SAFETY DATA SHEET



CHM00409

CHM00410

CHM00510

CHM00826

1. Product and Company Identification

SDS REC'D by Trane February 14, 2018

Product identifier Rx11-Flush Aerosol (4300-08, 4300-09, 4300-10, 4300-11) Not available

Other means of identification Recommended use

Solvent cleaner for flushing AC and refrigeration systems

Recommended restrictions Manufacturer information

Nu-Calgon 2008 Altom Court

None known.

St. Louis, MO 63146 US

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

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

See above. Supplier

2. Hazards Identification

Physical hazards Gases under pressure Liquefied gas Health hazards Acute toxicity, oral 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 WHMIS 2015 defined hazards

Label elements



Not classified.

Not classified

Signal word Warning

Hazard statement Contains gas under pressure; may explode if heated. Causes serious eye irritation. Causes skin

irritation. Harmful if swallowed. May cause respiratory irritation.

Precautionary statement

Wash thoroughly after handling. Wear eye/face protection. Wear protective gloves. Do not eat, Prevention

drink or smoke when using this product. Avoid breathing gas. Use only outdoors or in a

well-ventilated area.

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. Specific treatment (see information on this label). If skin irritation occurs: Get medical advice/attention. 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.

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

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

WHMIS 2015: Physical

(HHNOC)

None known

None known

Hazard(s) not otherwise classified (PHNOC) Hazard(s) not otherwise

classified (HNOC)

None known.

Supplemental information 20% of the mixture consists of component(s) of unknown acute oral toxicity.

3. Composition/Information on Ingredients

Mixture

Chemical name	Common name and synonyms	CAS number	%
(E)-1,2-Dichloroethene		156-60-5	40 - 70
Ethane, 1,1,1,2-tetrafluoro-		811-97-2	10 - 30
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

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 Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

delayed

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. Avoid contact with eyes and skin. Wear rubber gloves and safety glasses with side shields. Keep out of reach of children. Do not puncture or incinerate container. Do not store at temperatures above 49°C.

5. Fire Fighting Measures

Suitable extinguishing media

Unsuitable extinguishing

None known.

Treat for surrounding material.

media

Specific hazards arising from the chemical

Contents under pressure. Pressurized container may explode when exposed to heat or flame. Cool containers with flooding quantities of water until well after fire is out. 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 In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Cool containers with flooding quantities of water until well after fire is out. 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 Hazardous combustion

products

Cool containers exposed to flames with water until well after the fire is out.

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. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid breathing gas. Ensure adequate ventilation. 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 Extinguish all flames in the vicinity. Stop the flow of material, if this is without risk. Isolate area until gas has dispersed. Dike far ahead of spill for later disposal. 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. For waste disposal, see section 13 of the SDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

		667
	7. Handling and	Storage
ecautions for safe handling	Use only with adequate ventilation. Do not taste or swallow. Avoid breathing gas. Avoid contact with eyes, skin and clothing. Avoid prolonged exposure. 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.	
nditions for safe storage, cluding any incompatibilities	Store locked up. Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Keep out of reach of children. Do not store at temperatures above 49 °C (120.2°F). Keep away from heat, open flames or other sources of ignition.	
	8. Exposure Controls/Per	sonal Protection
cupational exposure limits		
Canada. Alberta OELs (Occi Components	ıpational Health & Safety Code, Sch Type	edule 1, Table 2) Value
(E)-1,2-Dichloroethene	TWA	793 mg/m3
(CAS 156-60-5)		200 ppm
Canada. British Columbia O Safety Regulation 296/97, as Components		for Chemical Substances, Occupational Health and Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	200 ppm
•	g. 217/2006, The Workplace Safety	•
Components	Туре	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	200 ppm
•	trol of Exposure to Biological or Ch	5 ,
Components	Туре	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	STEL	990 mg/m3
/		250 ppm
	TWA	790 mg/m3 200 ppm
Canada. Quebec OELs. (Min	istry of Labor - Regulation Respecti Type	ng the Quality of the Work Environment) Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	793 mg/m3
(5.12.100.00.0)		200 ppm

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

Components	Туре	Value
(E)-1,2-Dichloroethene (CAS 156-60-5)	PEL	790 mg/m3
(0.10.100.00.0)		200 ppm

US. ACGIH Threshold Limit Values

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

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Туре	Value	
(E)-1,2-Dichloroethene (CAS 156-60-5)	TWA	790 mg/m3	
(5.15.15.35.37		200 ppm	

US. AIHA Workplace Environmental Exposure Level (WEEL) Guides

Components	Туре	Value	
Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2)	TWA	4240 mg/m3	
(6/16/6/1/6/2)		1000 ppm	

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

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 (or goggles).

Skin protection

Rubber gloves. Confirm with a reputable supplier first. Hand protection

Wear appropriate chemical resistant clothing. As required by employer code. Other

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

levels may be exceeded, use an approved NIOSH respirator.

Thermal hazards Not applicable.

General hygiene considerations

When using, do not eat, drink or smoke. Wash hands and face before breaks and immediately after handling the product. 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. When using do not eat or drink.

9. Physical and Chemical Properties

Clear **Appearance** Gas. Physical state

Liquefied gas. Aerosol **Form**

Colorless Color Odor slight ether Odor threshold Not available. Not available. pН Not available. Melting point/freezing point Initial boiling point and boiling 105.8 °F (41 °C)

range

Pour point Not available. Not available. Specific gravity Partition coefficient Not available.

(n-octanol/water)

Not available. Flash point **Evaporation rate** Not available. Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits > 5

Flammability limit - lower

Flammability limit - upper

< 14.4

Explosive limit - lower (%) Not available. Explosive limit - upper (%) Not available. 284 mm Hg Vapor pressure

Vapor density 3.4 (air = 1)Not available. Relative density

Solubility(ies) 0.4 g/100g H2O @ 20°C

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

Other information

100 % Percent volatile VOC (Weight %) 697 g/l

10. Stability and Reactivity

Reactivity Powdered metal. This product may react with strong alkalies.

Possibility of hazardous

reactions

No dangerous reaction known under conditions of normal use.

Chemical stability Stable under recommended storage conditions.

Conditions to avoid Do not mix with other chemicals. Aerosol containers are unstable at temperatures above 49°C

(120.2°F).

Incompatible materials

Hazardous decomposition

Strong oxidizing agents. Alkalis.

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 Prolonged inhalation may be harmful. May cause irritation to the respiratory system.

Skin contact Causes skin irritation.

Causes serious eye irritation. Eye contact

Symptoms related to the

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May

physical, chemical and

toxicological characteristics

Information on toxicological effects

Acute toxicity Harmful if swallowed. May cause respiratory irritation.

cause redness and pain.

Components **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

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

Acute

Inhalation

LC50 Rat > 500000 ppm

Oral

LD50 Not available

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

Causes skin irritation. Skin corrosion/irritation

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

Serious eye damage/eye

irritation

Causes serious eye irritation.

Corneal opacity valueNot available.Iris lesion valueNot available.Conjunctival reddeningNot available.

value

Conjunctival oedema value Not available.

Recover days Not available.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization Prolonged or repeated exposure can cause drying, defatting and dermatitis.

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 likely, due to the form of the product.

Chronic effects Prolonged inhalation may be harmful. Non-hazardous by WHMIS/OSHA criteria.

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 potentialNo data available.Mobility in soilNo data available.Mobility in generalNot 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 instructionsConsult authorities before disposal. 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)

Basic shipping requirements:

UN number UN1950

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

Hazard class Limited Quantity - US

Packaging exceptions306Packaging non bulkNonePackaging bulkNone

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

IATA/ICAO (Air)

Basic shipping requirements:

UN number UN1950

Proper shipping name Aerosols, non-flammable Hazard class Limited Quantity - IATA

ERG code 2L

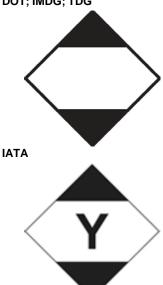
IMDG (Marine Transport)

Basic shipping requirements:

UN number UN1950 Proper shipping name AEROSOLS

Hazard class Limited Quantity - IMDG

DOT; IMDG; 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) Listed. Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2) Listed. Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8)

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 11/29/2006 Listed. 138495-42-8)

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 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

1.0 % One-Time Export Notification only.

Listed.

138495-42-8)

CERCLA Hazardous Substance List (40 CFR 302.4)

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

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 - Yes Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous

No

chemical

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.	
(E)-1,2-Dichloroethene	156-60-5	40 - 70	

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.

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)

US - Louisiana Spill Reporting: Listed substance

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

US - Minnesota Haz Subs: Listed substance

(E)-1,2-Dichloroethene (CAS 156-60-5) Listed. Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2) Listed.

US - New Jersey RTK - Substances: Listed substance

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

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. Ethane, 1,1,1,2-tetrafluoro- (CAS 811-97-2) Listed. Pentane, 1,1,1,2,2,3,4,5,5,5-decafluoro- (CAS 138495-42-8)

US. Massachusetts RTK - Substance List

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

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)

US. Rhode Island RTK

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

US. California Proposition 65

Not Listed.

Inventory status

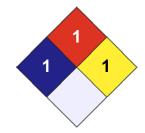
Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

^{*}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

HEALTH /	1
FLAMMABILITY	1
PHYSICAL HAZARD	1
PERSONAL PROTECTION	Х



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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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.