# MSDS

(Posted 9/17/2012)

The attached MSDS sheets supersede all other MSDS sheets. Please file accordingly.

VENDOR: **NU-CALGON A389-92**

| STOCK# | MFG# DESCRIPTION |
|---|---|
| B82-019 | 4300-10 RX11 FLUSH 2PK |
| B82-020 | 4300-11 2# RX11 CANISTER |
| B82-560 | 4300-09 RX11 FLUSH |
| B84-288 | 4300-15 RX11 13 |

# MATERIAL SAFETY DATA SHEET

## SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

| Company Name | Phone Number | | | CHEMTREC |
|---|---|---|---|---|
| Nu-Calgon Wholesaler, Inc. | (314) 469-7000 / (800) 554-5499 | | | (800) 424-9300 |
| **Street Address** | **City** | **State** | **Postal Code** | **Last Update** |
| 2008 Altom Court | St. Louis | MO | 63146-4151 | 1/4/10 |
| **Product Name** | **Product Number** | **Product Use** | | **EPA Registration #** |
| Rx11-flush | 4300-11 | Air Conditioning & Refrigerant System Flush. | | N/A |

## SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

| Hazardous Ingredients | % By Wt. | CAS Number | TLV | PEL |
|---|---|---|---|---|
| Tetrafluoroethane | 10.0-20.0 | 811-97-2 | 1000 ppm TWA | 1000 ppm STEL<br>AEL: 1000 ppm TWA |
| 1,1,1,2,3,4,4,5,5,5-decafluoropentane | 5.0-25.0 | 138495-42-8 | None Established | None Established<br>AEL: 200 ppm, 8 & 12 hr.<br>TLV 400 ppm ceiling |
| Trans,1,2-dichloroethylene | 40.0-60.0 | 156-60-5 | 200 ppm STEL, 8 hour TWA | 200 ppm, 790 mg/m3, 8 hour TWA. AEL: 200 ppm, 8 & 12 hour TWA |
| Ethyl Alcohol | 02.0-06.0 | 64-17-5 | 1,000 ppm | 1,000 ppm |
| 1,1,1,3,3,Pentafluorobutane | 10.0-30.0 | 406-58-6 | None Established | None Established<br>AEL 200 ppm TWA |

## SECTION 3 – HAZARD IDENTIFICATION

**Emergency Overview:** Colorless azeotropic liquid with a slight ethereal odor. This product is nonflammable. Liquid will irritate eyes and skin under repeated or prolonged exposure. Product vapors displace air and can cause asphyxiation especially in confined spaces.

**Potential Health Effects**

**Eyes:** Moderate irritation. Persons wearing contact lenses should wear chemical protective safety glasses when exposed to this product.

**Skin:** For repeated contact: dry/chapped skin, risk of chronic dermatitis.

**Ingestion:** Harmful if swallowed. Irritating to the mouth, throat and stomach.

**Inhalation:** Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse or deliberate inhalation may cause death without warning.

**Chronic Exposure:** No Data.

**Carcinogenicity:** None of the components present in this material are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

**Medical Conditions Aggravated be Exposure:** Preexisting disease of the heart, lungs, skin and eyes.

## SECTION 4 – FIRST AID MEASURES

**Eyes:** Immediately flush with water. Remove any contact lenses and continue flushing for 15 minutes, lifting eyelids occasionally until no evidence of the chemical remains. If irritation develops or persists call a physician.

**Skin:** Wash promptly with soap and water. Remove contaminated clothing and shoes and replace with clean clothing.

**Ingestion:** DO NOT induce vomiting. Immediately give two glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

**Inhalation:** Remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

## SECTION 5 – FIREFIGHTING MEASURES

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| **Flash Point:** Not flammable per Tag Closed Cup (ASTM D 56) and Pensky-Martins Closed Cup (ASTM D 93).°C/ °F |
| **Autoignition Temp:** No Data.°C/No Data.°F |
| **Hazardous Products of Combustion:** No Data. |
| **Flammable Limits in Air:** LEL/UEL: 4.3 - 13.5 (% by volume) |
| **Extinguishing Media:** CO2, dry chemical, water spray, water fog |
| **Fire and Explosion Hazards:** No Data. |
| **Special Firefighting Procedures:** Evacuate personnel. Wear self contained breathing apparatus (SCBA) and full protective equipment. Containers generate pressure when heated causing violent bursting and dangerous propelling of container. May form toxic decomposition products above 480o F/ 250o C. |

## SECTION 6 – ACCIDENTAL RELEASE MEASURES

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| **Spill or Leak:** Evacuate area, absorb spilled liquid with commercial, nonflammable absorbent i.e. sand, vermiculite. Remove unprotected personnel. Protected personnel should remove ignition sources and shut off fire sources. Provide ventilation. Shovel (spark proof) absorbent material into drums and close. Do not flush to sewer. |

## SECTION 7 – HANDLING AND STORAGE

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| **Handling Procedures and Equipment:** Avoid breathing vapors or mist. Use only with adequate ventilation. Avoid repeated or prolonged contact with eyes, skin or clothing. Wash thoroughly after handling. |
| **Storage Requirements:** Do not store in direct sunlight. Store in cool dry place, away from heat, sparks or flames which may generate toxic decomposition products. Vapors are heavy and may concentrate in low poorly ventilated areas. Keep away from children. |

## SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

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| **Respiratory Protection:** Use only with adequate ventilation. Keep container tightly closed. Use approved NIOSH self-contained or supplied air respirators for emergencies and in situations where air may be displaced by vapors. |
| **Eye Protection:** Use chemical protective safety glasses. |
| **Protective Clothing:** Where there is potential for skin contact, use appropriate impervious gloves, apron, pants and jacket. |
| **Exposure Guidelines:** Applicable Exposure Limits See Section 2. |
| **Specific Engineering Controls (such as ventilation, enclosed process):** No Data. |

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

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|---|---|---|
| **Physical Form:** liquid | **Freezing Point:** No Data.°C/No Data.°F | **% Volatile by Weight:** 100% |
| **Color:** Clear colorless | **Vapor Density [air =1]:** 3.4 | **Evaporation Rate:** (ether = 1):>1 |
| **Odor:** Slight Ethereal | **Vapor Pressure:** 5.5 psia at 20o C /77o F | **Specific Gravity:** 1.206 (10.06 lbs/gal) |
| **Boiling Point:** 41°C/106°F | **Solubility in Water:** 0.4% | **pH (concentrate):** No Data. |

## SECTION 10 – STABILITY AND REACTIVITY

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| **Chemical Stability:** Material is stable. |
| **Hazardous Polymerization:** Will not occur. |
| **Incompatibilities:** Alkali or alkaline earth metals powdered Al, Zn, Be, Na, Mg, etc. Incompatible w/strong bases such as NaOH, KOH, etc. |
| **Reactive Conditions to avoid:** No Data. |
| **Decomposition Products:** Decomposes with heat. High temperatures (open flame, glowing metal surfaces, etc.) can decompose forming hydrofluoric acid and possibly carbonyl fluoride. This material is incompatible with strong bases and can react to form salts of hydrofluoric acid and unsaturated compounds of unknown toxicity. |

## SECTION 11 – TOXICOLOGICAL INFORMATION

| Hazardous Ingredients |
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| This material is currently undergoing chronic toxicity testing. 1,1,1,2,3,4,4,5,5,5-decafluoropentane: Oral LD50>5,000 mg/kg in rats. Dermal LD > 5,000 mg/kg in rabbits. Inhalation, 4 hour LC50: 11,100 ppm in rats. Animal testing indicates that 1,1,1,2,3,4,4,5,5,5-decafluoropentane is a slight skin irritant and a mild eye irritant, but is not a skin sensitizer. Single exposure to 5,000 ppm by inhalation caused tremors. No cardiac sensitization was observed. A different single exposure study by inhalation in rats caused incoordination, hyperactivity and prostration; pathological examination of rats from this study revealed kidney and lung changes and external hair loss. Repeated exposures to 1,900-3,500 ppm caused tremors or convulsions, behavioral effects, and altered clinical chemistry. These effects were temporary. In a different repeated exposure test the No Observed Adverse Effect Level (NOAEL) for convulsions was 1,000 ppm. Results indicate convulsions is an acute effect of 1,1,1,2,3,4,4,5,5,5-decafluoropentane. The 90 day NOAEL is 500 ppm. In animal testing this material produced developmental effects only at exposure levels producing other toxic effect in the adult animal. No animal data are available to define the carcinogenic or reproductive hazards of this material. Tests have shown that 1,1,1,2,3,4,4,5,5,5-decafluoropentane does not cause genetic damage in bacterial or mammalian cell cultures. It has not produced genetic damage in tests on animals. Trans,1,2-dichloroethylene (t-DCE): A severe eye irritant and a moderate to severe skin irritant. Single and repeated exposure by ingestion caused increased kidney weight, histopathological changes of the lungs, liver effects, decreased motor activity, pulmonary edema, cardiovascular system changes, and mortality. Single and repeated exposure to t-DCE by inhalation caused pathological changes of the liver and lungs, inactivity/anaesthesia, altered white blood cell count, cardiovascular system changes and weak cardiac sensitization, a potentially fatal disturbance of the heart rhythm caused by heightened sensitivity to the action of epinephrine. Long term exposure caused altered liver and lung functions. A Dec. 1998 inhalation study conducted with 99.45 pure t-DCE produced no adverse, compound related effects. The NOEL was 4,000ppm. Exposure of pregnant rats shows maternal toxicity at 2,000, 6,000 & 12,000ppm. Developmental toxicity was seen only at 12,000 ppm. Tests have shown that T-DCE does not cause genetic damage in bacterial or mammalian cell cultures. No animal data are available to define the carcinogenic or reproductive hazards of t-DCE.1,1,1,3,3,Pentafluorobutane: No Federal OSHA PEL (29 CFR 1919.1000) or ACGIH TLV values are established for this chemical. The manufacturer of this material (Solvay) has established an AEL as an 8 hour & 12 hour TWA of 500 ppm. Where governmentally imposed occupational exposure limits which are lower than the above AEL are in effect, such limits shall take precedence. |

## SECTION 12 – ECOLOGICAL INFORMATION

| Hazardous Ingredients | Aquatic Toxicity Data |
|---|---|
| 1,1,1,2,3,4,4,5,5,5-decafluoropentane: | 96 hour LC50 in fathead minnows: 27.2 mg/L<br>96 hr LC50 in rainbow trout: 13.9 mg/L<br>48 hour LC50 in Daphnia magna: 11.7 mg/L |
| 1,1,1,3,3-Pentafluorobutane: | 96 hour LC50 in Zebra fish : >200 mg/L<br>48 hour NOEC in Daphnia magna: >200 mg/L<br>72 hour NOEC in Algae: 113 mg/L |
| Trans,1,2-dichloroethylene: | 96 hour LC 50 in bluegill sunfish: 1350 mg/L<br>48 hour LC50 in Daphnia magna: 220 mg/L |

## SECTION 13 – DISPOSAL CONSIDERATIONS

**Waste Disposal:** Reclaim by distillation or remove to a permitted waste disposal facility. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial and Local regulations.

## SECTION 14 – TRANSPORTATION INFORMATION

**Special Shipping Information:** No Data.

| Purview | Proper Shipping Name | UN Number | Packing Group | Hazard Class |
|---|---|---|---|---|
| **DOT** (Land) | Consumer Commodity | No Data. | No Data. | ORM-D |
| **IMO** (Water) | No Data. | No Data. | No Data. | No Data. |
| **ICAO** (Air) | Aerosols Nonflammable NOS<br>Hazard Label: Nonflammable Gas | 1950 | N/A, Pkg.Instr.203 | 2.2 |

## SECTION 15 – REGULATORY INFORMATION

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| **WHMIS Classification:** (Workplace Hazardous Material Information System) | Class A |
| **SARA Title III:** (Superfund Amendments & Reauthorization Act) | Acute Yes; Chronic No; Fire No; Reactivity No; Pressure No |
| **OSHA:** (Occupational Safety & Health Administration) | No Data. |
| **TSCA:** (Toxic Substance Control Act) | No Data. |
| **VOC:** (volatile Organic Compounds) | Contains 367 grams/liter Volatile Organic Compounds. |
| **CPR:** (Canadian Controlled Products Regulations) | This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations. |
| **EINECS:** (European Inventory of Existing Commercial Chemical Substances) | No Data. |
| **DSL / NDSL:** (Canadian Domestic Substance List)(Non-Domestic Substance List) | No Data. |
| **CERCLA:** (Comprehensive Response Compensation & Liability Act) | No |
| **IDL:** (Canadian Ingredient Disclosure List) | No Data. |
| **NFPA (HMIS) Rating:** (Hazardous Materials Identification System) | Health 1<br>Flammability 0<br>Reactivity 1 |

## SECTION 16 – OTHER INFORMATION

No Data.

The information contained herein is based on the data available to us and is believed to be correct. However, Nu-Calgon Wholesaler Inc. makes no warranty, expressed, or implied, regarding the accuracy of this data or the results to be obtained from the use thereof. Nu-Calgon Wholesaler Inc. assumes no liability for injury from the use of the product described herin.