



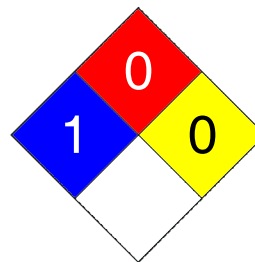
# MATERIAL SAFETY DATA SHEET

## 1. Product and Company Identification

<b>Product Name</b>	<b>VistaClean Irrigant Solution Concentrate</b>
<b>CAS #</b>	Mixture
<b>Product use</b>	An aqueous cleaner derived from citrus botanicals which can emulsify contaminants, soils, and oxidation products in waterlines protecting the lines and system components from deposits and scale
<b>Manufacturer</b>	Hu-Friedy Mfg. Co., LLC 3232 N. Rockwell Chicago, IL 60618-5982 US Phone: 773.975.6100 Fax: 773.868.3599 Emergency Phone: 1-800-535-5053 Outside US: 001-352-323-3500

LEGEND HMIS/NFPA	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0

Health	/ 1
Flammability	0
Physical Hazard	0
Personal Protection	X



## 2. Hazards Identification

<b>Emergency overview</b>	<b>WARNING</b> CAUSES EYE IRRITATION. Avoid contact with eyes. Wash thoroughly after handling.
<b>Potential short term health effects</b>	
<b>Routes of exposure</b>	Eye, Skin contact, Inhalation, Ingestion.
<b>Eyes</b>	Severe irritation to eyes when tested according to method 16 CFR 1500.42.
<b>Skin</b>	Not expected to be a primary skin irritant.
<b>Inhalation</b>	At 10 mg/cubic feet, mild mucous membrane inflammation and mild irritation to nasal cavity may occur.
<b>Ingestion</b>	Irritating to mouth, throat, and stomach.
<b>Target organs</b>	Eyes. Kidney. Respiratory system. Skin.
<b>Chronic effects</b>	Prolonged or repeated exposure can cause drying, defatting and dermatitis.
<b>Signs and symptoms</b>	Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
<b>OSHA Regulatory Status</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
<b>Potential environmental effects</b>	See section 12.

## 3. Composition / Information on Ingredients

Ingredient(s)	CAS #	Percent
Grapefruit, extract	90045-43-5	40 - 70
Glycerol	56-81-5	30 - 60

## 4. First Aid Measures

<b>First aid procedures</b>	
<b>Eye contact</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Obtain medical attention if irritation persists.

<b>Skin contact</b>	Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.
<b>Inhalation</b>	If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.
<b>Notes to physician</b>	Symptoms may be delayed.
<b>General advice</b>	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

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## 5. Fire Fighting Measures

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<b>Flammable properties</b>	Not flammable by WHMIS/OSHA criteria.
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	Alcohol foam. Water spray. Dry chemical. Carbon dioxide.
<b>Unsuitable extinguishing media</b>	Not available
<b>Protection of firefighters</b>	
<b>Specific hazards arising from the chemical</b>	Not available
<b>Protective equipment for firefighters</b>	Firefighters should wear full protective clothing including self contained breathing apparatus.
<b>Hazardous combustion products</b>	May include and are not limited to: Oxides of carbon.
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact</b>	Not available
<b>Sensitivity to static discharge</b>	Not available

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## 6. Accidental Release Measures

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<b>Personal precautions</b>	Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak.
<b>Environmental precautions</b>	Prevent entry into waterways, sewers, basements or confined areas.
<b>Methods for containment</b>	Stop leak if you can do so without risk.
<b>Methods for cleaning up</b>	Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labelled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills to original containers for re-use.

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## 7. Handling and Storage

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<b>Handling</b>	Use good industrial hygiene practices in handling this material. Avoid contact with eyes. When using do not eat or drink. Wash thoroughly after handling.
<b>Storage</b>	Keep out of reach of children. Store in a closed container away from incompatible materials.

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## 8. Exposure Controls / Personal Protection

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### Exposure limits

Ingredient(s)	Exposure Limits
Glycerol	<b>ACGIH-TLV</b> TWA: 10 mg/m3 <b>OSHA-PEL</b> TWA: 15 mg/m3

Grapefruit, extract	<b>ACGIH-TLV</b> Not established <b>OSHA-PEL</b> Not established
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### Engineering controls

General ventilation normally adequate.

### Personal protective equipment

<b>Eye / face protection</b>	Wear safety glasses with side shields.
<b>Hand protection</b>	Rubber gloves. Confirm with a reputable supplier first.
<b>Skin and body protection</b>	As required by employer code. Use of an impervious apron is recommended.
<b>Respiratory protection</b>	Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.
<b>General hygiene considerations</b>	Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.

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## 9. Physical and Chemical Properties

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<b>Appearance</b>	Liquid.
<b>Color</b>	Yellow
<b>Form</b>	Liquid
<b>Odor</b>	mild citrus
<b>Odor threshold</b>	Not available
<b>Physical state</b>	Liquid
<b>pH</b>	2 - 3 (10%)
<b>Melting point</b>	Not available
<b>Freezing point</b>	Not available
<b>Boiling point</b>	300 °F (148.88 °C)
<b>Pour point</b>	Not available
<b>Evaporation rate</b>	Not available
<b>Flash point</b>	350 °F (176.66 °C)
<b>Auto-ignition temperature</b>	Not available
<b>Flammability limits in air, lower, % by volume</b>	Not available
<b>Flammability limits in air, upper, % by volume</b>	Not available
<b>Vapor pressure</b>	Not available
<b>Vapor density</b>	4.1
<b>Specific gravity</b>	1.110
<b>Octanol/water coefficient</b>	Not available
<b>Solubility (H2O)</b>	Soluble
<b>VOC (Weight %)</b>	Not available
<b>Viscosity</b>	Viscous
<b>Bulk density</b>	71 lb/cu ft / 9.5 lbs./gallon
<b>Percent volatile</b>	Non-volatile

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## 10. Stability and Reactivity

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<b>Reactivity</b>	Reacts vigorously with alkaline material. This product may react with reducing agents.
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<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Chemical stability</b>	Stable under recommended storage conditions.
<b>Conditions to avoid</b>	Excessive heat. Do not mix with other chemicals.
<b>Incompatible materials</b>	Bases. Reducing agents. Oxidizers. Anionic wetting agents.
<b>Hazardous decomposition products</b>	May include and are not limited to: Oxides of carbon.

## 11. Toxicological Information

### Component analysis - LC50

Ingredient(s)	LC50
Glycerol	Not available
Grapefruit, extract	Not available

### Component analysis - Oral LD50

Ingredient(s)	LD50
Glycerol	12600 mg/kg rat
Grapefruit, extract	5000 mg/kg rat

### Effects of acute exposure

<b>Eye</b>	Severe irritation to eyes when tested according to method 16 CFR 1500.42.
<b>Skin</b>	Not expected to be a primary skin irritant.
<b>Inhalation</b>	At 10 mg/cubic feet, mild mucous membrane inflammation and mild irritation to nasal cavity may occur.
<b>Ingestion</b>	Irritating to mouth, throat, and stomach.
<b>Sensitization</b>	Non-hazardous by WHMIS/OSHA criteria.
<b>Chronic effects</b>	Non-hazardous by WHMIS/OSHA criteria.
<b>Carcinogenicity</b>	Non-hazardous by WHMIS/OSHA criteria.
<b>Mutagenicity</b>	Non-hazardous by WHMIS/OSHA criteria.
<b>Reproductive effects</b>	Non-hazardous by WHMIS/OSHA criteria.
<b>Teratogenicity</b>	Non-hazardous by WHMIS/OSHA criteria.
<b>Name of Toxicologically Synergistic Products</b>	Not available

## 12. Ecological Information

<b>Ecotoxicity</b>	See below	
<b>Ecotoxicity - Freshwater Fish - Acute Toxicity Data</b>		
Glycerol	56-81-5	96 Hr LC50 Oncorhynchus mykiss: 51 - 57 mL/L [static]
<b>Ecotoxicity - Water Flea - Acute Toxicity Data</b>		
Glycerol	56-81-5	24 Hr EC50 Daphnia magna: >500 mg/L
<b>Persistence / degradability</b>	Not available	
<b>Bioaccumulation / accumulation</b>	Not available	
<b>Mobility in environmental media</b>	Not available	
<b>Environmental effects</b>	Not available	
<b>Aquatic toxicity</b>	Not available	
<b>Partition coefficient</b>	Not available	
<b>Chemical fate information</b>	Not available	
<b>Other adverse effects</b>	Not available	

## 13. Disposal Considerations

<b>Disposal instructions</b>	Review federal, state/provincial, and local government requirements prior to disposal.
<b>Waste from residues / unused products</b>	Not available
<b>Contaminated packaging</b>	Not available

## 14. Transport Information

### U.S. Department of Transportation (DOT)

Not regulated as dangerous goods.

### Transportation of Dangerous Goods (TDG - Canada)

Not regulated as dangerous goods.

## 15. Regulatory Information

### Canadian federal regulations

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### WHMIS status

Controlled

### WHMIS classification

Class D - Division 2B

### WHMIS labeling



### Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

### US Federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### CERCLA (Superfund) reportable quantity

None

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical Yes

### Clean Air Act (CAA)

Not available

### Clean Water Act (CWA)

Not available

### State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

#### U.S. - Massachusetts - Right To Know List

Glycerol 56-81-5 Present (mist)

#### U.S. - Minnesota - Hazardous Substance List

Glycerol 56-81-5 Present (mist)

#### U.S. - New Jersey - Right to Know Hazardous Substance List

Glycerol 56-81-5 sn 3319

#### U.S. - Pennsylvania - RTK (Right to Know) List

Glycerol 56-81-5 Present

#### U.S. - Rhode Island - Hazardous Substance List

Glycerol 56-81-5 Toxic; Flammable

### Inventory name

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

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## 16. Other Information

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<b>Disclaimer</b>	Information contained herein was obtained from sources considered technically accurate and reliable. While every effort has been made to ensure full disclosure of product hazards, in some cases data is not available and is so stated. Since conditions of actual product use are beyond control of the supplier, it is assumed that users of this material have been fully trained according to the requirements of all applicable legislation and regulatory instruments. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries or consequential damages which may result from the use of or reliance on any information contained in this document.
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<b>Other information</b>	For an updated MSDS, please contact the supplier/manufacturer listed on the first page of the document.