

PF-16 Pro-Flush

MSDS# PF-16
March 2008

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Manufactured by: Specialty Chemical Manufacturing
A DiversiTech Company
1633-B High Bridge Road
Quincy, FL 32351

EMERGENCY Phone No.: 1-800.434.9300 Chem-Tel (Chemical Emergencies Only)

Phone Number for Information: 850-875-1716 **Fax:** 850-627-2699

Date Revised: March 2008

Prepared by: Anthony Jernigan

SECTION 2. COMPONENT INFORMATION

INGREDIENT	CAS No.	OSHA PEL	ACIGH TLV	OTHER STEL	% or Range
Acetone	67-64-1	750ppm	750ppm		10-20
t-Butyl Acetate	540-88-5	200ppm	200ppm		20-30
trans 1,2 Dichloroethene	156-60-5	200 ppm	None		50-60
1,1,1,3,3-Pentafluoropropane	460-73-1	None	None	300 ppm TWA- 8hrs. (ACIGH Biological Exposure Limit)	30-40

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview: Colorless, volatile liquid with ethereal and faint sweetish odor. Non-flammable material. Overexposure may cause dizziness and loss of concentration. At higher levels, CNS depression and cardiac arrhythmia may result from exposure. Vapors displace air and can cause asphyxiation in confined spaces. At high temperatures (>250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

Skin: Mildly irritating

Eyes: Contact with liquid or mist may cause pain and moderate irritation.

Inhalation: Components of Pro-Flush are of a low order of toxicity in animals. At high levels of exposure, cardiac arrhythmia may occur. When oxygen levels are reduced to 12-14% by displacement, symptoms of asphyxiation, loss of coordination, increased pulse rate and deeper respiration will occur.

Effects from inhalation of mists and vapors vary from mild to moderate irritation of the upper respiratory tract, depending on severity of exposure. Abusive or excessive inhalation of vapors may cause irritation to the upper respiratory tract, dizziness, nausea and other central nervous system effects.

Ingestion: Swallowing can cause gastro-intestinal irritation, nausea, vomiting, diarrhea. Aspiration of material into the lungs can cause chemical pneumonitis.

Skin Contact: Frequent or prolonged contact may cause mild irritation. Repeated contact may cause drying or flaking of skin.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the product.

SECTION 4. FIRST AID MEASURES

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

Ingestion: Call the nearest poison control center or the National Poison Control hotline at 1-800-222-1222 for advice immediately. Do not induce vomiting, unless directed to do so by a physician. If victim is conscious and alert, give 2-3 glasses of water to drink. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. Vomiting may occur spontaneously.

Skin Contact: Wash with soap and water. Rinse with copious amounts of fresh, running water. If Irritation persists, get medical attention.

Eye Contact: Immediately flush eyes with large amounts of cool running water for at least 15 minutes while holding eyelids open. If irritation persists, get medical attention immediately.

Advice To Physician: Because of possible disturbances of cardiac rhythm, catecholamine drugs such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

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SECTION 5. FIREFIGHTING MEASURES

Flash Point: None

Fire Extinguishing Media: Foam, CO₂, Dry media or other media suitable for the surrounding fire.

Unusual Fire and Explosion Hazards: Exposure to temperature above 120°/49°C may cause containers to burst. Pro-Flush is not flammable at ambient temperatures and atmospheric pressure. However, based on similar mixtures, this material will become combustible when mixed with air under pressure and exposed to strong ignition sources. Contact with certain finely divided reactive metals may result in formation of explosive or exothermic reactions under specific conditions (e.g. very high temperatures and/or appropriate pressures). In the event of a liquid spill, pentafluoropropane will evaporate from the mixture faster, leaving a mixture enriched with trans-1,2-dichloroethylene. The enriched mixture may be flammable.

Special Fire Fighting Precautions/Instructions:

Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against suffocation and possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Remove contaminated clothing immediately. Keep unnecessary and unprotected personnel away from area of spill. Remove all potential sources of ignition from the area if possible. Ventilate area of leak or spill. Contain and absorb liquid with clay, vermiculite or other inert substance and package in a suitable container for disposal. Dispose of absorbed material in accordance with Federal, local and state regulations.

Only personnel equipped with proper respiratory and eye/skin protection should be permitted in the area until air has been tested and determined safe, including low lying areas.

Pentafluoropropane will evaporate from the mixture faster, leaving a mixture enriched with trans-1,2-dichloroethylene. The enriched mixture may be flammable.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15 regarding reporting requirements.

SECTION 7. HANDLING AND STORAGE

Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture. Empty containers of this material, pose no disposal hazard and may be recycled. Keep this and all chemicals out of the reach of children. Wash thoroughly after handling.

Normal Handling: (Always wear recommended personal protective equipment.)

Avoid breathing vapors or liquid contact with eyes, skin or clothing. Do not puncture or drop containers, expose them to open flame, excessive heat, or direct sunlight. Use approved containers only.

Pro-Flush should not be mixed with air above atmospheric pressure for any purpose. Use only dry nitrogen to pressurize with Pro-Flush injectors.

Storage Recommendations:

Due to low boiling properties of Pro-Flush, store in a cool, well-ventilated area of low fire risk. Protect container, injector and its fittings from physical damage.

Storage in subsurface locations should be avoided. Do not heat the container or store at a temperature above 110°F (44°C). Close container and injector valve tightly after use and when empty. If container temperature exceeds boiling point, cool the container to 80°F (27°C) before opening cans or filling injector.

SECTION 8. EXPOSURE CONTROLS

Airborne Exposure Limits:

OSHA Permissible Exposure Limit (PEL): 700ppm (Acetone)

ACGIH Threshold Limit Value (TLV): 700ppm (Acetone)

ENGINEERING CONTROLS:

Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

PERSONAL PROTECTIVE EQUIPMENT:

Skin Protection: Use protective, impervious gloves and clothing made of neoprene, nitrile or butyl rubber if prolonged or repeated contact with liquid is anticipated. Wash clothing promptly, if wet. Remove any non-impervious clothing and wash before re-use.

Eye Protection: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles. Contact lenses should not be worn under such conditions.

Respiratory Protection: None required for normal work situations where adequate ventilation is provided. Use NIOSH approved self-contained, positive pressure respirators for emergencies and in situations where air may be displaced by vapors.

Additional Recommendations: High dose-level warning signs are recommended for areas of principle exposure. Provide eyewash stations and quick drench shower facilities at convenient locations. For tank cleaning operations, see OSHA regulations, 29 CFR 1910.132 and 29 CFR 1910.133.

Personal Respirators: Not required for normal use in accordance with label directions.

Skin Protection: Use solvent resistant gloves to minimize skin contact.

Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Do not use unless a source of running water or other eyewash provisions are nearby.

Work Hygienic Practices: Use proper industrial hygiene practices and follow label instructions to minimize hazardous exposure. Wash hands after handling this material, and before eating or smoking.

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SECTION 9. PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: ~75°F	Specific gravity (H ₂ O = 1): 1.086
Vapor pressure (psia @ 20°F): 18	Vapor Density (Air = 1): 3.8 @ 70°F
Evaporation Rate (Ether = 1): >1	VOC Content: 0%
Solubility in water: ~7 grams/liter	pH @ 25°C: N/A
Appearance: Clear colorless liquid	Odor: Sweet odor

SECTION 10. STABILITY AND REACTIVITY DATA

Stability: Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Hydrogen sulfide, Phosgene

Hazardous Polymerization: Will not occur.

Incompatibilities: Avoid contact with strong oxidizing agents, strong alkalis and strong acids.

Conditions to Avoid: Heat, incompatibles.

SECTION 11. TOXICOLOGY INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

1,1,1,3,3-Pentafluoropropane

Acute Dermal (rabbit) LDC50 : >2,000 mg/kg

Cardiac Sensitization (dogs): No effects noted at 35,000 ppm, the threshold for induction of cardiac arrhythmias in the presence of injected adrenalin was 44,000 ppm.

Acute Inhalation (rat): 4-hr. LC50 > 200,000 ppm. No lethality at 200,000 ppm.

Evidence of transient anesthetic effect.

Acute Inhalation (mouse): 4-hr. LC50 > 100,000 ppm. No lethality at 100,000 ppm.

Evidence of transient underactivity during exposure.

Trans-1,2-dichloroethylene

Acute Dermal (rabbit) LD50: > 5,000mg/kg

Acute Inhalation (rat) 4-hr. LC50 : >24,100 ppm

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS:

1,1,1,3,3-Pentafluoropropane

Embryotoxicity (rats): Not a teratogen at 50,000 ppm, the highest level tested.

NOEL (pups): 50,000 ppm

NOEL (dams): 2,000 ppm (due to decrease in bodyweight gains at 10,000 ppm and 50,000 ppm)

2 Generation Inhalation Toxicity (rats): Exposures 6 hrs/day, 7 days/wk at 0(control), 2,000, 10,000 and 50,000ppm. Toxicity seen in dams at 10,000 and 50,000ppm and in pups at 50,000ppm. Primary effect was increased mortality late in the lactation phase of the study.

28-day Inhalation Study (rats): NOAEL – 50,000 ppm and NOEL – 500 ppm

90-day Inhalation Study (rats): NOAEL – 2,000 ppm

Dose levels: 0, 500, 2,000, 10,000 and 50,000 ppm

Overall, subchronic studies showed dose-related increases in urinary fluoride levels, urine volumes and water consumption. Increases were noted in hematological parameters, BUN levels and serum liver enzyme activities (GOT, GPT). These increases did not follow a dose response; however, they indicate that HFC-245fa is metabolized in the liver. Significant recovery was noted in these parameters following a 2-week, non-exposure period which followed the 28-day exposure period. No histopathological effects were noted in the 28-day study. The 90-day study noted an increase in incidence and severity (trace to moderate) of myocarditis (inflammation of the heart muscle) at 10,000 and 50,000 ppm. This was not noted at the 500 or 2,000 ppm dose levels nor was it seen the 28-day study at 50,000 ppm.

Trans-1,2-dichloroethylene

Embryotoxicity (rats): Not a teratogen. Fetal toxicity present only at maternally toxic concentrations. Dose levels: 0, 2,000, 6,000, and 12,000 ppm

NOEL (pups): 12,000 ppm (decreased bodyweight, increased skeletal variations)

NOEL (dams): 6,000 ppm

90-day Inhalation Study (rats): NOAEL – 4,000 ppm, the highest level tested

Dose levels: 200, 1,000, 4,000 ppm

OTHER DATA:

1,1,1,3,3-Pentafluoropropane

Genetic studies: In vitro Human Lymphocyte weak positive activation without S9 at 30% v/v; not active with S9 up to 70% v/v.

In Vivo Mouse Micronucleus – Not active up to 100,000 ppm.

Ames Test: Not active up to 100% v/v with or without S9.

Trans-1,2-dichloroethylene

Genetic studies: Not mutagenic to E-coli or S. typhimurium when incubated in the presence of liver enzymes. Not mutagenic in Saccharomyces cerevisiae with or without microsomal activation.

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SECTION 12. ECOLOGICAL INFORMATION

Environmental Fate:

No information found.

Environmental Toxicity:

1,1,1,3,3-Pentafluoropropane

Partition Coefficient: Log POW = 1.35 @ 21.5°C

Acute toxicity to Daphnia magna (Limit Test): NOEC > 97.9 mg/L; 48 hr. EC50 > 97.9 mg/L

Acute toxicity to Rainbow Trout (Limit Test): NOEC > 10 mg/L; 96 hr. EC50 > 81.8 mg/L

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose of spill-clean up and other wastes in accordance with Federal, State, and local regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. All spent material must be disposed of in accordance with all applicable Federal and State RCRA Regulations. Consult with appropriate regulatory agencies before disposing of waste material. The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

The unused product is an RCRA hazardous waste if discarded. The RCRA ID number is: U079

SECTION 14. TRANSPORTATION INFORMATION

US DOT: Not regulated for ground transport in quantities below 5 liters.

INTERNATIONAL

Water, I.M.O.: Dangerous Goods Description: UN3082, Environmentally Hazardous Substance, Liquid, NOS (Contains trans 1,2 dichloroethylene), 9, PGIII (Ltd.QTY)

Marine Pollutant: Yes

SECTION 15. REGULATORY INFORMATION

EC Classification:

Labelling

Risk phrases:

R20 Harmful by inhalation

R22 Harmful if swallowed

Safety phrases

S2: Keep out of reach of children

S9: Keep container in a well-ventilated place.

S16: Keep away from sources of ignition - No smoking.

S23: Do not breathe fumes, vapor or spray

US EPA:

Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA): Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.

RQ: 2000 pounds (1,2 dichloroethylene)

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on threshold planning quantities and release reporting based on reportable quantities in 40 CFR 355 (used for SARA 302, 304, 311, and 312) is not required.

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40 CFR 372 (for SARA 313). This material is not subject to reporting requirements.

Toxic Substances Control Act (TSCA) Status: The ingredients of this product are on the TSCA inventory.

State Right to Know

California Proposition 65:

Massachusetts: Hazardous substances and extraordinarily hazardous substances must be identified.

Pennsylvania: Hazardous substances must be identified.

California SCAQMD Rule 443.1 (VOC's): 0%

SARA 311/312: **Acute:** No **Chronic:** No **Fire:** No **Pressure:** Yes **Reactivity:** No

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WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Acetone meets the Canadian WHMIS criteria for classes:

B2: Flammable and combustible material: Flammable liquid

D2B- Poisonous and Infectious material-Other Effects: Toxic

FOREIGN INVENTORY STATUS:

1,1,1,3,3-Pentafluoropropane trans-1,2-dichloroethylene

Europe: ELINCS #419 170 6 #205-860-2

1,1,1,3,3-Pentafluoropropane trans-1,2-dichloroethylene

Japan: MOL 2-(13)-143

Canada: Notified Listed DSL

Australia: Notified

16. OTHER INFORMATION:**NFPA Ratings:**

NFPA Classification: Health - 2, Flammability - 1, Reactivity - 1

HMIS Classification: Health - 2, Flammability - 1, Reactivity - 1

Label Hazard Warning: Store Pro-Flush in a cool, dry area, away from sources of ignition. Use only with adequate ventilation. Wear suitable personal protective equipment to prevent contact with skin or eyes. Avoid breathing fumes vapors or mists. Do not take internally. May be harmful or fatal if swallowed.

Label First Aid:

For eye contact, rinse the eyes with running water for 15 minutes, lifting the eyelids occasionally to flush the area behind the lid. If irritation persists, get medical attention. For skin contact, wash the affected area with soap and water, then rinse thoroughly with water. Wash contaminated clothing before re-use. For inhalation, remove affected individual to fresh air. If the victim is not breathing, administer artificial respiration. If breathing is difficult, administer oxygen. Get medical attention. If swallowed, do not induce

vomiting. Dilute by drinking 3-4 glasses of water or milk, and call the nearest poison control center or the National Poison Control Hotline 1-800-222-1222 for advice.

Product Use:

Flushing Solvent for air conditioning and refrigeration equipment.

17. ADDITIONAL INFORMATION:

This information is provided in accordance with the requirements of the UK Health and Safety at Work Act

1974, and specifically in order to assist users of the product to make their 'assessment of health risks' as required by the UK Control of Substances Hazardous to Health Regulation 1988 (COSHH assessments). Provision of this information does not preclude users from seeking advice from other sources as indicated in the COSHH guides.

This information is intended to cover potential hazards at the place of work and does not detail medical uses, indications, contra-indications and precautions for the treatment of patients.

18. MANUFACTURED FOR:

Diversitech

6650 Sugarloaf Parkway, Suite 100

Duluth, GA 30097

Phone 1+678.542.3600

EMERGENCY Phone No. 1 800-255-3924 Chem-Tel (Chemical Emergencies Only)

19. REFERENCE NUMBER AND DATE OF ISSUE:

COSHH Safety Data Sheet: PF-16

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