SAFETY DATA SHEET



1. Product and Company Identification

Product identifier Pnu-Flush Pneumatic Air Line Flushing System (4298-01)

Other means of identification Not available Cleaner Recommended use None known. Recommended restrictions Nu-Calgon Manufacturer information

> 2611 Schuetz Road St. Louis, MO 63043 US

Phone: 314-469-7000 / 800-554-5499

Emergency Phone: 1-800-424-9300 (CHEMTREC)

Supplier See above.

2. Hazards Identification

Physical hazards Gases under pressure Liquefied gas Health hazards Reproductive toxicity Category 1B Specific target organ toxicity, single exposure Category 1

Not classified. **Environmental hazards** WHMIS 2015 defined hazards Not classified

Label elements





Signal word

Contains gas under pressure; may explode if heated. May damage fertility or the unborn child. Hazard statement

Causes damage to organs.

Precautionary statement

Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when Prevention

using this product. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye

protection/face protection.

Response IF exposed or concerned: Get medical advice/attention. Specific treatment (see information on

this label).

Protect from sunlight. Store in a well-ventilated place. Store locked up. Storage

Dispose of contents/container in accordance with local/regional/national/international regulations. Disposal

WHMIS 2015: Health Hazard(s) not otherwise classified

(HHNOC)

WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC)

None known

None known

Hazard(s) not otherwise None known. classified (HNOC)

Supplemental information Not applicable.

3. Composition/Information on Ingredients

Mixture Chemical name Common name and synonyms **CAS** number % Butane, 1,1,1,3,3-pentafluoro-406-58-6 10-30* Ethane, 1,1,1,2-tetrafluoro-811-97-2 10-30* Methanol 67-56-1 1-5* Pentane, 138495-42-8 45-70* 1,1,1,2,2,3,4,5,5,5-decafluoro-

Composition comments

US GHS: The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

*CANADA GHS: The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First Aid Measures

Inhalation

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

breathing has stopped, trained personnel should administer CPR immediately.

Skin contact

Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

Ingestion

In the unlikely event of swallowing contact a physician or poison control center.

Most important symptoms/effects, acute and

Prolong

Prolonged exposure may cause chronic effects.

delayed Indication of immediate medical attention and special

treatment needed
General information

Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. IF exposed or concerned: Get medical advice/attention. Wear impervious gloves and safety glasses. Do not store at temperatures above 49°C. Do not puncture or incinerate container. Avoid contact with eyes and skin.

5. Fire Fighting Measures

Suitable extinguishing media

Unsuitable extinguishing

Treat for surrounding material.

None known.

media

lia

Specific hazards arising from the chemical

Contents under pressure. Pressurized container may explode when exposed to heat or flame.

Special protective equipment and precautions for firefighters

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire-fighting equipment/instructions

In case of fire: Stop leak if safe to do so. Do not move cargo or vehicle if cargo has been exposed to heat. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes.

General fire hazards Hazardous combustion products No unusual fire or explosion hazards noted.

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

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures Keep out of low areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protective equipment. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. Do not breathe gas.

Methods and materials for containment and cleaning up

Refer to attached safety data sheets and/or instructions for use. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Scoop up used absorbent into drums or other appropriate container. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and Storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Do not re-use empty containers. Do not breathe gas. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use personal protective equipment as required. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Keep away from heat, sparks and open flame. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of the reach of children

out of the reach of children.					
8. Exposure Controls/Personal Protection					
upational exposure limits					
Canada. Alberta OELs (Occupation Components	onal Health & Safety Code, Sch Type	nedule 1, Table 2) Value			
Methanol (CAS 67-56-1)	STEL	328 mg/m3 250 ppm			
	TWA	262 mg/m3 200 ppm			
Canada. British Columbia OELs. Safety Regulation 296/97, as ame		s for Chemical Substances, Occupational Health and			
Components	Туре	Value			
Methanol (CAS 67-56-1)	STEL	250 ppm			
	TWA	200 ppm			
Canada. Manitoba OELs (Reg. 21	7/2006, The Workplace Safety	And Health Act)			
Components	Туре	Value			
Methanol (CAS 67-56-1)	STEL	250 ppm			
	TWA	200 ppm			
Canada. Ontario OELs. (Control o	of Exposure to Biological or Ch	<u> </u>			
Components	Туре	Value			
Methanol (CAS 67-56-1)	STEL	250 ppm			
	TWA	200 ppm			
		ing the Quality of the Work Environment)			
Components	Туре	Value			
Methanol (CAS 67-56-1)	STEL	328 mg/m3			
	TIALA	250 ppm			
	TWA	262 mg/m3 200 ppm			
110 00114 Table 7.4 Page 4 - A	0				
US. OSHA Table Z-1 Limits for Ai Components	r Contaminants (29 CFR 1910.1 Type	1000) Value			
Methanol (CAS 67-56-1)	PEL	260 mg/m3			
(200 ppm			
US. ACGIH Threshold Limit Value	es				
Components	Туре	Value			
Methanol (CAS 67-56-1)	STEL	250 ppm			
	TWA	200 ppm			
US. NIOSH: Pocket Guide to Che	mical Hazards				
Components	Туре	Value			
Methanol (CAS 67-56-1)	STEL	325 mg/m3 250 ppm			

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Туре	Value	
	TWA	260 mg/m3	
		200 ppm	

US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	
Ethane, 1,1,1,2-tetrafluoro-	TWA	4240 mg/m3	
(CAS 811-97-2)			

1000 ppm

Biological limit values

ACGIH Biological B	Exposure Indices
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Components	Value	Determinant	Specimen	Sampling Time
Methanol (CAS 67-56-1)	15 mg/L	Methanol	Urine	*

^{* -} For sampling details, please see the source document.

Exposure guidelines

Canada - Alberta OELs: Skin designation

Methanol (CAS 67-56-1)

Can be absorbed through the skin.

Canada - British Columbia OELs: Skin designation

Methanol (CAS 67-56-1)

Can be absorbed through the skin.

Canada - Manitoba OELs: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

Canada - Ontario OELs: Skin designation

Methanol (CAS 67-56-1)

Can be absorbed through the skin.

Canada - Quebec OELs: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

Canada - Saskatchewan OELs: Skin designation

Methanol (CAS 67-56-1) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Methanol (CAS 67-56-1)

Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Methanol (CAS 67-56-1) Can be absorbed through the skin.

Appropriate engineering

controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety goggles or glasses.

Skin protection

Hand protection Wear protective gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Not applicable.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely

wash work clothing and protective equipment to remove contaminants.

9. Physical and Chemical Properties

Clear **Appearance** Gas. Physical state Aerosol Form Color Colorless Odor slight ether Odor threshold Not available. Not available. Not available. Melting point/freezing point Initial boiling point and boiling 99 °F (37.22 °C) range

Pour point Not available.

Specific gravity Not available. Not available. Partition coefficient

(n-octanol/water)

Not available. Flash point Not available. **Evaporation rate** Flammability (solid, gas) Not applicable. Upper/lower flammability or explosive limits

Flammability limit - lower

> 7.5

(%)

Flammability limit - upper

< 9

(%)

Explosive limit - lower (%) Not available. Explosive limit - upper (%) Not available. Vapor pressure Not available.

Vapor density

Relative density Not available.

Slight Solubility(ies)

Auto-ignition temperature Not available. **Decomposition temperature** Not available. **Viscosity** Not available.

Other information

Flammability The product is not flammable

100 Percent volatile

10. Stability and Reactivity

Reactivity This product may react with strong oxidizing agents.

Possibility of hazardous

reactions

No dangerous reaction known under conditions of normal use.

Chemical stability Material is stable under normal conditions.

Conditions to avoid Do not mix with other chemicals.

Incompatible materials Strong oxidizing agents. Alkali earth metals.

Hazardous decomposition

products

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

11. Toxicological Information

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

Information on likely routes of exposure

Ingestion Not a normal route of exposure. May cause stomach distress, nausea or vomiting. Inhalation Prolonged inhalation may be harmful. May cause damage to organs by inhalation.

No adverse effects due to skin contact are expected. Skin contact **Eve contact** Direct contact with eyes may cause temporary irritation. Direct contact with eyes may cause temporary irritation. Symptoms related to the

physical, chemical and toxicological characteristics

Information on toxicological effects

Acute toxicity Harmful if inhaled.

Test Results Components **Species**

Butane, 1,1,1,3,3-pentafluoro- (CAS 406-58-6)

Acute Inhalation

LC50 Rat

100000 ppm, 4 hours, Harp International

Limited

Oral

LD50 Rat > 2000 mg/kg, Harp International Limited

Test Results Components **Species** Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2) Acute Dermal LD50 Not available Inhalation Rat 1500000 mg/m³, 4 hours, Sigma Aldrich LC50 Oral Not available LD50 Methanol (CAS 67-56-1) Acute Dermal LD50 Rabbit 15800 - 20000 mg/kg, SIDS report/HSDB Rat > 450000 mg/kg, SIDS report/HSDB Inhalation LC50 Cat 85.4 mg/l/4h, HSDB 85.4 mg/L, 4.5 Hours, ECHA/HSDB 43.7 mg/L, 6 Hours, ECHA Mouse 79.4 mg/L, 134 Minutes, ECHA Rat > 115.9 mg/L, 4 Hours, ECHA 64000 ppm, 4 Hours, HSDB 130.7 mg/L, 4 Hours, ECHA 128.2 mg/L, 4 Hours, ECHA 92.6 mg/L, 6 Hours, ECHA 87.5 mg/L, 6 Hours, ECHA 83.2 - 128.8 mg/l/4h, SIDS report/HSDB 82.1 mg/L, 6 Hours, ECHA Oral LD50 Dog 8000 mg/kg, HSDB Human 143 - 300 mg/kg, HSNO CCID/Sigma-Aldrich Monkey 7000 - 9000 mg/kg, ECHA 6000 mg/kg, ECHA 3000 mg/kg, RTECS 2000 mg/kg, HSDB Mouse 7300 mg/kg, HSDB Pig > 5000 mg/kg, ECHA Rabbit 14200 - 14400 mg/kg, RTECS 14.4 g/kg, HSDB Rat 1187 - 2769 mg/kg 790 - 13000 mg/kg, SIDS report/HSDB 5628 mg/kg, HSDB Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8) Acute Dermal Rabbit LD50 > 5000 mg/kg, Sigma Aldrich Inhalation LC50 Rat 11100 ppm, 4 hours, Dupont Oral LD50 Rat > 5000 mg/kg, Sigma Aldrich

Prolonged skin contact may cause temporary irritation.

Skin corrosion/irritation

Not available. **Exposure minutes** Not available. Erythema value Not available. Oedema value

Serious eye damage/eye

irritation

May cause irritation.

Corneal opacity value Not available. Iris lesion value Not available. Conjunctival reddening Not available.

Not available. Conjunctival oedema value Recover days Not available.

Respiratory or skin sensitization

Not available. Respiratory sensitization

Skin sensitization This product is not expected to cause skin sensitization.

No data available to indicate product or any components present at greater than 0.1% are Mutagenicity

mutagenic or genotoxic.

This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA. Carcinogenicity

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity May damage fertility or the unborn child.

Not available. **Teratogenicity**

Specific target organ toxicity -

single exposure

Causes damage to organs.

Specific target organ toxicity -

repeated exposure

Not classified.

Aspiration hazard Not likely, due to the form of the product. Prolonged inhalation may be harmful. **Chronic effects**

12. Ecological Information

See below **Ecotoxicity**

Ecotoxicological data

Components **Species Test Results**

Methanol (CAS 67-56-1)

Aquatic

Crustacea EC50 Water flea (Daphnia magna) > 10000 mg/L, 48 hours Fish LC50 Fathead minnow (Pimephales promelas) > 100 mg/L, 96 hours

Persistence and degradability

No data is available on the degradability of this product.

No data available. Bioaccumulative potential No data available. Mobility in soil Mobility in general Not available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal Considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents

> under pressure. Do not puncture, incinerate or crush. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste

disposal company.

Waste from residues / unused

products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see:

Disposal instructions).

Empty containers should be taken to an approved waste handling site for recycling or disposal. Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is

emptied. Do not re-use empty containers.

14. Transport Information

Transport of Dangerous Goods (TDG) Proof of Classification

Classification Method: Classified as per Part 2, Sections 2.1 – 2.8 of the Transportation of Dangerous Goods Regulations. If applicable, the technical name and the classification of the

product will appear below.

U.S. Department of Transportation (DOT)

Basic shipping requirements:

UN number UN1950

Proper shipping name Aerosols, non-flammable, (each not exceeding 1 L capacity)

Hazard class Limited Quantity - US

Packaging exceptions 306

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

UN number UN1950

Proper shipping name AEROSOLS, non-flammable Hazard class Limited Quantity - Canada

Special provisions 80, 107

DOT; TDG



15. Regulatory Information

Canadian federal regulations

This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.

Canada CEPA Schedule I: Listed substance

Butane, 1,1,1,3,3-pentafluoro- (CAS 406-58-6)
Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2)
Listed.
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS
Listed.

138495-42-8)

Canada NPRI VOCs with Additional Reporting Requirements: Mass reporting threshold/Identification Number

Methanol (CAS 67-56-1) 1 TONNES

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2)

Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8)

Precursor Control Regulations

Not regulated.

WHMIS 2015 Exemptions Not applicable

US federal regulationsThis product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication

Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 1.0 % One-Time Export Notification only.

138495-42-8)

CERCLA Hazardous Substance List (40 CFR 302.4)

Methanol (CAS 67-56-1) Listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

No

Hazard categories Immediate Hazard - Yes

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

SARA 302 Extremely

hazardous substance

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SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Methanol	67-56-1	1-5*

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

No

Methanol (CAS 67-56-1)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

US state regulations

US - California Hazardous Substances (Director's): Listed substance

Methanol (CAS 67-56-1) Listed.

US - Illinois Chemical Safety Act: Listed substance

Methanol (CAS 67-56-1)

US - Louisiana Spill Reporting: Listed substance

Methanol (CAS 67-56-1) Listed.

US - Minnesota Haz Subs: Listed substance

Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2) Listed. Methanol (CAS 67-56-1) Listed.

US - New Jersey RTK - Substances: Listed substance

Methanol (CAS 67-56-1)

US - Texas Effects Screening Levels: Listed substance

 Butane, 1,1,1,3,3-pentafluoro- (CAS 406-58-6)
 Listed.

 Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2)
 Listed.

 Methanol (CAS 67-56-1)
 Listed.

 Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8)
 Listed.

US. Massachusetts RTK - Substance List

Methanol (CAS 67-56-1)

US. New Jersey Worker and Community Right-to-Know Act

Methanol (CAS 67-56-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Methanol (CAS 67-56-1)

US. Rhode Island RTK

Methanol (CAS 67-56-1)

US. California Proposition 65



WARNING: This product can expose you to Methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

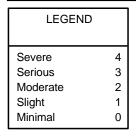
Methanol (CAS 67-56-1) Listed: March 16, 2012

Inventory status

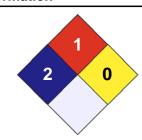
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

16. Other Information







Disclaimer The information in the sheet was written based on the best knowledge and experience currently

available. 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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Effective date 25-June-2021

Prepared by Nu-Calgon Technical Service Phone: (314) 469-7000

Other information For an updated SDS, please contact the supplier/manufacturer listed on the first page of the

document.