



MicroCare Corporation, 595 John Downey Drive, New Britain, Connecticut 06051 USA
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PowerClean II Solvent
#MCC-PW210A (aerosol), #MCC-PW201G (1 gallon)
#MCC-PW201P (5 gal. pail), #MCC-PW201D (55 gal. drum)

MATERIAL SAFETY DATA SHEET

Preparation date: 04/30/08
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1. Chemical Product and Company Identification

Product: PowerClean II Solvent
Chemical Family: Hydrofluorocarbon (HFC) blend.
Packaged By: MicroCare Corp., 595 John Downey Drive, New Britain, CT, 06051, USA CAGE/FSCM: OATV9
Emergency Telephone: CHEMTREC (800) 424-9300

2. Composition/Information on Ingredients

Chemical Name	Wt.%Range	TLV Units
Tetrafluoroethane (aerosol only) CAS # 811-97-2	20.0-25.0	See Section 8
1,1,1,2,3,4,4,5,5,5-decafluoropentane CAS # 138495-42-8	10.0-15.0	See Section 8
Trans,1,2-dichloroethylene CAS #156-60-5	65.0-85.0	See Section 8

All components of this material are listed on the TSCA inventory.

3. Hazard Identification

Emergency Overview: Colorless 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.

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

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.

5. Firefighting Measures

Flash Point: Not flammable per Pensky-Martins Closed Cup (ASTM D 93). Not Flammable per Tag Open Cup (ASTM D 1310). Flammable Limits in Air: LEL/UEL: 5.5 - 13.0 (% by volume)

Extinguishing Media: CO₂, dry chemical, water spray, water fog

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 480° F/ 250° C. This material should not be used in vapor degreasers or applications where the solvent is heated above ambient temperatures. PowerClean II exhibits no Tag Closed Cup flash point to boiling. Since PowerClean II is a mixture, fractionation may occur upon evaporation, resulting in a solution enriched in flammable liquids. Precautions should be taken to avoid this condition.

6. Accidental Release Measures

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.

7. Handling and Storage

Avoid breathing vapors or mist. Use only with adequate ventilation. Avoid repeated or prolonged contact with eyes, skin or clothing. Wash thoroughly after handling. 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.

8. Exposure Controls/Personal Protection

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.

1,1,1,2,3,4,4,5,5,5-decafluoropentane:

PEL (OSHA)	None Established
AEL (DuPont)	200 ppm, 8 & 12 hr. TLV 400 ppm ceiling
TLV (ACGIH)	None Established

Trans,1,2-dichloroethylene:

TLV (ACGIH)	200 ppm STEL, 8 hour TWA
AEL (DuPont)	200 ppm, 8 & 12 hour TWA

Tetrafluoroethane:

AEL (OSHA)	1000 ppm TWA
PEL (OSHA)	1000 ppm STEL
TLV (ACGIH)	1000 ppm TWA

NFPA, NPCA-HIMIS RATING:

Health	1
Flammability	0
Reactivity	1

Personal Protection rating to be supplied by user depending on use conditions.

9. Physical and Chemical Properties

Physical Form:	Clear colorless liquid
Odor:	Slight Ethereal

Boiling Point: 39° C / 102° F
 Solubility in Water: 0.3%
 % Volatile by Weight: 100
 Vapor Pressure: 415mm Hg at 20° C / 77° F
 Vapor Density (air=1): 3.7

10. Reactivity

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.

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.

11. Toxicological Information

Toxicity information for the individual components of this product are listed below.

1,1,1,2,3,4,4,5,5,5-decafluoropentane: Oral LD50>5,000 mg/kg in rats. Dermal ALD > 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 mammalian cell cultures. It has not produced genetic damage in tests on animals.

Trans,1,2-dichloroethylene (t-DCE): ACUTE: This product is a central nervous system depressant. Inhalation can cause irritation of the respiratory tract, dizziness, nausea, headache, loss of coordination and equilibrium, unconsciousness and even death in confined or poorly ventilated areas. Cardiac sensitization has occurred in dogs does at concentrations greater than 25%. Eye/Skin: Eye contact can result in discomfort, pail, irritation and discharge. Washing the eyes with water may result in corneal injury. Prolonged contact such as occurs when material is trapped on the skin (e.g. under a glove) may result in severe irritation. Skin absorption is not expected to be of toxicological significance under normal industrial use. Ingestion: Swallowing may irritate the mouth and GI tract as well as cause the effects listed for inhalation exposure. Vomiting may cause aspiration into the lungs that may lead to potentially fatal chemical pneumonia and pulmonary edema. SUBCHRONIC: A 90 day inhalation study exposing rats to tDCE reported no adverse effects on body weight, clinical observations, food consumption, clinical or anatomical pathology parameters, or liver cell proliferation. The no-observed-effect level (NOEL) for this study was 4000ppm in rats suggests a low order of toxicity by inhalation. In an NTP study, rats and mice were dose fed for a period of 13 weeks. No mortality, clinical observations of toxicity, or food consumption effects was noted in rats or mice. Minor reductions in body weights were observed in mice. Liver organ weight changes were

reported in rats. Rats dosed at the highest level (50,000 ppm) showed a few abnormal clinical pathology findings. Histopathology reports revealed no microscopic evidence of treatment related target organ effects. In separate 90 day drinking water studies, tDCE exposed to rats and mice showed no dose related effects in hematological, serological, and gross pathological, or urinary parameters. MUTAGENESIS: tDCE was not mutagenic to E-coli or S. Typhimurium when tested with microsomal activation. In another study, tDCE did not produce mutations in Saccharomyl cerevisiae with or without microsomal activation. No genetic effects were reported in a vivo host mediated mutagenic assay. REPRODUCTIVE/DEVELOPMENTAL: In a teratology study conducted in rats by the inhalation route of exposure, significant fetal toxicity (i.e. decreased body weight, increased skeletal variations) was observed only at maternally toxic concentrations (12,000 ppm). Based on the results of this study, tDCE would not be considered to be a developmental toxicant.

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

12. Ecological Information

Aquatic Toxicity:

1,1,1,2,3,4,4,5,5,5-decafluoropentane:

96 hour LC50 in fathead minnows:	27.2 mg/L
96 hr LC50 in rainbow trout:	13.9 mg/L
48 hour LC50 in Daphnia magna:	11.7 mg/L

Trans,1,2-dichloroethylene:

96 hour LC 50 in bluegill sunfish:	1350 mg/L
48 hour LC50 in Daphnia magna:	220 mg/L

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.

14. Transportation Information

Bulk Packaging/Non Aerosol:

Not Regulated as a hazardous material by DOT, IMO, or IATA.

15. Regulatory Information

Section 313 Supplier Information: This material contains the following toxic chemicals subject to the emergency reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40 CFR 372:

CAS#	Chemical Name	% by Weight
--	None	--

This information must be included in all MSDSs that are copied and distributed for this material.

Title III Hazard Communications Sections 311, 312

Acute	Yes
Chronic	No
Fire	No
Reactivity	No
Pressure	No

Lists:

SARA Extremely Hazardous Substance	No
CERCLA Hazardous Substance	No
SARA Toxic Chemicals	No

16. Other Information

For additional information, contact Tech Support at MicroCare: Telephone (860) 827-0626 or email: techsupport@microcare.com