

## Safety Data Sheet

Date Authored: July 25, 2012

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## Section I - Chemical Product and Company Identification

<b>Material Name:</b>	CLEAN 3171	<b>HMIS:</b>	3-3-0-C
<b>Chemical Family:</b>	None		
<b>CAS Reg. No.:</b>	None		
<b>Function:</b>	Emulsion Breaker		
<b>Distributor:</b>	Danlin Industries Corporation		
<b>Physical Address:</b>	23737 Hwy 47 Thomas, OK 73669	<b>Mailing Address:</b>	P. O. Box 307 Thomas, OK 73669
<b>Phone Number:</b>	(580) 661-3248	<b>Emergency Number:</b>	<b>(800) 424-9300 CHEMTREC</b>
<b>Prepared By:</b>	Danlin Industries Corporation		

## Section II - Hazards Identification

**Emergency Overview: DANGER**

FLAMMABLE LIQUID AND VAPOR  
 MAY BE HARMFUL IF SWALLOWED  
 MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS  
 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE  
 CAUSES SERIOUS EYE DAMAGE  
 MAY CAUSE GENETIC DEFECTS  
 MAY DAMAGE FERTILITY OR THE UNBORN CHILD  
 HARMFUL TO AQUATIC LIFE



**Primary Routes of Exposure:** EYE CONTACT, SKIN ABSORPTION AND CONTACT, INGESTION, INHALATION

**Precautionary Overview:**

Do not handle until all safety precautions have been read and understood.  
 Keep away from heat/sparks/open flames/hot surfaces - No Smoking.  
 Ground/bond container and receiving equipment.  
 Use explosion-proof equipment.  
 Use only non-sparking tools.  
 Take precautionary measures against static discharge.  
 Do not breath dust/mist.  
 Wash thoroughly after handling.  
 Avoid release to the environment.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 Use personal protective equipment as required.  
 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician Do NOT induce vomiting.  
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 IF exposed or concerned: Get medical advice/attention.  
 If skin irritation or rash occurs: Get medical advice/attention.  
 Wash contaminated clothing before reuse.  
 In case of fire: Use agents approved for Class B hazards (i.e. water fog, foam, dry chemical, carbon dioxide) for extinction.  
 Store in a well-ventilated place. Keep container tightly closed. Keep cool.  
 Store locked up.  
 Dispose of contents/container in accordance with local/regional regulation.

**Eye Contact:** May cause eye irritation, burns.

**Skin Contact:** May cause skin irritation, sensitization.

**Inhalation:** May cause irritation of respiratory tract, decreased breathing capacity.

**Ingestion:** May be poisonous or fatal if swallowed.

**Target(Organs):** CNS, Liver, Kidneys  
**Systems(Affected):** CNS, Liver, Kidneys, Skin, Respiratory

**Carcinogenicity:** NTP: No      **IARC Monographs:** No      **OSHA Regulated:**No

**Section III -Hazardous Ingredients**

Components	Wt. %	CAS #	OSHA		ACGIH		OTHER
			PEL	STEL	TWA	STEL	
Petroleum distillates	<65	64742-95-6	NA	NA	100ppm	NA	
1,2,4-Trimethylbenzene	<20	95-63-6	25ppm	NA	25ppm	NA	
Xylene	<5	1330-20-07	100ppm	NA	100ppm	150ppm	RQ 100
Cumene	<1	98-82-8	50ppm	NA	50ppm	NA	RQ 5000
n-Dodecylbenzene Sulfonic Acid	<20	27176-87-0	NA	NA	NA	NA	RQ 1000
Methanol	<5	67-56-1	200ppm	NA	200ppm	250ppm	RQ 5000
Sulfuric Acid	<1	7664-93-9	1mg/m3	NA	0.2mg/m3	NA	RQ 1000

**Section IV - First Aid Measures**

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids apart to ensure flushing of entire surface. Get immediate medical attention.

**Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes, while removing contaminated clothing, including shoes. Thoroughly clean clothing and shoes before reuse. Get medical attention.

**Inhalation:** Remove to fresh air. Give artificial respiration if not breathing. Give oxygen if breathing is difficult. Keep victim warm and Get immediate medical attention.

**Ingestion:** If swallowed, do **not** induce vomiting. Keep victims head below knee level to prevent vomit from aspiration into lungs. Get immediate medical attention. **NOTE:** Never give anything by mouth to an unconscious person.

**NOTES TO PHYSICIAN:**

**For Methanol:** Western Journal of Medicine, March 1985, page 337 reports that when plasma methanol concentrations are higher than 20 mg/deciliter, when ingested doses are greater than 30 milliliters, and when there is evidence of acidosis or visual abnormalities, a 10% solution of ethanol in 5% aqueous dextrose, administered intravenously, is a safe and effective antidote.

**Section V - Fire Fighting Measures**

**Extinguishing Media.** Agents approved for Class B hazards, (i.e.. water fog, foam, dry chemical, carbon dioxide).

**Special Fire Fighting Procedures.** Do not enter confined space without full bunker gear and self contained breathing apparatus. Treat as Class B oil fire. Keep sealed containers cool with water spray.

**Unusual Fire and Explosion Hazards.** **Flammable liquid.** Vapor may explode if ignited in enclosed area. Containers may explode from internal pressure if confined to fire. Cool with water.

**Section VI - Accidental Release Measures**

**Steps To Be Taken In Case Material is Released or Spilled:** Responders should wear PPE. Evacuate all unnecessary personnel from area. Remove or shut off all sources of ignition. Increase ventilation if possible. Stop leak if possible. Spilled material should be contained and removed by mechanical means, such as, absorbing with inert material and placing it in a properly labeled waste receptacle. Do not let run off water go to lakes, streams, etc.

**Section VII - Handling and Storage**

**Precautions To Be Taken In Handling and Storing:** Use appropriate PPE as outlined in Section VIII. Keep away from ignition sources (e.g., heat, sparks, flames, etc.). Keep container closed. Ground and bond containers when transferring liquids. Use with adequate ventilation. Do not breathe vapors. Do not cut, puncture, or weld on or near this container.

Store away from oxidizer or other materials bearing a yellow "D.O.T." label.

**Section VIII - Exposure Controls/Personal Protective Measures**

Components	List	Type	Value
Petroleum distillates	ACGIH	TWA	100ppm
1,2,4-Trimethylbenzene	ACGIH	TWA	25ppm
	OSHA	TWA	25ppm
Methanol	ACGIH	TWA	200ppm
	ACGIH	STEL	250ppm
	ACGIH	Notation:	End of shift, Methanol in urine 15 mg/L; SKIN
	OSHA	TWA	200ppm
Xylene	ACGIH	TWA	100ppm
	ACGIH	STEL	150ppm
	ACGIH	Notation:	Not Classifiable as a Human Carcinogen; End of shift, Methylhippuric acids in urine 1.5 g/g creatinine
	OSHA	TWA	100ppm
Cumene	ACGIH	TWA	50ppm
	OSHA	TWA	50ppm
	OSHA	Notation	Skin
Sulfur Dioxide	ACGIH	STEL	.25ppm
	ACGIH	Notation:	Not Classifiable as a Human Carcinogen
	OSHA	TWA	5ppm
Sulfuric Acid	ACGIH	TWA	0.2mg/m3
	OSHA	TWA	1mg/m3

Respiratory Protection: Use OSHA/NIOSH/MSHA approved air supplied respirator for organic vapors. Entry into confined space requires self contained positive breathing apparatus.

**Ventilation:** **Local Exhaust:** Yes, equal to fresh air  
**Mechanical Exhaust:** Exhaust fan recommended to control exposure levels.  
**Special:** Control airborne concentrations below exposure guidelines.

**Personal Protective Equipment:** Chemical resistant gloves (polyvinyl alcohol or Buna-N), chemical splash goggles, chemical resistant footwear, and chemical resistant aprons are recommended when handling the product.

**Other Protective Equipment:** Eye wash and safety showers should be readily available

**Work and Hygienic Practices:** Avoid breathing chemicals, wash hands before eating, drinking or smoking

**Section IX - Physical and Chemical Properties**

<b>Appearance/Odor:</b>	Clear Amber/Pungent	<b>pH:</b>	NA
<b>State:</b>	Liquid	<b>Solubility in Water:</b>	Not Soluble
<b>Specific Gravity (g/ml):</b>	0.885 to 0.965	<b>Pour Point:</b>	< -40°F
<b>Boiling Point:</b>	140.5°F	<b>Viscosity(cps):</b>	N/D
<b>Flash Point:</b>	78.0°F	<b>Vapor Pressure:</b>	N/D
<b>UEL (Calculated):</b>	28.6%	<b>Evaporation Rate:</b>	N/D
<b>LEL (Calculated):</b>	140.5%	<b>Vapor Density:</b>	N/D
<b>Auto-ignition Temperature:</b>	N/D	<b>n-Octanol/Water</b>	N/D
<b>Decomposition Temperature:</b>	N/D		

**Section X - Stability and Reactivity**

<b>Chemical Stability</b>	Stable
<b>Conditions to Avoid</b>	Ignition sources, eg., sparks and flame
<b>Incompatible Materials</b>	Strong oxidizing agents (bromine, chlorine, hydrogen peroxide, etc.) and strong bases
<b>Decomposition Products</b>	Thermal Decomposition: Carbon dioxide, carbon monoxide, smoke and oxides of nitrogen
<b>Hazardous Polymerization</b>	Will not occur

### Section XI - Toxicological Information

No specific toxicity tests have been conducted on this product. Components have shown to be toxic.

**1,2,4-TRIMETHYL BENZENE** - Moderately toxic by intraperitoneal route. Mildly toxic by inhalation. Can cause central nervous system depression, anemia, bronchitis.

**TOXICITY DATA:**

**Oral-Rat** LD50: 5 g/kg; **Inhalation-Rat** LC<sub>50</sub>: 18 g/m<sup>3</sup>/4H; **Intraperitoneal-Rat** LDLo: 1752 mg/kg; **Intraperitoneal-Guinea Pig**, adult LDLo:1788 mg/kg

**CUMENE** - Moderately toxic by ingestion. Mildly toxic by inhalation and skin contact. Human systemic effects by inhalation: an antipsychotic, unspecified changes in the sense of smell and respiratory system. An eye and skin irritant. Potential narcotic action. Central nervous system depressant. There is no apparent difference between the toxicity of natural cumene and that derived from petroleum

**TOXICITY DATA:**

**Skin-Rabbit**, adult 10 mg/24H open Mild irritation effects; **Skin-Rabbit**, adult 100 mg/24H Moderate irritation effects; **Eye effects-Rabbit**, adult 86 mg Mild irritation effects; **Eye effects-Rabbit**, adult 500 mg/24H Mild irritation effects; **Inhalation-Human** TCLo:200 ppm:NOSE,Central nervous system effects,Pulmonary system effects; **Oral-Rat** LD50:1400 mg/kg; **Inhalation-Rat** LC50:8000 ppm/4H; **Inhalation-Mouse** LC50:24,700 mg/m<sup>3</sup>/2H

**METHYL ALCOHOL (METHANOL)** - A human poison by ingestion. Poison experimentally by skin contact. Moderately toxic experimentally by intravenous and intraperitoneal routes. Mildly toxic by inhalation. Human systemic effects: changes in circulation, cough, dyspnea, headache, lachrymation, nausea or vomiting, optic nerve neuropathy, respiratory effects, visual field changes. An experimental teratogen. Experimental reproductive effects. An eye and skin irritant. Human mutation data reported. A narcotic. Its main toxic effect is exerted upon the nervous system, particularly the optic nerves and possibly the retinae. The condition can progress to permanent blindness. Once absorbed, methanol is only very slowly eliminated. Coma resulting from massive exposures may last as long as 2-4 days. In the body, the products formed by its oxidation are formaldehyde and formic acid, both of which are toxic. Because of the slow elimination, methanol should be regarded as a cumulative poison. Though single exposures to fumes may cause no harmful effect, daily exposure may result in the accumulation of sufficient methanol in the body to cause illness. Death from ingestion of less than 30 mL has been reported. A common air contaminant.

**TOXICITY DATA:**

**Skin-Rabbit**, adult 20 mg/24H Moderate irritation effects; **Eye effects-Rabbit**, adult 100 mg/24H Moderate irritation effects; **DNA Inhibition-Human**: lymphocyte 300 mmol/L; **Microsomal Mutagenicity Assay-Mouse**: lymphocyte 7900 mg/L; **Oral-Rat** TDLo: 7500 mg/kg (17-19D preg):Reproductive effects; **Inhalation-Rat** TCLo: 10,000 ppm/7H (7-15D preg):Teratogenic effects; **Oral-Man** LDLo: 6422 mg/kg: Central nervous system effects, Pulmonary system effects, Gastrointestinal tract effects; **Oral-Man** TDLo: 3429 mg/kg: Eye effects; **Oral-Human** LDLo: 428 mg/kg: Central nervous system effects, Pulmonary system effects; **Oral-Human** LDLo: 143 mg/kg: Eye effects, Pulmonary system effects, Gastrointestinal tract effects; **Oral-Woman** TDLo: 4 g/kg: Eye effects, Pulmonary system effects, Gastrointestinal tract effects; **Inhalation-Human** TCLo:86,000 mg/m<sup>3</sup>: Eye effects, Pulmonary system effects; **Inhalation-Human** TCLo: 300 ppm: Eye effects, Central nervous system effects, Pulmonary system effects; **Oral-Woman** TDLo: 4 g/kg; **Oral-Rat** LD<sub>50</sub>: 5628 mg/kg; **Inhalation-Rat** LC<sub>50</sub>: 64,000 ppm/4H; **Intraperitoneal-Rat** LD<sub>50</sub>: 7529 mg/kg; **Intravenous-Rat** LD<sub>50</sub>: 2131 mg/kg; **Oral-Mouse** LD<sub>50</sub>: 7300 mg/kg; **Intraperitoneal-Mouse** LD<sub>50</sub>: 10,765 mg/kg; **Subcutaneous-Mouse** LD<sub>50</sub>: 9800 mg/kg; **Intravenous-Mouse** LD<sub>50</sub>: 4710 mg/kg; **Oral-Monkey** LDLo: 7000 mg/kg; **Inhalation-Monkey** LCLo: 1000 ppm; **Skin-Monkey** LDLo: 393 mg/kg

**LAURYL BENZENESULFONIC ACID (BENZENESULFONIC ACID, DODECYL-, DODECYLBENZENESULFONIC ACID)** -

Moderately toxic by ingestion. A corrosive.

**TOXICITY DATA:**

**Oral-Rat** LD<sub>50</sub>: 650 mg/kg

**PETROLEUM DISTILLATES** - Experimental reproductive effects reported.

**TOXICITY DATA:**

**Inhalation-Mouse** TCLo:1500 ppm/6H (female 6-15D post)

**SULFURIC ACID**

Suspected human carcinogen when contained in strong inorganic mists. A human poison. Experimental poison by inhalation. Moderately toxic by ingestion. A severe eye irritant. Extremely irritating, corrosive, and toxic to tissue, resulting in rapid destruction of tissue, causing severe burns. If much of the skin is involved, exposure is accompanied by shock, collapse, and symptoms similar to those seen in severe burns. Repeated contact with dilute solutions can cause a dermatitis, and repeated or prolonged inhalation of a mist of sulfuric acid can cause inflammation of the upper respiratory tract, leading to chronic bronchitis. Sensitivity to sulfuric acid or its mists or vapors varies with individuals. Normally 0.125-0.50 ppm may be mildly annoying, 1.5-2.5 ppm can be definitely unpleasant, and 10-20 ppm is unbearable. Workers exposed to low concentrations of the vapor gradually lose their sensitivity to its irritating action. Inhalation of concentrated vapor or mists from hot acid or oleum can cause rapid loss of consciousness with serious damage to lung tissue. Severe exposure may cause a chemical pneumonitis; erosion of the teeth due to exposure to strong acid fumes has been recognized in industry. An experimental teratogen.

**TOXICITY DATA:**

**Eye effects-Rabbit**, adult 1380 mg Severe irritation effects. **Eye effects-Rabbit**, adult 100 mg rns Severe irritation effects Toxicology. **Inhalation-Rabbit**, adult TCLo:20 mg/m<sup>3</sup>/7H (female 6-18D post):Teratogenic effects. **Inhalation-Human**,TCLo:3 mg/m<sup>3</sup>/24W. **Unreported-Man** LDLo:135 mg/kg **Oral-Rat** LD50:2140 mg/kg. **Inhalation-Rat** LC50:510 mg/m<sup>3</sup>/2H

**Inhalation-Mouse** LC50:320 mg/m<sup>3</sup>/2H. **Inhalation-Rat** TCLo:784 mg/m<sup>3</sup>/24H/84D-C

**XYLENE** - Moderately toxic by intraperitoneal and subcutaneous routes. Mildly toxic by ingestion and inhalation. An experimental teratogen. Human systemic effects by inhalation: olfactory changes, conjunctiva irritation, and pulmonary changes. Experimental reproductive effects. Mutation data reported. A human eye irritant. An experimental skin and severe eye irritant. Some temporary corneal effects are noted, as well as some conjunctival irritation by instillation (adding drops to the eyes one drop at a time). Irritation can start @ 200 ppm.

**TOXICITY DATA:**

*Eye effects-Human* 200 ppm; *Skin-Rabbit*, adult 100% Moderate irritation effects; *Skin-Rabbit*, adult 500 mg/24H Moderate irritation effects; *Eye effects-Rabbit*, adult 87 mg Mild irritation effects; *Eye effects-Rabbit*, adult 5 mg/24H Severe irritation effects; Cytogenetic Analysis-Saccharomyces cerevisiae 1 mmol/tube; *Inhalation-Rat* TCLo: 50 mg/m<sup>3</sup>/6H (female 1-21D post):Reproductive effects; *Inhalation-Rat* TCLo: 50 mg/m<sup>3</sup>/6H (female 1-21D post):Teratogenic effects; *Oral-Human* LDLo: 50 mg/kg; *Inhalation-Man* LCLo: 10,000 ppm/6H; *Inhalation-Human* TCLo: 200 ppm; NOSE, Eye effects, Pulmonary system effects; *Oral-Rat* LD<sub>50</sub>: 4300 mg/kg; *Inhalation-Rat* LC<sub>50</sub>: 5000 ppm/4H; *Intraperitoneal-Rat* LD<sub>50</sub>: 2459 mg/kg; *Oral-Unspecified* effects LD<sub>50</sub>: 4300 mg/kg; *Inhalation-Unspecified* effects LC<sub>50</sub>: 30 g/m<sup>3</sup>

**Section XII - Ecological Considerations**

Ecological testing has not been conducted on this product. Material should be considered hazardous to aquatic life.

**Section XIII - Disposal Considerations**

**Waste Classification:** Material should be disposed of by incineration or in an approved landfill in accordance with all federal, state, and local regulations. Under RCRA, it is the responsibility of the user of the product to determine at the time of disposal, whether the products meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting material hazardous.

The container of this product can present physical or health hazards, even when emptied! To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since emptied containers retain product residue, follow label warnings even after container is emptied.

**Section XIV - Transportation Information**

**DEPARTMENT OF TRANSPORTATION:**

**DOT Identification Number:** UN1993  
**DOT Proper Shipping Name:** UN1993, Flammable liquid, n.o.s., (Contains Petroleum distillates and Methanol), 3, PGIII  
**DOT Hazard Class:** 3  
**DOT Identification Name:** Flammable liquid, n.o.s.  
**DOT Packaging Group:** PGIII  
**RQ:** n-Dodecylbenzene Sulfonic Acid (4,921 lbs or 638 gallons)  
**2012 ERG Number:** 128

**Section XV - Regulatory Information**

**TSCA:** Components of this product are listed on the TSCA Inventory.

**CERCLA:** If reportable quantity of this product is accidentally spilled the incident is subject to the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act and must be reported to the National Response Center by calling (800) 424-8802.

<u>CERCLA Component</u>	<u>CAS #</u>	<u>Wt. %</u>	<u>RQ, lbs</u>	<u>Product RQ Value</u>
n-Dodecylbenzene Sulfonic Acid	27176-87-0	20.3	1000	4,921 lbs ( 638 gallons)
Methanol	67-56-1	3.1	5000	160,426 lbs ( 20,816 gallons)
Xylene	1330-20-07	1.4	100	7,303 lbs ( 948 gallons)
Cumene	98-82-8	0.7	5000	730,267 lbs ( 94,756 gallons)
Sulfuric Acid	7664-93-9	0.2	1000	477,303 lbs ( 61,932 gallons)

**SARA TITLE III:**

This product contains the following Extremely Hazardous Substance under EPCRA section 302/304 lists.

<u>EHS Component</u>	<u>CAS #</u>	<u>Wt. %</u>	<u>RQ, lbs</u>	<u>TPQ, lbs</u>
Sulfuric Acid	7664-93-9	0.2	1000	1000

Under the provisions of Title III, Sections 311/312 of the Superfund Amendments and Reauthorization Act, this product is classified into the following hazard categories:

Immediate (Acute) Health: X    Delayed (Chronic) Health: X    Fire: X    Pressure:        Reactive:    

This product contains the following Section 313 Reportable Ingredients:

<u>313 Component</u>	<u>CAS #</u>	<u>Wt. %</u>
1,2,4-Trimethylbenzene	95-63-6	19.9
Methanol	67-56-1	3.1
Xylene	1330-20-07	1.4
Cumene	98-82-8	0.7

**Section XVI - Other Information**

**Hazardous Material Identification System Category Rating:**

**Health:**                    **3**  
**Flammability:**         **3**  
**Reactivity:**             **0**  
**Personal Protection:**    **C**

This rating scheme rates health, fire, and reactivity on a scale of 0 to 4.

0 = No significant hazard      1 = Slight Hazard      2 = Moderate Hazard      3 = High Hazard      4 = Extreme Hazard

Personal Protective Equipment Guide:

- |  |  |
|--|--|
| A = Safety Glasses                                 | G = Safety Glasses, Gloves, Vapor Respirator               |
| B = Safety Glasses, Gloves                         | H = Safety Goggles, Gloves, Apron, Vapor Respirator        |
| C = Safety Glasses/Goggles, Gloves, Apron          | I = Safety Glasses, Gloves, Apron, Dust & Vapor Respirator |
| D = Gloves, Apron, Faceshield                      | J = Splash Goggles, Gloves, Apron, Dust & Vapor Respirator |
| E = Safety Glasses, Gloves, Dust Respirator        | K = Air Line Hood/Mask, Gloves, Full Suit, Boots           |
| F = Safety Glasses, Gloves, Apron, Dust Respirator | X = Ask supervisor for special handling instructions       |

Component data taken from Sax's Dangerous properties of Industrial Materials, 10<sup>th</sup> Edition, John Wiley & Sons; Vendor's MSDS Sheets, NIOSH "Pocket Guide to CHEMICAL HAZARDS", U.S. Department of Health and Human Resources, 2007; The Merck Index, 9<sup>th</sup> Edition, Merck & Co., Inc.; "ACGIH 2004 TLVs and BEIs", American Conference of Governmental Industrial Hygienists; "Quick Selection Guide to CHEMICAL PROTECTIVE CLOTHING", 3<sup>RD</sup> Edition, John Wiley & Sons, Inc., 1997.

**Definitions**

- ACGIH: American Conference of Governmental & Industrial Hygienists
- ANSI: American National Standard Institute
- BEI: Biological Exposure Indices - individual tests via urine or exhaled air
- CERCLA: Comprehensive Emergency Response, Compensation, and Liability Act
- DOT: U.S. Department of Transportation
- EPA: U.S. Environmental Protection Agency
- HMIS: Hazardous Materials Identification System
- IARC: International Agency For Research On Cancer
- LC<sub>50</sub>: Lethal Concentration 50: A calculated concentration of the substance which is expected to cause death in 50% of an entire defined experimental animal population.
- LCLo: Lethal Concentration Low: The lowest concentration of a material in air (other than LC50) that has been reported to have caused death in humans or animals.
- LD<sub>50</sub>: Lethal Dose 50: A calculated concentration of the substance which is expected to cause death in 50% of an entire defined experimental animal population.
- LDLo: Lethal Dose Low: the lowest dose (other than LD<sub>50</sub>) of a material introduced by any route, other than inhalation, over any given period of time in one or more divided portions and reported to have caused death in humans or animals.
- MSHA: Mine Safety and Health Administration
- N/A: Not Applicable
- N/D: Not Determined
- NE: Not Established
- NFPA: National Fire Protective Association
- NIOSH: National Institute for Occupational Safety & Health
- NSF: National Sanitation Foundation

NTP:	National Toxicology Program
OSHA:	U.S. Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit
PPE:	Personal Protective Equipment
RCRA:	Resource Conservation and Recovery Act
REL:	Recommended Exposure Limit (NIOSH)
RQ:	Reportable Quantity
SARA:	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA:	Self Contained Breathing Apparatus
STEL:	Short Term Exposure Limit
TCLo:	Toxic Concentration Low: The lowest concentration of a material in air to which humans or animals have been exposed for any given period of time that has produced any toxic effect in humans or produced a carcinogenic, neoplastigenic, or teratogenic effect in animals or humans.
TLV:	Threshold Limit Value: A recommended upper limit or TWA concentration of a substance to which most workers can be exposed without adverse effects.
TSCA:	Toxic Substances Control Act
TWA:	Time Weighted Average
Wt:	Weight
<:	Less Than
>:	Greater Than

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**DISCLAIMER OF LIABILITY**

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