available	Not available

### MOBILITY IN SOIL:

CHEMICAL NAME	SOIL/WATER PARTITION COEFFICIENT (K <sub>oc</sub> )
Polyoxypropylenediamine	Not available
Diethylenetriamine	Not available
Tetraethylenepentamine	Not available
Polyethylene Polyamines	Not available
4,4'-isopropylidenediphenol	Not available

**OTHER ADVERSE EFFECTS:** Additional information is not available

## SECTION 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHODS:** Dispose of unused contents (incineration) in accordance with national and local regulations. Dispose of container in accordance with national and local regulations. Ensure the use of properly authorized waste management companies, where appropriate. See section 8 for recommendations on the use of personal protective equipment.

## SECTION 14. TRANSPORTATION INFORMATION

**UN NUMBER:** UN2735

**UN PROPER SHIPPING NAME:**

Amines Liquid, Corrosive, N.O.S. (Polyoxypropylenediamine/Diethylenetriamine Solution)

**TRANSPORT HAZARD CLASS:**

**U.S. DOT HAZARD CLASS:** 8



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CANADA TDG HAZARD CLASS: 8  
EUROPE ADR/RID HAZARD CLASS: 8  
IMDG CODE (OCEAN) HAZARD CLASS: 8  
ICAO/IATA (AIR) HAZARD CLASS: 8

PACKING GROUP: III

**ENVIRONMENTAL HAZARDS:**

MARINE POLLUTANT: Yes  
HAZARDOUS SUBSTANCE (USA): No

**SPECIAL PRECAUTIONS FOR USER:** Information is not available.

**TRANSPORTING IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE:**  
Information is not available.

**LABEL FOR CONVEYANCE:**




**OTHER INFORMATION:** ORM-D Consumer Commodity in 1 gal or less containers

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### SECTION 15. REGULATORY INFORMATION

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**SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT IN QUESTION:**

California Proposition 65 – Warning: the following ingredients present in the product are known to the state of California to cause Cancer:	None known to be present or none in reportable amounts.
California Proposition 65 – Warning: the following ingredients present in the product are known to the state of California to cause birth defects or other reproductive hazards:	4,4'-isopropylidene-diphenol (CAS 80-05-7) [GHS 05] [H360D]
 <b>K 5 FB-B</b> ; . This product can expose you to chemicals including bisphenol A, which is known to the State of California to cause female reproductive toxicity. For more information, go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>	
EU Regulation (EC) No. 1907/2006 (REACH) Annex XIV – List of substances subject to authorization, Substances of very high concern	None of the components are listed.
Annex XVII – Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	None of the components are listed.

**OTHER REGULATIONS:** Additional information is not available.

**CHEMICAL INVENTORIES:**

Canadian Domestic Substances List (DSL):	Y
Canadian Non-Domestic Substances List (NDSL):	N
European Inventory of Existing Chemical Substances (EINECS):	Y
European List of Notified Chemical Substances (ENCS):	N
U.S. Toxic Substances Control Act (TSCA):	Y

A "Y" listing indicates all intentionally added components are either listed or are otherwise compliant with the regulation. A "N" listing indicates that for one or more components: 1) there is no listing on the public inventory;





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### SECTION 16. OTHER INFORMATION

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**REVISION DATE:** October 5, 2017

**LEGEND:**

- ACGIH: American Conference of Governmental Industrial Hygienists
- ADR/RID: European dangerous goods transport road and rail regulations
- CAS No: Chemical Abstract Service Registry Number
- DOT: Department of Transportation (U.S.)
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals
- IATA: International Air Transport Association
- ICAO: International Civil Aviation Organization
- IMDG: International Maritime Dangerous Goods code
- OEL: Occupational Exposure Limits
- OSHA: Occupational Safety and Health Administration (U.S.)
- PEL: Permissible Exposure Limit
- RQ: Reportable Quantity
- SDS: Safety Data Sheet
- STEL: Short Term Exposure Limit (15 minute Time Weighted Average)
- TDG: Canadian Transportation of Dangerous Goods Act and Regulations
- UN: United Nations
- U.S.: United States

**USERS RESPONSIBILITY/DISCLAIMER OF LIABILITY:**

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