



1. Company and Product Identification

1.1	Identification – Product Name:	AntiChlor 427
1.2	Other means of identification	Inorganic sulfite salts
	Synonym:	Mixture, none
1.3	Recommended Use of The Chemical and Restrictions on Use:	Reverse osmosis membrane treatment Use only as directed on the label.
1.4	Name, Address, and Telephone Number of The Manufacturer, or Other Responsible Party:	AVISTA TECHNOLOGIES 140 Bosstick Street San Marcos, CA 92069 (760) 744-0536
	Competent Person email address	klindsey@avistatech.com
1.5	24 Hour Emergency No.:	1-800-424-9300 (United States) 1-703-527-3887 (International Collect)



DRINKING WATER TREATMENT ADDITIVES CLASSIFIED BY NSF INTERNATIONAL TO ANSI/NSF 60 AS A STANDARD DRINKING WATER TREATMENT CHEMICAL FOR USE IN REVERSE OSMOSIS SYSTEMS AT A MAXIMUM LEVEL OF 8 mg/l.

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a clear, colorless to pale yellow liquid. This product may irritate tissue depending on concentration and duration of exposure. Sulfite salts (the main component of this product) are a skin and respiratory sensitizer; subsequent exposures to very small amounts can cause allergic reaction. This product is neither reactive nor flammable. Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. sodium oxides and sulfur oxides). Emergency responders must wear personal protective equipment (and have appropriate fire-extinguishing protection) suitable for the situation to which they are responding.

Physical Hazards Summary	None
Potential Health Hazards Summary	Acute toxicity, Inhalation (Category 5) Acute toxicity, Oral (Category 4) Acute toxicity, Dermal (Category 5) Serious eye damage (Category 1)
Potential Ecological Effects Summary	Acute aquatic toxicity (Category 3)
2.1 Classification Of Product	
U.S. OSHA classification	Acute toxicity, Inhalation (Category 5) Acute toxicity, Oral (Category 4) Acute toxicity, Dermal (Category 5) Serious eye damage (Category 1)
Classification as per EC 1272/2008 (CLP/GHS)	Acute toxicity, Inhalation (Category 5) Acute toxicity, Oral (Category 4) Acute toxicity, Dermal (Category 5) Serious eye damage (Category 1)
WHMIS classification	Acute toxicity, Inhalation (Category 5) Acute toxicity, Oral (Category 4)

Acute toxicity, Dermal (Category 5)

Serious eye damage (Category 1)

Hazardous Materials Information System (HMIS) Rating

Health	2
Flammability	0
Physical Hazard	0
Protective Equipment	C

2.2 Label Elements OSHA/GHS

General Warnings P101 If medical advice is needed, have product container or label at hand.
 P102 Keep out of reach of children.
 P103 Read label before use
 P403 Store in a well-ventilated place.
 P233 Keep container tightly closed

Signal Word WARNING

Hazard statements H302 Harmful if swallowed.
 H313 May be harmful in contact with skin.
 H318 Causes serious eye damage.
 H402 Harmful to aquatic life.
 H303 + H333 May be harmful if swallowed or if inhaled.
 H320 Causes eye irritation.

Precautionary statements P280 P280 Wear protective gloves/ eye protection/ face protection.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Hazard pictograms



2.3 Unclassified Hazards None

2.4 Ingredients with unknown acute toxicity None

3. COMPOSITION and INFORMATION ON INGREDIENTS

Chemical name CAS # EINECS #	% w/w	US OSHA	GHS/EU CLP	WHMIS
Sulfite salts Proprietary Proprietary	25-35	Acute toxicity, Oral (Category 4) Acute toxicity, Dermal (Category 5) Serious eye damage (Category 1) Acute aquatic toxicity (Category 3) H302 Harmful if swallowed. H313 May be harmful in contact with skin.	Acute toxicity, Oral (Category 4) Acute toxicity, Dermal (Category 5) Serious eye damage (Category 1) Acute aquatic toxicity (Category 3) H302 Harmful if swallowed. H313 May be harmful in contact with skin.	Acute toxicity, Oral (Category 4) Acute toxicity, Dermal (Category 5) Serious eye damage (Category 1) Acute aquatic toxicity (Category 3) H302 Harmful if swallowed. H313 May be harmful in contact with skin.

		<p>H318 Causes serious eye damage. H402 Harmful to aquatic life. H302 Harmful if swallowed. H313 May be harmful in contact with skin. H318 Causes serious eye damage. H402 Harmful to aquatic life. P280 Wear protective gloves/ eye protection/ face protection. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>	<p>H318 Causes serious eye damage. H402 Harmful to aquatic life. H302 Harmful if swallowed. H313 May be harmful in contact with skin. H318 Causes serious eye damage. H402 Harmful to aquatic life. P280 Wear protective gloves/ eye protection/ face protection. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>	<p>H318 Causes serious eye damage. H402 Harmful to aquatic life. H302 Harmful if swallowed. H313 May be harmful in contact with skin. H318 Causes serious eye damage. H402 Harmful to aquatic life. P280 Wear protective gloves/ eye protection/ face protection. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p>
--	--	--	--	--

NE = Not Established. C = Ceiling Limit. See Section 16 for Definitions of Terms Used.

Canada HMIRA Registration: Registration Number: 03331703 Registration date: 30 May 2019

4. FIRST-AID MEASURES

4.1 Description of Necessary Measures

- Skin exposure:** If this product contaminates the skin, immediately begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim should seek immediate medical attention if any adverse exposure symptoms develop.
- Eye exposure:** If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek medical attention.
- Inhalation:** If vapors, mists, or sprays of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.
- Ingestion:** If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING. Have victim rinse mouth with water, if conscious. Never induce vomiting or give a diluent (e.g., water) to someone who is unconscious, having convulsions, or unable to swallow. If contaminated individual is convulsing, maintain an open airway and obtain immediate medical attention.

4.2 Most Important Symptoms/Effects:

Immediate: Inhalation exposure may cause coughing or sneezing. Symptoms of skin and eye contact may include redness and irritation. Ingestion may cause stomach pains, cramps, and gastritis.

Delayed: Prolonged or repeated skin overexposure to this product may cause dermatitis (dry, red skin). Symptoms may include tingling, redness, and visible injury.

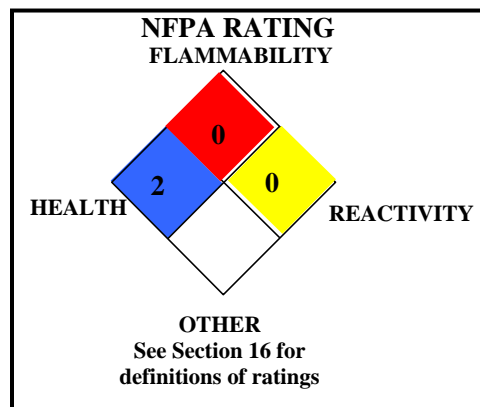
4.3 Indication Of Immediate Medical Attention And Special Treatment Needed, If Necessary:

TARGET ORGANS: Acute: Skin, eyes. Chronic: Skin.

Victims of chemical exposure must be taken for medical attention if any adverse effects occur. Rescuers should be taken for medical attention if necessary. Take a copy of label and SDS to physician or health professional with victim.

5. FIRE-FIGHTING MEASURES

Flammable properties Non-flammable aqueous
 solution



Flash Point °C: Not applicable.

Autoignition Temperature °C: Not applicable.

Flammable Limits (in air by volume, %):

Upper: Not applicable.

Lower: Not applicable.

- | | | | | | | | | | | | | | | |
|-------------|---|---|-------------|-----|----------------|-----|------|-----|--------------|-----|-------|-----|-------|-----|
| 5.1 | Suitable and Unsuitable Extinguishing Media: | This material will not contribute to the intensity of a fire. Use extinguishing material suitable to the surrounding fire. | | | | | | | | | | | | |
| | | <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Water spray</td> <td style="width: 30%;">YES</td> <td style="width: 30%;">Carbon dioxide</td> <td style="width: 10%;">YES</td> </tr> <tr> <td>Foam</td> <td>YES</td> <td>Dry chemical</td> <td>YES</td> </tr> <tr> <td>Halon</td> <td>YES</td> <td>Other</td> <td>YES</td> </tr> </table> | Water spray | YES | Carbon dioxide | YES | Foam | YES | Dry chemical | YES | Halon | YES | Other | YES |
| Water spray | YES | Carbon dioxide | YES | | | | | | | | | | | |
| Foam | YES | Dry chemical | YES | | | | | | | | | | | |
| Halon | YES | Other | YES | | | | | | | | | | | |
| 5.2 | Specific Hazards Arising from Chemical: | When involved in a fire, this material may decompose and produce irritating fumes and toxic gases (e.g., carbon monoxide, carbon dioxide, and sulfur dioxide).
<u>Explosion Sensitivity to Mechanical Impact:</u> Not applicable.
<u>Explosion Sensitivity to Static Discharge:</u> Not applicable. | | | | | | | | | | | | |
| 5.3 | Special Protective Equipment and Precautions For Fire-Fighters: | Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move containers from fire area if it can be done without risk to personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas. | | | | | | | | | | | | |

6. ACCIDENTAL RELEASE MEASURES

- | | | |
|-----|---|---|
| 6.1 | Personal Precautions | Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area and protect people. |
| | Protective equipment | For small releases (< 5 gallons), clean up spilled liquid wearing gloves, goggles, face shield, and suitable body protection. The minimum Personal Protective Equipment recommended for response to non-incident releases (more than 5 gallons) should be Level B: triple-gloves (neoprene gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard hat, and Self-Contained Breathing Apparatus. |
| | Emergency procedures | Monitoring must indicate that exposure levels are below those provided in Section 8(Exposure Controls - Personal Protection) and that oxygen levels are above 19.5% before anyone is permitted in the area without Self-Contained Breathing Apparatus. |
| 6.2 | Methods and Materials for Containment and Cleaning Up | Soak up or wet vacuum spilled liquid. Neutralize residue with sodium bicarbonate or other neutralizing agent for dilute acids. Decontaminate the area thoroughly. Test area with litmus paper to ensure neutralization. Place all spill residues in a suitable container. Dispose of in accordance with |

7. HANDLING and STORAGE

- 7.1 Precautions for Safe Handling All employees who handle this material should be trained to handle it safely. Open containers carefully on a stable surface. Empty containers may contain residual liquid; therefore, empty containers should be handled with care.
- As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat or drink while handling this material. Avoid generating mists and sprays of this product. Remove contaminated clothing immediately.
- During equipment maintenance follow practices indicated in Section 6 (Accidental Release Measures) to decontaminate equipment or clean-up small spills. Make certain that application equipment is locked and tagged-out safely if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures or appropriate local standards.
- 7.2 Conditions For Safe Storage Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials. Material should be stored in secondary containers, or in a diked area, as appropriate. Storage and use areas should be covered with impervious materials. Keep container tightly closed when not in use. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.
- Incompatibilities Strong bases, amines, strong oxidizers, very strong acids, water reactive materials. It may react with metals to generate hydrogen gas. The product may release toxic gases if in contact with acids.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

8.1 Control Parameters

CHEMICAL NAME	CAS #	% w/w	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL			OTHER
			TWA mg/m ³	STEL mg/m ³	TWA mg/m ³	STEL mg/m ³	IDLH mg/m ³	
Sulfite salts	Proprietary	Proprietary	5 A4 (Not Classifiable as a Human Carcinogen)	NE	NE	NE	NE	NIOSH REL: TWA = 5
Water and other components which are present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers and mutagens).		Balance	None of the other components contribute significant additional hazards at the concentration present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalent Standards and Canadian Workplace Hazardous Materials Identification System Standards (CPR 4).					

- 8.2 Appropriate Engineering Controls. Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in this Section or as low as practical. Ensure eyewash/safety shower stations are available near areas where this product is used.
- 8.3 Personal Protective Equipment
- Respiratory protection: None needed under normal conditions of use. Use NIOSH approved respirators if ventilation is inadequate to control mists or vapor. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the applicable local standards. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-face piece pressure/demand SCBA or a full-face piece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).
- Eye protection: Use approved safety goggles or safety glasses, as described in OSHA 29 CFR 1910.133. Splash goggles with a face shield may be needed if splash hazards exist.

Hand protection: Wear chemical impervious gloves (e.g., Solvex™, Neoprene).

Body protection: If needed, use body protection appropriate for task (e.g., Tyvek suit, rubber apron) to protect from splashes and sprays.

9. PHYSICAL and CHEMICAL PROPERTIES

Appearance	This product is a clear, colorless to pale yellow liquid.		
Odor	Mild sulfur odor	Odor Threshold	N/A
Melting Point °C	-6.7	pH (as supplied)	5.8 – 6.4
Initial Boiling Point °C	100-110	Boiling Point Range °C	N/A
Flammability	Non-flammable	Evaporation Rate (water = 1)	Similar to water
Vapor Density (air = 1)	Similar to water	Vapor Pressure mm Hg @ 20°C:	18
Solubility (in water)	Soluble	Relative density (water = 1)	1.0 – 1.35
Viscosity	Similar to water	Oil-Water Partition Coefficient	N/A
Decomposition Temperature	N/A		
How To Detect This Substance (Warning Properties):	The color and odor may act as warning properties associated with this product.		

10. STABILITY and REACTIVITY

10.1	Reactivity	Not considered reactive.
10.2	Chemical Stability	Stable
10.3	Possibility of hazardous reactions	Hazardous polymerization will not occur.
10.4	Conditions to avoid	Avoid mixing with incompatible materials.
10.5	Incompatible Materials	Strong oxidizers, very strong acids, water reactive materials.
10.6	Hazardous Decomposition Products	Thermal decomposition of this product may generate carbon monoxide, carbon dioxide, and sulfur oxides.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Toxicity data for hazardous ingredients	Oral LD ₅₀ mg/kg	Dermal LD ₅₀ mg/kg	Inhalation LD ₅₀ mg/kg
SULFITE SALTS	LD ₅₀ (intravenous, rat) = 115 mg/kg LD ₅₀ (parenteral, mouse) = 910 mg/kg LDLo (intravenous, mouse) = 1220 mg/kg LDLo (intravenous, rabbit) = 192 mg/kg LD ₅₀ (oral, mouse) = 5989 mg/kg LD ₅₀ (intravenous, rabbit) = 1220 mg/kg Oral mouse LD ₅₀ : 820 mg/kg LD ₅₀ Oral - rat - 3,560 mg/kg	N/A	LC50 Inhalation - rat - 4 h -> 5,500 mg/m ³
	Mutation in Microorganisms (<i>Salmonella typhimurium</i>) = 100 mmol/L Cytogenetic Analysis (ovary, hamster) = 180 µg/L Sister Chromatid Exchange (ovary, hamster) = 200 µg/L TDLo (oral, rat) = 75 mg/kg/15 days/continuous; Kidney, Urethra, Bladder: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases, dehydrogenases		

TDLo (oral, rat) = 40 g/kg; multigenerations:
 Reproductive: Effects on Newborn: weaning or lactation index (e.g., # alive at weaning per # alive at day 4)
 TDLo (oral, rat) = 20 g/kg; multigenerations:
 Reproductive: Effects on Newborn - stillbirth
 TDLo (oral, mouse) = 14 g/kg/female 8–12 days after conception; Reproductive: Effects on Newborn
 TDLo (oral, pig) = 562 g/kg/48 weeks/continuous; Liver: changes in liver weight Kidney, Urethra, Bladder: changes in bladder weight Nutritional and Gross Metabolic - weight loss or decreased weight gain
 TDLo (subcutaneous, mouse) = 806 mg/kg/26 weeks/intermittent; Tumorigenic: equivocal tumorigenic agent by RTECS criteria Skin and Appendages - tumors
 TDLo (parenteral, mouse) = 60 mg/kg/female 8 days after conception; Reproductive: Effects on Fetus: fetotoxicity (except death, e.g., stunted fetus), Specific Developmental Abnormalities: musculoskeletal system

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.1	Ecotoxicity	LC ₅₀ , mg/L	EC ₅₀ , mg/L
Antichlor 427			
	Aquatic	LC ₅₀ (<i>Ceriodaphnia dubia</i>) 48 hours = 707 mg/L	N/A
	Terrestrial	N/A	N/A
12.2	Persistence and Degradability	The components of this product decompose in soil and water.	
12.3	Bioaccumulative Potential	The components of this product are not expected to bioaccumulate.	
12.4	Mobility in Soil	When spilled onto soil, this product will infiltrate downward, the rate being greater with lower concentration because of reduced viscosity.	
12.5	Other Adverse Ecological Effects	This product may be harmful to aquatic life <u>if large volumes</u> of it are released into an aquatic environment.	

13. DISPOSAL CONSIDERATIONS

Preparing Wastes of this Product for Disposal	Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with local regulations. This product, if unaltered by the handling, may be disposed of by treatment at a permitted facility or as advised by your local waste regulatory authority.
Disposal of Contaminated Packaging	Cleaned containers can be recycled or disposed of as non-contaminated waste, if authorized by your local authorities. Dispose of containers as required by local regulations.
U.S. EPA Waste Number	Not applicable.

14. TRANSPORT INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

14.1	UN Number	Not applicable
14.2	UN Proper Shipping Name	Not applicable
14.3	Transport Hazard Class(es)	Not applicable
	Transport label(s) required	Not applicable
14.4	Packing Group	Not applicable
14.5	Marine Pollutant	Not applicable
	NA Emergency Response Guide Number (2016)	Not applicable
14.6	Transport in Bulk (Annex II of MARPOL 73/78 and IBC Code)	Not applicable
14.7	Special Transport Precautions	Not applicable
	National Motor Freight Classification	LTL: 100; T: 70

International Air Transport Association

UN Number	Not applicable
UN Proper Shipping Name	Not applicable
Transport Hazard Class(es)	Not applicable
Transport label(s) required	Not applicable
Packing Group	Not applicable
IATA Emergency Response Code	Not applicable
Excepted Quantity	Not applicable
Packaging Instructions	Not applicable

International Maritime Organization

UN Number	Not applicable
UN Proper Shipping Name	Not applicable
Transport Hazard Class(es)	Not applicable
Transport label(s) required	Not applicable
Packing Group	Not applicable
Marine Pollutant	Not applicable
NA Emergency Response Guide Number (2016)	Not applicable
Transport in Bulk (Annex II of MARPOL 73/78 and IBC Code)	Not applicable

15. SAFETY, HEALTH and ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT

PROGRAM	SULFITE SALTS
US EPA PROGRAMS	
Clean Air Act Hazardous Air Pollutants	NO
Safe Drinking Water Act	NO
RCRA F, K, P, U or D-lists	NO
SARA 302 RQ	NO
SARA 302 TPQ	NO
SARA 313 LISTED	NO
SARA CHEMICAL CATEGORIES	
SARA 311/312 ACUTE	YES
SARA 311/312 CHRONIC	NO

SARA 311/312 FIRE	NO
SARA 311/312 PRESSURE	NO
SARA 311/312 REACTIVITY	NO
EPA EXTREMELY HAZARDOUS SUBSTANCE	NO
CALIFORNIA SAFE DRINKING WATER ACT (Proposition 65)	
This product does not contain any chemical listed on the California Safe Drinking Water Act list (Proposition 65)	
US OSHA PROGRAMS	
PEL	5 mg/m ³
PSM	NO
CHEMICAL SECURITY PROGRAMS	
DHS CFATS	NO
CHEMICAL WEAPONS CONVENTION	
	NO
US DRUG ENFORCEMENT ADMINISTRATION	
DEA Controlled Substances	NO
CHEMICAL INVENTORY PROGRAMS	
WHMIS	D2B
DSL	YES
REACH Pre-registered List	YES
TSCA	YES
TSCA Reset Rule	All ingredients in this product comply with the U.S. EPA TSCA Inventory Notification Requirements Rule (40 CFR 710 Subpart B.)
European Inventory of Existing Commercial Chemical Substances (EINECS)	YES
EU No-Longer Polymers List (NLP)	YES
EEC Classification Packaging, and Labeling of Dangerous Substances (Annex 1)	YES
Philippines	YES
Japan	YES
Australia	YES
Korea	YES
China	YES
New Zealand Inventory of Chemicals	YES

16. OTHER INFORMATION

16.1	Original Preparation	9 Sep 2009
16.2	Revision History	25 May 2013 Reformatted to GHS Requirements 26 Nov 2013 Update Section 12, aquatic toxicity October 7, 2016 Content corrections; 10 May, 2018 Content corrections; 14 October 2018 Update TSCA Reset Rule
16.3	Prepared by	ADVANCED CHEMICAL SAFETY, Inc. PO Box 152329 San Diego, CA 92195 (858)-874-5577
16.4	Date of Printing	November 2, 2018

DEFINITIONS OF TERMS

16.5	A large number of abbreviations and acronyms appear on a SDS. Some of these which are commonly used include the following:	
	Section 2	<p>GHS: Global Harmonization System OSHA: U.S. Occupational Safety and Health Administration. CLP: Classification and Packaging WHMIS: Workplace Hazardous Materials Information System STOT: Specific Target Organ Toxicity</p>
	Section 3	<p>CAS #: Chemical Abstract Service index number EINECS #: European Chemical Substances Information System index number</p>
	Section 5	<p>NFPA: Nation Fire Protection Association Health Hazard: 0 (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); 1 (materials that on exposure under fire conditions could cause irritation or minor residual injury); 2 (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); 3 (materials that can on short exposure could cause serious temporary or residual injury); 4 (materials that under very short exposure could cause death or major residual injury). Flammability Hazard Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".</p> <p>Flash Point: Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL: The lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL: The highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.</p>
	Section 8	<p>ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. TLV - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average (TWA), the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level (C). Skin absorption effects must also be considered PEL - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (<u>Federal Register</u>: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order. IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. The DFG - MAK is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. NIOSH is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration (OSHA). NIOSH issues exposure guidelines called Recommended Exposure Levels (RELs). When no exposure guidelines are established, an entry of NE (Not Established) is made for reference.</p>
	Section 11	<p>LD₅₀ : Lethal Dose (solids & liquids) which kills 50% of the exposed animals; LC₅₀ : Lethal Concentration (gases) which kills 50% of the exposed animals; ppm: Concentration expressed in parts of material per million parts of air or water; mg/m³ : Concentration expressed in weight of substance per volume of air; mg/kg: Quantity of material, by weight, administered to a test subject, based on their body weight in kg IARC - the International Agency for Research on Cancer; NTP - the National Toxicology Program, RTECS - the Registry of Toxic Effects of Chemical Substances, OSHA and CAL/OSHA. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. TDLo, the lowest dose to cause a symptom and TCLo the lowest concentration to cause a symptom; TDo, LDLo, and LDo, or TC, TCo, LCLo, and LCo, the lowest dose (or concentration) to cause lethal or toxic effects. BEI - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.</p>
	Section 12	<p>LC₅₀: The lowest concentration in water which kills 50% of the test subjects. EC₅₀: The Effect Concentration in water at which 50% of the test species if affected.</p>
	Section 13	US EPA Hazardous Waste Codes: refer to 40 CFR 261.20
	Section 14	<p>DOT: US Department of Transportation IATA: International Air Transport Association IMO: International Maritime Organization MARPOL: International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 IBC Code: Merchant Shipping Code</p>
	Section 15	<p>RCRA: US Resource Conservation and Recovery Act SARA: US Superfund Amendments and Reauthorization Act PSM: US OSHA Process Safety Management CFATS: US Department of Homeland Security Chemical Facility Anti-Terrorism Standard DSL: Canadian Domestic Substances List NDSL: Canadian Non-Domestic Substances List REACH: European Registration, Evaluation, Authorization and Restriction of Chemicals list TSCA: US Toxic Substances Control Act</p>