

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: CLEAN SHOT SYSTEM FLUSH

Intended Use of the Product

Refrigerant Pipe Flush

Name, Address, and Telephone of the Responsible Party

Company

ICOR International

10640 E 59th St.

Indianapolis, IN 46236

800-497-6805 (Monday-Friday, 7:30 am-4:30 pm ET)

Emergency Telephone Number

Emergency number : CHEMTREC 800-424-9300 (24 Hours/Day, 7 Days/Week)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Simple Asphyxiant

Liquefied gas H280

Full text of H-phrases: see section 16

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)

:



GHS04

Signal Word (GHS-US)

: Warning

Hazard Statements (GHS-US)

: H280 - Contains gas under pressure; may explode if heated
May displace oxygen and cause rapid suffocation

Precautionary Statements (GHS-US) : P410+P403 - Protect from sunlight. Store in a well-ventilated place

Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Name	Product identifier	% (w/w)	Classification (GHS-US)
1,2-Dichloroethylene	(CAS No) 156-60-5	30 - 60	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302
1,1,1,3,3-pentafluorobutane (HFC-365mfc)	(CAS No) 406-58-6	10 - 30	Flam. Liq. 2, H225
1,1,1,2,2,3,4,5,5,5-decafluoropentane (HFC-43-10me)	(CAS No) 138495-42-8	10 - 30	Simple Asphyxiant Acute Tox. 4 (Inhalation:gas), H332
1,1,1,2-Tetrafluoroethane (HFC-134a)	(CAS No) 811-97-2	15 - 25	Simple Asphyxiant Liquefied gas, H280

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label if possible).

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Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.

Skin Contact: Rinse immediately with plenty of water. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Do NOT induce vomiting. Rinse mouth. Immediately call a POISON CENTER or doctor/physician. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Place unconscious person on the side in the recovery position and ensure breathing can take place. Get medical attention immediately!

Most Important Symptoms and Effects Both Acute and Delayed

General: Vapors are heavier than air and may cause asphyxia by reduction of the oxygen content.

Inhalation: May cause respiratory irritation.

Skin Contact: May cause skin irritation. Liquid contact may cause frostbite.

Eye Contact: May cause eye irritation.

Ingestion: Ingestion is likely to be harmful or have adverse effects. Pulmonary oedema, frothy sputum.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Water spray. Never use water spray by itself on spillage; this will spread the spill and cause further damage.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Clean Shot containers generate pressure when heated causing violent bursting and dangerous propelling of container. Remove immediately or cool with water.

Explosion Hazard: Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: Hazardous reactions will not occur under normal conditions.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Halogenated hydrocarbons. Hydrogen Fluoride (HF).

Other information: Refer to Section 9 for flammability properties.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing vapors, gas.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Stop leak if safe to do so. Eliminate ignition sources. Ventilate area.

Environmental Precautions

Avoid release to the environment.

Methods and Material for Containment and Cleaning Up

For Containment: Ventilate area. Contain spillages with sand, earth or any suitable adsorbent material.

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Methods for Cleaning Up: Evacuate areas and unprotected personnel, absorb the spilled liquid with commercial, non-flammable absorbent (i.e. sand, vermiculite). Protected personnel should remove ignition sources and shut off fire sources. Provide ventilation. Shovel (spark proof) absorbent material into drums and close. Do not put in a drain or flush to the sewer. Dispose of large amounts of spillage according to agreement with local authorities.

Reference to Other Sections

See Heading 8. Exposure controls and personal protection. See section 11 for more detailed information on health effects and symptoms. For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Provide good ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes.

Additional Hazards When Processed: Ruptured cylinders may rocket.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Protect from sunlight and do not expose to temperatures exceeding 122 °F (50 °C) or below -18° C (-0.4 °F). Do not pierce or burn, even after use. Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Materials: strong acids. Strong bases. Strong oxidizers.

Storage Area: Store in a dry, cool and well-ventilated place.

Specific End Use(s)

Refrigerant Pipe Flush.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

1,2-Dichloroethylene (156-60-5)		
USA ACGIH	ACGIH TWA (ppm)	200 ppm
Alberta	OEL TWA (mg/m ³)	793 mg/m ³
Alberta	OEL TWA (ppm)	200 ppm
British Columbia	OEL TWA (ppm)	200 ppm
Manitoba	OEL TWA (ppm)	200 ppm
Newfoundland & Labrador	OEL TWA (ppm)	200 ppm
Nova Scotia	OEL TWA (ppm)	200 ppm
Ontario	OEL TWA (ppm)	200 ppm
Prince Edward Island	OEL TWA (ppm)	200 ppm
Saskatchewan	OEL STEL (ppm)	250 ppm
Saskatchewan	OEL TWA (ppm)	200 ppm
1,1,1,2-Tetrafluoroethane (HFC-134a) (811-97-2)		
ICOR AEL*	OEL 8 & 12 hr TWA (ppm)	1000 ppm
AIHA WEEL	OEL 8 hr TWA	1000 ppm, 4900 mg/m ³

* ICOR acceptable Exposure Limit. ICOR reviews industry standards and recommendations in consideration of acceptable exposure limitations. Where regulated exposure limits are lower than ICOR's recommended AEL, those limits shall supersede.

Exposure Controls

Appropriate Engineering Controls: Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Protective goggles. Gloves. Protective clothing.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves. Neoprene gloves are recommended.

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Eye Protection: Chemical goggles or safety glasses. If risk of splashing, wear safety goggles or face shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Vapors are heavier than air and may travel along the floor and in the bottom of containers. At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used. Self-contained breathing apparatus with full facepiece.

Thermal hazards: Avoid contact with naked flames and hot surfaces as corrosive and toxic decomposition products can be formed.

Environmental Exposure Controls: Do not allow the product to be released into the environment.

Consumer Exposure Controls: Do not eat, drink or smoke during use

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Colorless
Odor	: Slight odor ether
Odor Threshold	: Not available
pH	: Not available
Relative Evaporation Rate (butylacetate=1)	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: 99 °F (37.2 °C)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not Flammable
Lower Flammable Limit	: 7.5%
Upper Flammable Limit	: 9.0%
Vapor Pressure	: 12 psi @ 19 °C (66 °F)
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Density	: Not available
Specific Gravity	: Not available
Solubility	: Slightly soluble in water
Partition coefficient: n-octanol/water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Ignition sources. Avoid contact with flames and hot surfaces as corrosive and toxic decomposition products can form.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Hazardous Decomposition Products: When heated, toxic and corrosive vapors/gases may be formed. Carbon oxides (CO, CO₂). Halogenated hydrocarbons. Hydrogen Fluoride (HF).

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

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Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: May cause skin irritation. Liquid contact may cause frostbite.

Symptoms/Injuries After Eye Contact: May cause eye irritation.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

1,2-Dichloroethylene (156-60-5)	
LC50 Inhalation Rat	24100 ppm/4h
LC50 Oral Rat	1235 mg/kg
Other Health Effects	This substance has no evidence of carcinogenic properties.
1,1,1,2,2,3,4,5,5,5-decafluoropentane (HFC-43-10me)(138495-42-8)	
LC50 Inhalation Rat	11100 ppm/4h
LC50 Oral Rat	> 5000 mg/kg
1,1,1,3,3-pentafluorobutane (HFC-365mfc)(406-58-6)	
LC50 Inhalation Rat	25000 ppm/4h
LC50 Oral Rat	> 2000 mg/kg
Other Health Effects	IARC Not Listed. OSHA Not Regulated.
1,1,1,2-Tetrafluoroethane (HFC-134a)(811-97-2)	
LC50 Inhalation Rat	1500 g/m ³ (Exposure time: 4 h)
ATE US (vapors)	1,500.00 mg/l/4h
ATE US (dust, mist)	1,500.00 mg/l/4h

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

The product contains a substance which is toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

1,2-Dichloroethylene (156-60-5)	
LC50 Fish 1	135 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

Persistence and Degradability

The product is not readily biodegradable.

Bioaccumulative Potential

Bioaccumulation is unlikely to be significant because of the low water solubility of this product.

1,2-Dichloroethylene (156-60-5)	
Log Pow	1.48

Mobility in Soil

The product has poor water-solubility.

Other Adverse Effects

Other Information: The product contains substances which contribute to global warming (greenhouse effect).

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82. This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

SECTION 14: TRANSPORT INFORMATION

In Accordance with DOT

Proper Shipping Name : 1,1,1,2-TETRAFLUOROETHANE
 Hazard Class : 2.2
 Identification Number : UN3159
 Label Codes : 2.2
 ERG Number : 126



In Accordance with IMDG

Proper Shipping Name : 1,1,1,2-TETRAFLUOROETHANE (REFRIGERANT GAS R 134a)
 Hazard Class : 2.2
 Identification Number : UN3159
 Label Codes : 2.2
 EmS-No. (Fire) : F-C
 EmS-No. (Spillage) : S-V



In Accordance with IATA

Proper Shipping Name : 1,1,1,2-TETRAFLUOROETHANE
 Identification Number : UN3159
 Hazard Class : 2.2
 Label Codes : 2.2
 ERG Code (IATA) : 2L



In Accordance with TDG

Proper Shipping Name : 1,1,1,2-TETRAFLUOROETHANE
 Hazard Class : 2.2
 Identification Number : UN3159
 Label Codes : 2.2



SECTION 15: REGULATORY INFORMATION

US Federal Regulations

CLEAN SHOT SYSTEM FLUSH	
SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard
CLEAN SHOT SYSTEM FLUSH	
EPA Clean Air Act	This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82
1,1,1,2-Tetrafluoroethane (HFC-134a) (811-97-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
1,2-Dichloroethylene (156-60-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
1,1,1,2,2,3,4,5,5-decafluoropentane (HFC-43-10me)(138495-42-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82	S - S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.
1,1,1,3,3-pentafluorobutane (HFC-365mfc)(406-58-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

US State Regulations

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1,2-Dichloroethylene (156-60-5)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Canadian Regulations

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WHMIS Classification Class A - Compressed Gas



1,1,1,2-Tetrafluoroethane (HFC-134a) (811-97-2)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification Class A - Compressed Gas

1,2-Dichloroethylene (156-60-5)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification Class B Division 2 - Flammable Liquid
Class D Division 2 Subdivision B - Toxic material causing other toxic effects

1,1,1,2,2,3,4,5,5,5-decafluoropentane (HFC-43-10me)(138495-42-8)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification Uncontrolled product according to WHMIS classification criteria

1,1,1,3,3-pentafluorobutane (HFC-365mfc)(406-58-6)

Listed on the Canadian DSL (Domestic Substances List) inventory.

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

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date : 12/22/2014

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Flam. Liq. 2	Flammable liquids Category 2
Liquefied gas	Gases under pressure Liquefied gas
H225	Highly flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H302	Harmful if swallowed
H332	Harmful if inhaled

Party Responsible for the Preparation of This Document

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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