SAFETY DATA SHEET

1. Product and Company Identification

Product identifier	**RX-11 - Flush Liquid (4300-30, 4300-38)**
Other means of identification	Not available
Recommended use	Cleaner / Solvent
Recommended restrictions	None known.
Manufacturer information	Nu-Calgon 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	Not classified.	
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Environmental hazards	Not classified.	
WHMIS 2015 defined hazards	Not classified	

Label elements

Signal word	Warning
Hazard statement	Harmful if swallowed. Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.
Precautionary statement	
Prevention	Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid breathing mist or vapor. Use only outdoors or in a well-ventilated area. Wear protective gloves. Wear eye protection/face protection.
Response	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Specific treatment (see information on this label). Take off contaminated clothing and wash it before reuse. IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
WHMIS 2015: Health Hazard(s) not otherwise classified (HHNOC)	None known
WHMIS 2015: Physical Hazard(s) not otherwise classified (PHNOC)	None known
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	3% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
(E)-1,2-Dichloroethene		156-60-5	60-100
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-		138495-42-8	10-30
Butane, 1,1,1,3,3-pentafluoro-		406-58-6	5-10
Dimethyl carbonate		616-38-6	1-5

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

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.

4. First Aid Measures

Inhalation IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

Skin contact IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Specific treatment (see information on this label).

Eye contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

Most important symptoms/effects, acute and delayed Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed 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.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Show this safety data sheet to the doctor in attendance. Use of an impervious apron is recommended. Avoid contact with eyes and skin. Wear rubber gloves and safety glasses with side shields. Keep out of reach of children.

5. Fire Fighting Measures

Suitable extinguishing media Treat for surrounding material.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Firefighters should wear a self-contained breathing apparatus.

Special protective equipment and precautions for firefighters Firefighters should wear full protective clothing including self contained breathing apparatus.

Fire-fighting equipment/instructions Move containers from fire area if you can do so without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

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

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep out of low areas. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. 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. Avoid inhalation of vapors or mists. 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.

Methods and materials for containment and cleaning up Large Spills: Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground. Do not discharge into lakes, streams, ponds or public waters.

7. Handling and Storage

Precautions for safe handling Do not taste or swallow. Avoid breathing vapor. Avoid contact with eyes, skin and clothing. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash thoroughly after handling. Use good industrial hygiene practices in handling this material. When using do not eat or drink. Keep container tightly closed.

Conditions for safe storage, including any incompatibilities Store locked up. Store in a closed container away from incompatible materials. Store in a well-ventilated place. Refrigeration recommended. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children.

8. Exposure Controls/Personal Protection

Occupational exposure limits

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	793 mg/m3
		200 ppm

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	200 ppm

Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	200 ppm

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	STEL	990 mg/m3
		250 ppm
	TWA	790 mg/m3
		200 ppm

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	793 mg/m3
		200 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	PEL	790 mg/m3
		200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	200 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	790 mg/m3
		200 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

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	Wear safety glasses with side shields.
Skin protection	
Hand protection	Rubber gloves. Confirm with a reputable supplier first.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. As required by employer code.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment. Avoid breathing mists or vapors. Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.
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. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink.

9. Physical and Chemical Properties

Appearance	Clear
Physical state	Liquid.
Form	Liquid.
Color	Colorless
Odor	Slight Ethereal
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	105.8 °F (41 °C)
Pour point	Not available.
Specific gravity	Not available.
Partition coefficient (n-octanol/water)	Not available.
Flash point	Not available
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	> 5
Flammability limit - upper (%)	< 14.4
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	284 mm Hg
Vapor density	3.4 (Air=1)
Relative density	Not available.
Solubility(ies)	Slightly
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Percent volatile	100 %
VOC (Weight %)	966 g/l

10. Stability and Reactivity

Reactivity	May react with strong bases or oxidizing agents. Alkali metals. Powdered metal.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Chemical stability	Stable under recommended storage conditions.

Conditions to avoid	Do not mix with other chemicals. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible materials	Strong oxidizing agents. Bases. Oxidizers.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon. Hydrogen fluoride.

11. Toxicological Information

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

Information on likely routes of exposure

Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity Harmful if inhaled. Harmful if swallowed. May cause respiratory irritation.

Components	Species	Test Results
(E)-1,2-Dichloroethene (CAS 156-60-5)		
Acute		
Dermal		
LD50	Rabbit	5000 mg/kg
Inhalation		
LC50	Mouse	21723 ppm, 6 Hours
Oral		
LD50	Mouse	2220 mg/kg
	Rat	1235 mg/kg
Butane, 1,1,1,3,3-pentafluoro- (CAS 406-58-6)		
Acute		
Inhalation		
LC50	Rat	100000 ppm, 4 hours
Oral		
LD50	Rat	> 2000 mg/kg
Dimethyl carbonate (CAS 616-38-6)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Oral		
LD50	Mouse	6 g/kg
	Rat	13 g/kg
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Inhalation		
LC50	Rat	11100 ppm, 4 hours
Oral		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation	Causes skin irritation.
Exposure minutes	Not available.
Erythema value	Not available.
Oedema value	Not available.
Serious eye damage/eye irritation	Causes serious eye irritation.

Corneal opacity value	Not available.
Iris lesion value	Not available.
Conjunctival reddening value	Not available.
Conjunctival oedema value	Not available.
Recover days	Not available.

Respiratory or skin sensitization

Respiratory sensitization	Not available.
Skin sensitization	This product is not expected to cause skin sensitization.

Mutagenicity	Non-hazardous by WHMIS/OSHA criteria.
Carcinogenicity	No ingredients listed by IARC, ACGIH, NTP or OSHA.

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

Not listed.

Reproductive toxicity	Non-hazardous by WHMIS/OSHA criteria.
Teratogenicity	Non-hazardous by WHMIS/OSHA criteria.
Specific target organ toxicity - single exposure	Respiratory tract irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not available.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological Information

Ecotoxicity See below

Ecotoxicological data

Components		Species	Test Results
(E)-1,2-Dichloroethene (CAS 156-60-5)			
Aquatic			
Fish	LC50	Bluegill (Lepomis macrochirus)	120 - 160 mg/L, 96 hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
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. 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).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

Transport of Dangerous Goods (TDG) Proof of Classification	In accordance with Part 2.2.1 (SOR/2014-152) of the Transportation of Dangerous Goods Regulations, we certify that the classification of this product is correct as of the SDS date of issue.

U.S. Department of Transportation (DOT)

Not regulated as dangerous goods.

Transportation of Dangerous Goods (TDG - Canada)

Not regulated as dangerous goods.

IATA/ICAO (Air)

Not regulated as dangerous goods.

IMDG (Marine Transport)

Not regulated as dangerous goods.

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

Canada SNAc Reporting Requirements: Listed substance/Publication date

Butane, 1,1,1,3,3-pentafluoro- (CAS 406-58-6)	11/29/2006 Listed.
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8)	11/29/2006 Listed.

Export Control List (CEPA 1999, Schedule 3)

Not listed.

Greenhouse Gases

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 regulations This 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 138495-42-8)	1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

(E)-1,2-Dichloroethene (CAS 156-60-5)	Listed.
Dimethyl carbonate (CAS 616-38-6)	Listed.

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

Not listed.

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

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
(E)-1,2-Dichloroethene	156-60-5	60-100

Other federal regulations

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

Not regulated.

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

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Priority pollutant

US state regulations

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

(E)-1,2-Dichloroethene (CAS 156-60-5)	Listed.

US - Illinois Chemical Safety Act: Listed substance

(E)-1,2-Dichloroethene (CAS 156-60-5)
Dimethyl carbonate (CAS 616-38-6)

US - Louisiana Spill Reporting: Listed substance

(E)-1,2-Dichloroethene (CAS 156-60-5)	Listed.

Dimethyl carbonate (CAS 616-38-6) Listed.

US - Minnesota Haz Subs: Listed substance

(E)-1,2-Dichloroethene (CAS 156-60-5) Listed.

US - New Jersey RTK - Substances: Listed substance

(E)-1,2-Dichloroethene (CAS 156-60-5)
Dimethyl carbonate (CAS 616-38-6)

US - Texas Effects Screening Levels: Listed substance

(E)-1,2-Dichloroethene (CAS 156-60-5) Listed.
Butane, 1,1,1,3,3-pentafluoro- (CAS 406-58-6) Listed.
Dimethyl carbonate (CAS 616-38-6) Listed.
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8) Listed.

US. Massachusetts RTK - Substance List

(E)-1,2-Dichloroethene (CAS 156-60-5)
Dimethyl carbonate (CAS 616-38-6)

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

(E)-1,2-Dichloroethene (CAS 156-60-5)

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

(E)-1,2-Dichloroethene (CAS 156-60-5)
Dimethyl carbonate (CAS 616-38-6)

US. Rhode Island RTK

(E)-1,2-Dichloroethene (CAS 156-60-5)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

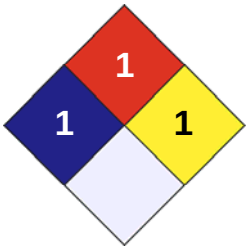
Inventory status

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

LEGEND	
Severe	4
Serious	3
Moderate	2
Slight	1
Minimal	0



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