



1. Company and Product Identification

1.1	Identification – Product Name:	Vitec® 3000
1.2	Other means of identification	Organo-phosphorous compounds
	Synonym:	Mixture, none
1.3	Recommended Use of the Chemical and Restrictions on Use:	Reverse osmosis membrane antiscalant Use only as directed on the label.
	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)



CERTIFIED BY NSF INTERNATIONAL TO NSF/ANSI 60 AS STANDARD DRINKING WATER TREATMENT CHEMICAL FOR USE IN REVERSE OSMOSIS SYSTEMS AT A MAXIMUM LEVEL OF 7 mg/l.

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a clear, amber liquid. This product may irritate contaminated tissue. This product is neither reactive nor flammable.

	Physical Hazards Summary	None
	Potential Health Hazards Summary	Skin corrosion/irritation, Category 2
	Potential Ecological Effects Summary	None
2.1	Classification Of Product	
	U.S. OSHA classification	Skin corrosion/irritation, Category 2
	Classification as per EC 1272/2008 (CLP/GHS)	Skin corrosion/irritation, Category 2
	WHMIS classification	Skin corrosion/irritation, Category 2

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 P102 P103	If medical advice is needed, have product container or label at hand. Keep out of reach of children. Read label before use
Signal Word	WARNING	
Hazard statements	H315 H 319 H335	Causes skin irritation Causes serious eye irritation May cause respiratory irritation
Precautionary statements	P271 P281 P312 P302/P352 P261 P305 + P351 + P338	Use only outdoors or in a well-ventilated area. Use personal protective equipment as required. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. 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
Deflocculant & Sequestrant Proprietary Proprietary	20-30	Skin corrosion/irritation, Category 2 H315 Causes skin irritation H319 Causes serious eye irritation H335 May cause respiratory irritation P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.	Skin corrosion/irritation, Category 2 H315 Causes skin irritation H319 Causes serious eye irritation H335 May cause respiratory irritation P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.	Skin corrosion/irritation, Category 2 H315 Causes skin irritation H319 Causes serious eye irritation H335 May cause respiratory irritation P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with

		Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label	Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label	plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label
Chelate Agent Proprietary Proprietary	10-20	<p>Skin corrosion/irritation, Category 2</p> <p>H319 Causes serious eye irritation</p> <p>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>Keep out of reach of children.</p> <p>Keep away from food, drink and animal feeding stuffs.</p> <p>Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label</p>	<p>Skin corrosion/irritation, Category 2</p> <p>H319 Causes serious eye irritation</p> <p>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>Keep out of reach of children.</p> <p>Keep away from food, drink and animal feeding stuffs.</p> <p>Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label</p>	<p>Skin corrosion/irritation, Category 2</p> <p>H319 Causes serious eye irritation</p> <p>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>Keep out of reach of children.</p> <p>Keep away from food, drink and animal feeding stuffs.</p> <p>Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label</p>
Water or other chemicals do not contribute to any additional hazards of this product	balance	N/A	N/A	N/A
PRODUCT	100	Skin corrosion/irritation, Category 2		

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

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.

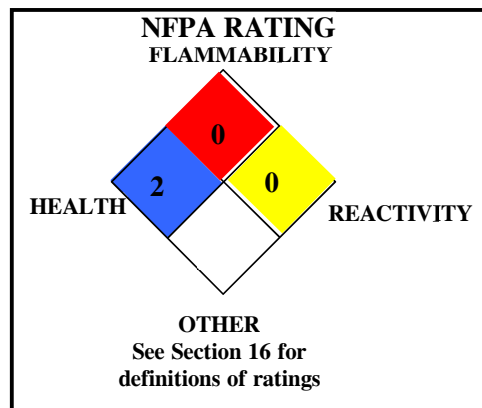
4.3 Indication Of Immediate Medical Attention And Special Treatment Needed, If Necessary:

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 solution aqueous



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.
- | | | | |
|-------------|-----|----------------|-----|
| 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 phosphorous oxides).
- Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Not sensitive.
- 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, faceshield, and suitable body protection. The minimum Personal Protective Equipment recommended for response to non-incident releases (more than 5 gallons) should be Level C: triple-gloves (neoprene gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard hat, and full-face respirator with HEPA filter.
- 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 applicable U.S. Federal, State, or local procedures, or appropriate local standards (see Section 13, Disposal Considerations).

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, strong oxidizers, very strong acids, water reactive materials.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

8.1 Control Parameters

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR					
		ACGIH-TLV		OSHA-PEL			OTHER
		TWA	STEL	TWA	STEL	IDLH	
		mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³	mg/m ³
Deflocculant & Sequestrant	Proprietary	NE	NE	NE	NE	NE	NE
Chelate agent	Proprietary	NE	NE	NE	NE	NE	NE

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

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 reasonably 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 faceshield may be needed if splash hazards exist.

Hand protection:

Wear chemical impervious gloves (e.g., Neoprene or Nitrile).

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, amber liquid.		
Odor	Light disinfectant odor	Odor Threshold	N/A
Melting Point °C	Similar to water	pH	10.7-11.8
Initial Boiling Point °C	100	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)	1.2- 1.3
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 bases, 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 phosphorus 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
Deflocculant & Sequestrant	N/A	N/A	N/A
Chelate agent	LD ₅₀ (Oral-Rat) 2100 mg/kg LD ₅₀ (Skin-Rabbit) > 6310 mg/kg LD ₅₀ (Oral-Quail) > 2510 mg/kg LD ₅₀ (Oral-Duck) > 2510 mg/kg TDLo (Oral-Rat) 1302 mg/kg/31 days-intermittent: Kidney, Urethra, Bladder: other changes in urine composition; Nutritional and Gross Metabolic: weight loss or decreased weight gain, changes in sodium.	Standard Draize Test (Skin-Rabbit) 500 mg/24 hours Standard Draize Test (Eye-Rabbit) 100 mg: Moderate	N/A

Potential routes of exposure	Inhalation, skin contact, eye contact
Potential effects of acute over-exposure	Inhalation exposure may cause tingling, coughing, sneezing, and difficulty breathing. Symptoms of skin and eye contact may include redness and irritation. Ingestion may cause stomach pains, cramps, and gastritis.
Potential effects of chronic over-exposure	Prolonged or repeated skin overexposure to this product may cause dermatitis (dry, red skin). Symptoms may include tingling, redness, and visible injury.
Symptoms of over-exposure	Immediate: Inhalation exposure may cause tingling, coughing, sneezing, and difficulty breathing. 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.
Conditions aggravated by over-exposure	Preexisting dermatitis, other skin conditions, and respiratory conditions may be aggravated by exposures to this product.
Recommendations to physicians:	Treat symptoms and eliminate exposure.
Irritation	YES This product can be irritating to contaminated tissue.
Sensitization	NO

Carcinogenicity	NTP	IARC	US OSHA	CAL OSHA	67/548 EEC Annex 1
	NO	NO	NO	NO	NO
Mutagenicity	NO				
Reproductive toxicity	NO				
Biological Exposure Index	N/A				
Other potential health effects	Currently, there are no Biological Exposure Indices (BEIs) for any component of this product.				

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.1 Ecotoxicity	LC ₅₀ , mg/L	EC ₅₀ , mg/L
Vitec® 3000 NSF		
Aquatic	LC ₅₀ (<i>Mysidopsis bahai</i>) > 1000 mg/L 7 days	EC ₅₀ (<i>Daphnia magna</i>) 48 hours = >1000 mg/L NOEC (<i>Daphnia magna</i>) 48 hours = 1000 mg/L
Terrestrial	N/A	N/A
Aquatic	Acute Hazard Level: Lethal pH (goldfish) = 10.9 Lethal pH (bluegill) = 10.5 LC ₁₀₀ (<i>Cyprinus carpio</i>) 24 hours = 180 ppm/25°C TL _m (mosquito fish) 96 hours = 125 ppm/ fresh water TL _m (bluegill) 48 hours = 99 mg/L/ tap water	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	Moderately mobile.	
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. TRANSPORTATION 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 (2008)	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

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 (2008)	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	Phosphonic acid, [[[(phosphonomethyl)imino]bis[2,1-ethanediylnitrilobis(methylene)]]tetrakis-, sodium salt	Phosphonic acid, [nitrilotris(methylene)]tris-	
US EPA PROGRAMS			
Clean Air Act Hazardous Air Pollutants	NO	NO	
Safe Drinking Water Act	NO	NO	
RCRA F, K, P, U or D-lists	NO	NO	
SARA 302 RQ	NO	NO	
SARA 302 TPQ	NO	NO	
SARA 313 LISTED	NO	NO	
SARA CHEMICAL CATEGORIES			
SARA 311/312 ACUTE	YES	YES	
SARA 311/312 CHRONIC	NO	NO	
SARA 311/312 FIRE	NO	NO	
SARA 311/312 PRESSURE	NO	NO	
SARA 311/312 REACTIVITY	NO	NO	
EPA EXTREMELY HAZARDOUS SUBSTANCE	NO	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	NO	NO	
PSM	NO	NO	

CHEMICAL SECURITY PROGRAMS		
DHS CFATS	NO	NO
CHEMICAL WEAPONS CONVENTION		
	NO	NO
US DRUG ENFORCEMENT ADMINISTRATION		
DEA Controlled Substances	NO	NO
CHEMICAL INVENTORY PROGRAMS		
WHMIS	NO	NO
DSL	YES	YES
REACH Pre-registered List	YES	YES
TSCA	YES	YES
European Inventory of Existing Commercial Chemical Substances (EINECS)	YES	YES
EU No-Longer Polymers List (NLP)	NO	NO
EEC Classification Packaging, and Labeling of Dangerous Substances(Annex 1)	Skin corrosion/irritation, Category	Skin corrosion/irritation, Category 2
Philippines	YES	YES
Japan	YES	YES
Australia	YES	YES
Korea	YES	YES
China	NO	NO
New Zealand Inventory of Chemicals	YES	YES

16. OTHER INFORMATION

16.1	Original Preparation	14 Nov 2005; update 11 April 2011
16.2	Revision History	13 March 2013 Reformatted to GHS Requirements; 16 July13 added aquatic toxicity data for product; October 7, 2016, Content corrections
16.3	Prepared by	ADVANCED CHEMICAL SAFETY, Inc. PO Box 152329 San Diego, CA 92195 (858)-874-5577
16.4	Date of Printing	October 7, 2016

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 (Federal Register: 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>