



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name RX-11 - Flush Liquid (4300-30)
CAS # Mixture
Product use Cleaner / Solvent
Manufacturer Nu-Calgon
2008 Altom Court
St. Louis, MO 63146 US
Phone: 314-469-7000 / 800-554-5499
Emergency Phone: 1-800-424-9300 (CHEMTREC)

2. Hazards Identification

Emergency overview CAUTION
CAUSES EYE IRRITATION. MAY CAUSE SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Potential short term health effects

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

Eyes Causes irritation.

Skin May cause irritation.

Inhalation Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness).

Ingestion May cause stomach distress, nausea or vomiting.

Target organs Skin. Respiratory system. Eyes.

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.

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

Potential environmental effects Components of this product have been identified as having potential environmental concerns.

3. Composition / Information on Ingredients

Ingredient(s)	CAS #	Percent
Butane, 1,1,1,3,3-pentafluoro-	406-58-6	7 - 13
(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
Dimethyl carbonate	616-38-6	1 - 5

4. First Aid Measures

First aid procedures

Eye contact Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention immediately.

Skin contact Immediately flush with cool water for 15 minutes while removing contaminated clothing and shoes. Discard or wash well before reuse. Obtain medical attention if irritation persists.

Inhalation Remove affected person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Ingestion Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.

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. Use of an impervious apron is recommended. Keep out of reach of children.

5. Fire Fighting Measures

Flammable properties	Not flammable by WHMIS/OSHA criteria.
Extinguishing media	
Suitable extinguishing media	Carbon dioxide. Dry chemical. Water spray. Fog.
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.
Environmental precautions	Do not discharge into lakes, streams, ponds or public waters.
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 to original containers for re-use.

7. Handling and Storage

Handling	Use good industrial hygiene practices in handling this material. When using do not eat or drink. Avoid contact with skin and clothing. Avoid breathing vapors or mists of this product. Avoid contact with eyes. Keep container tightly closed. Use only with adequate ventilation. Wash thoroughly after handling.
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
(E)-1,2-Dichloroethene	ACGIH-TLV TWA: 200 ppm OSHA-PEL TWA: 200 ppm
Butane, 1,1,1,3,3-pentafluoro-	ACGIH-TLV Not established OSHA-PEL Not established
Dimethyl carbonate	ACGIH-TLV Not established OSHA-PEL Not established
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-	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	Avoid breathing mists or vapors. 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 and Chemical Properties

Appearance	Clear
Color	Colorless
Form	aqueous solution
Odor	Slight Ethereal
Odor threshold	Not available
Physical state	Liquid
pH	Not available
Melting point	Not available
Freezing point	-31.00 °F (-35 °C)
Boiling point	115 °F (46.11 °C)
Pour point	Not available
Evaporation rate	Not available
Flash point	Not available
Auto-ignition temperature	Not available
Flammability limits in air, lower, % by volume	5
Flammability limits in air, upper, % by volume	14.4
Vapor pressure	184.4 MmHg @ 20°C
Vapor density	3.4 (Air=1)
Specific gravity	Not available

Octanol/water coefficient	Not available
Solubility (H2O)	0.4 G/ 100 g H2O @ 70°F
Percent volatile	100 %

10. Stability and Reactivity

Reactivity	May react with strong bases or oxidizing agents.
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.
Incompatible materials	Bases. Oxidizers.
Hazardous decomposition products	May include and are not limited to: Oxides of carbon.

11. Toxicological Information

Component analysis - LC50

Ingredient(s)	LC50
(E)-1,2-Dichloroethene	21723 ppm mouse
Butane, 1,1,1,3,3-pentafluoro-	Not available
Dimethyl carbonate	Not available
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-	Not available

Component analysis - Oral LD50

Ingredient(s)	LD50
(E)-1,2-Dichloroethene	1235 mg/kg rat; 2220 mg/kg mouse
Butane, 1,1,1,3,3-pentafluoro-	2000 mg/kg rat
Dimethyl carbonate	6000 mg/kg mouse; 13000 mg/kg rat
Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro-	Not available

Effects of acute exposure

Eye	Causes irritation.
Skin	May cause irritation.
Inhalation	Excessive intentional inhalation may cause respiratory tract irritation and central nervous system effects (headache, dizziness).
Ingestion	May cause stomach distress, nausea or vomiting.
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.
Name of Toxicologically Synergistic Products	Not available

12. Ecological Information

Ecotoxicity	See below
Ecotoxicity - Freshwater Fish - Acute Toxicity Data	
(E)-1,2-Dichloroethene	156-60-5 96 Hr LC50 Lepomis macrochirus: 135 mg/L [static]
Persistence / degradability	Not available
Bioaccumulation / accumulation	Not available
Mobility in environmental media	Not available
Environmental effects	Not available
Aquatic toxicity	Not available
Partition coefficient	Not available
Chemical fate information	Not available

Other adverse effects Not available

13. Disposal Considerations

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.

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.

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

(E)-1,2-Dichloroethene 156-60-5 1000 Lb final RQ; 454 kg final RQ

U.S. - CWA (Clean Water Act) - Priority Pollutants

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

CERCLA (Superfund) reportable quantity

(E)-1,2-Dichloroethene: 1000.0000

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) Priority pollutant

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. - California - 8 CCR Section 339 - Director's List of Hazardous Substances

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

U.S. - Louisiana - Reportable Quantity List for Pollutants

(E)-1,2-Dichloroethene 156-60-5 1000 Lb final RQ; 454 kg final RQ

U.S. - Massachusetts - Right To Know List

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

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

Dimethyl carbonate 616-38-6 sn 0747

U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

(E)-1,2-Dichloroethene 156-60-5 1000 Lb RQ (air); 1 lb RQ (land/water)

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

(E)-1,2-Dichloroethene 156-60-5 Environmental hazard; Present (regulated under trans-Acetylene dichloride)
Dimethyl carbonate 616-38-6 Present

Inventory name

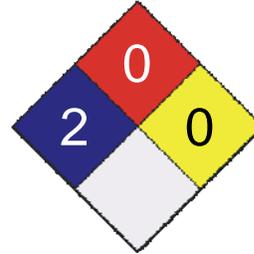
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

16. Other Information

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

Health	/ 2
Flammability	0
Physical Hazard	0
Personal Protection	X



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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Prepared by

Nu-Calgon Technical Service (314) 469-7000

Other information

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