



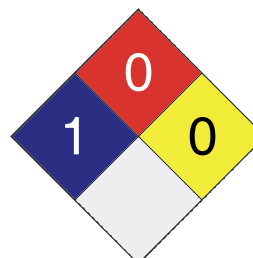
MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name VistaClean Irrigant Solution Concentrate by Hu-Friedy
CAS # Mixture
Product use 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
Manufacturer Hu-Friedy Mfg. Co., Inc.
 3232 N. Rockwell
 Chicago, IL 60618-5982 US
 Phone: 773.975.8100
 Fax: 773.868.3599
 Emergency Phone: 773.975.8100

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

Emergency overview WARNING
 CAUSES EYE IRRITATION. Avoid contact with eyes. Wash thoroughly after handling.

Potential short term health effects

Routes of exposure Eye, Skin contact, Inhalation, Ingestion.

Eyes Severe irritation to eyes when tested according to method 16 CFR 1500.42.

Skin Not expected to be a primary skin irritant.

Inhalation At 10 mg/cubic feet, mild mucous membrane inflammation and mild irritation to nasal cavity may occur.

Ingestion Irritating to mouth, throat, and stomach.

Target organs Eyes. Kidney. Respiratory system. Skin.

Chronic effects Prolonged or repeated exposure can cause drying, defatting and dermatitis.

Signs and symptoms Symptoms may include redness, edema, drying, defatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

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

First aid procedures

Eye contact In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Obtain medical attention if irritation persists.

Skin contact Flush with cool water. Wash with soap and water. Obtain medical attention if irritation persists.

Inhalation If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.

Ingestion

Do not induce vomiting. Rinse mouth with water, then drink one or two glasses of water. Obtain medical attention. Never give anything by mouth if victim is unconscious, or is convulsing.

Notes to physician

Symptoms may be delayed.

General advice

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.

5. Fire Fighting Measures

Flammable properties

Not flammable by WHMIS/OSHA criteria.

Extinguishing media**Suitable extinguishing media**

Alcohol foam. Water spray. Dry chemical. Carbon dioxide.

Unsuitable extinguishing media

Not available

Protection of firefighters**Specific hazards arising from the chemical**

Not available

Protective equipment for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus.

Hazardous combustion products

May include and are not limited to: Oxides of carbon.

Explosion data**Sensitivity to mechanical impact**

Not available

Sensitivity to static discharge

Not available

6. Accidental Release Measures

Personal precautions

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.

Methods for containment

Stop leak if you can do so without risk. Prevent entry into waterways, sewers, basements or confined areas.

Methods for cleaning up

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 in original containers for re-use.

7. Handling and Storage

Handling

Use good industrial hygiene practices in handling this material.

Storage

Keep out of reach of children. Store in a closed container away from incompatible materials.

8. Exposure Controls / Personal Protection

Exposure limits**Ingredient(s)****Exposure Limits**

Glycerol

ACGIH-TLV

TWA: 10 mg/m³

OSHA-PEL

TWA: 15 mg/m³

Grapefruit, extract

ACGIH-TLV

Not established

OSHA-PEL

Not established

Engineering controls

General ventilation normally adequate.

Personal protective equipment

Eye / face protection	Wear safety glasses with side shields.
Hand protection	Rubber gloves. Confirm with a reputable supplier first.
Skin and body protection	As required by employer code. Use of an impervious apron is recommended.
Respiratory protection	Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.
General hygiene considerations	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.

9. Physical & Chemical Properties

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

10. Chemical Stability & Reactivity Information

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

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

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

12. Ecological Information

Ecotoxicity	See below
Ecotoxicity - Freshwater Fish Species Data	
Glycerol	56-81-5 96 Hr LC50 Oncorhynchus mykiss: 51000-57000 mg/L
Ecotoxicity - Water Flea Data	
Glycerol	56-81-5 24 Hr EC50 Daphnia magna: >500 mg/L
Environmental effects	Not available
Aquatic toxicity	Not available
Persistence / degradability	Not available
Bioaccumulation / accumulation	Not available
Partition coefficient	Not available
Mobility in environmental media	Not available
Chemical fate information	Not available
Other adverse effects	Not available

13. Disposal Considerations

Waste codes	Not available
Disposal instructions	Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Not available
Contaminated packaging	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.
US Federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. CERCLA/SARA Hazardous Substances - Not applicable.

Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 hazardous chemical Yes

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

Safe Drinking Water Act (SDWA) Not available

Drug Enforcement Agency (DEA) Not available

Food and Drug Administration (FDA) Not available

WHMIS status Controlled

WHMIS classification Class D - Division 2B

WHMIS labeling



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 (mist); Flammable (mist)

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	No

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

16. Other Information

Disclaimer

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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