MATERIAL SAFETY DATA SHEET

PRODUCT NAME - SLIDEWIRE CLEANER

MANUFACTURER - BARON BLAKESLEE

7/16/91

MSDS: SLIDEWIRE CLEANER
Discontinued - see Sec. 9

THIS PRODUCT IS DESIGNED FOR INDUSTRIAL USE ONLY - IT IS TO BE USED ONLY FOR CLEANING ELECTRONIC COMPONENTS IN ACCORDANCE WITH 40 CFR 762.58(e).

MATERIAL SAFETY DATA SHEET
BARON BLAKESLEE, INC., - 2001 N. JANICE AVE., - MELROSE PARK, IL 60160
(312) 450-3900

DATE: November, 1987
EDITION: 2nd
CHEMICAL NAME AND SYNONYMS:
Trichlorotrifluoroethane
TRADE NAME AND SYNONYMS
Slidewire Cleaner
CHEMICAL FAMILY: Halogenated Hydrocarbons
FORMULA:
$C_2Cl_3F_3$
DOT SHIPPING NAME: Not regulated by DOT
DOT HAZARD CLASS: Not Applicable

------SECTION 1 - PHYSICAL DATA (TRICHLOROTRIFLUOROETHANE) ------▲

BOILING POINT @ 760 MM Hg:	**VAPOR DENSITY(AIR=1):**	SPEC. GRAV.	pH OF SOLUTIONS:
117.5 DEG. F	6.5	1.57 (liquid)	Neutral

FREEZING/MELTING POINT:	**SOLUBILITY (WEIGHT % IN WATER):**	**BULK DENSITY:**	VOLUME % VOLATILE:
Below -35 DEG. C	0.1	13.1 lbs./gal. Approx.	100

VAPOR PRESSURE: at 70 DEG. F 5.5 PSIA	EVAPORATION RATE: **(Ether = 1) (time to evaporate):** 2.0	HEAT OF **SOLUTION:** Not available

APPEARANCE AND ODOR: Colorless liquid with ethereal and faint sweetish odor.

------SECTION 2 - HAZARDOUS INGREDIENTS ------

	APPROX. %	HAZARD DATA
Trichlorotrifluoroethane (Product)	75	See Section 5
Dichlorodifluoromethane (F-12) (Propellant)	25	See Section 5

------SECTION 3 - FIRE AND EXPLOSION HAZARD DATA ------

FLASH POINT F (METHOD USED)	**FLAMMABLE LIMITS IN AIR**	**EXTINGUISH. MEDIA:**
Non-Flammable (Closed Cup)	(% BY VOLUME) Not Available	Carbon dioxide; dry chemical or water spray

SPECIAL FIRE FIGHTING PROCEDURES: Fire fighters should wear NIOSH positive pressure self-contained breathing apparatus for possible exposure to hydrochloric and hydrofluoric acids and phosgene. Use water spray to keep containers cool. Contents under pressure. Container exposed to high temperatures may explode.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Will decompose at temperatures above
250 Deg. F. Decomposition products can include hydrochloric and hydrofluoric acid and phosgene.

------SECTION 4 - HEALTH HAZARD DATA ------

PERMISSIBLE EXPOSURE LIMITS (TLV):
TOXICITY DATA: Trichlorotrifluoroethane
LC Lo INHALATION: Human: 4,500 ppm Central **Nervous System Effects**
SKIN - RABBIT: 500 mg-open irritant
LD50 RAT: 43 gm/kg

CLASSIFICATION (POISON, IRRITANT, ETC.)
INHALATION: Low Toxic
SKIN/EYE: Mild
INGESTION: Mildly Toxic

HUMAN EXPOSURE INFORMATION/DATA: This product and the propellant are not listed as a carcinogen by OSHA, IARC, or NTP. The product and the propellant are listed in the TSCA Inventory.

------SECTION 5 - EFFECTS OF OVEREXPOSURE ------

This section covers effects of overexposure for inhalation, eye/skin contact, ingestion and other types of overexposure information in the order of the most hazardous and the most likely route of overexposure.

A. Trichlorotrifluoroethane, CAS NO. 76-13-1 (PRODUCT)

PERMISSIBLE EXPOSURE LIMITS (TLV)

Current Federal OSHA permissible exposure limit (29 CFR 1910.1000) is
1,000 ppm (8-hour TWA)

ACGIH has adopted a permissible exposure limit of 1,000 ppm (8-hour TLV)

ROUTES/EFFECTS OF EXPOSURE:

INHALATION: At low level of concentration (human: 2,500 ppm fluorocarbon component, 0.5-1.0 hour exposure) headache, dizziness, nausea,
loss of concentration have been experienced. With high exposure levels: intoxication, cardiac effects, and CNS depression (loss of concentration or
even death) may occur. Vapors can displace air, resulting in an asphyxiation hazard.

EYE OR SKIN CONTACT: Irritant to skin and eyes: excessive contact may cause defatting.

INGESTION: Similar symptoms as for inhalation. In large doses, respiratory failure can occur.

EFFECTS OF OVEREXPOSURE

ACUTE: Primarily 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 area. Liquid splashed in the eye can result in discomfort, pain and irritation. Prolonged or repeated contact with liquid on the skin can cause irritation and dermatitis. The problem may be accentuated by liquid becoming trapped against the skin by contaminated clothing and shoes. Skin absorption can occur.

ADDITIONAL INFORMATION

EXPOSURE TO TRICHLOROTRIFLUOROETHANE:

Animal studies in various species have observed cardiac arrythimia at **the following concentrations:**

Monkey - 25,000 - 50,000 ppm
Mouse - 100,000 ppm

Myocardial depression was observed in the dog at 50,000 ppm.

Subacute data: Rats exposed at 2,520 ppm, 7 hours/day, 5 days/wk, 30

days - no apparent effects.
At 5,000 ppm and same time exposure, mild liver effects, prevention of weight gain.

B. Dichlorodifluoromethane, CAS NO. 75-71-8 (PROPELLENT)

PERMISSIBLE EXPOSURE LIMITS (TLV)

Current Federal OSHA permissible exposure limit (29 CFR 1910.1000) is
1,000 ppm (8 hour TWA).

ACGIH has adopted a permissible exposure limit of 1,000 ppm (8 hour TLV)

ROUTES/EFFECTS OF EXPOSURE:

INHALATION: This material is low in toxicity at concentrations as **high as 4% (40,000 ppm):** when oxygen levels in air are reduced to 12-14%; symptoms of asphyxiation; loss of coordination, increased pulse rate cardiac sensitization and deeper respiration will occur.

A narcotic effect has been reported. Also, published animal studies report that cardiac arrhythmia and myocardial depression are produced in species as follows, if inhaled 5 minutes at varying concen-**trations:**

SPECIES	MINIMUM INHALED CONCENTRATION (PPM)
Monkey	50,000-100,000
Mouse	Over 400,000
Rat	Over 400,000
Dog	100,000

EYE OR SKIN CONTACT: Contact with liquid can cause frostbite indicated by pallor or redness, loss of sensation and swelling.

INGESTION: Not applicable (gaseous at normal temperature and pressure).

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove patient to fresh air. Give mouth to mouth resuscitation if breathing has stopped. Give oxygen as necessary if a qualified operator is available. DO NOT give adrenalin (epinephrine). Call a physician.

INGESTION: If conscious, induce vomiting immediately by giving 2 to 4 glasses of water and touching finger to back of throat. Call a physician. NEVER give anything by mouth to an unconscious person. Take immediately to hospital or physician.

EYE CONTACT: Flush with large amounts of water for at least 15 minutes,
lifting eyelids occasionally. If eye symptoms persist, consult physician.

SKIN CONTACT: Wash promptly with soap and water for at least 15 minutes while removing contaminated clothing and shoes. If irritation occurs, see a physician. Thoroughly clean contaminated clothing and shoes before reuse or discard.

PROPELLANT:

EYE/SKIN CONTACT: Immediately bathe any frostbite (DO NOT RUB) with lukewarm (NOT HOT) water. Call a physician. In absence of water, cover with soft wool.

------SECTION 6 - REACTIVITY DATA ------▲

STABILITY: Stable CONDITIONS TO AVOID: Will decompose at tempera-
tures above 250 DEG. F. Avoid sparks, hot spots,
welding, flames and cigarettes.

HAZARDOUS POLYMERIZATION: Will not occur CONDITIONS TO AVOID: None

INCOMPATIBILITY(MATERIALS TO AVOID): Strong acids and alkalis reactive
metals e.g. powdered aluminum, magnesium, zinc, molten aluminum, barium and lithium shavings. Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrochloric and hydrofluoric acids, phosgene.

------SECTION 7 - SPILL OR LEAK PROCEDURES ------▲

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED: Immediately evacuate the area and provide maximum ventilation. Unprotected personnel should move upwind of spill. Only personnel equipped with proper respiratory and skin/eye protection should be permitted in area. Dike area
to contain spill. Take precautions as necessary to prevent contamination of
ground and surface waters. Recover or absorb spilled material on sawdust or
vermiculite and sweep into closed containers for disposal. After all visible traces have been removed, thoroughly wet vacuum the area. DO NOT
flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal. (See Below.)

WASTE DISPOSAL METHOD: Contaminated sawdust, vermiculite or porous surface must be disposed of in a permitted hazardous waste management facility. Recovered liquids may be reprocessed or incinerated or must be treated in a permitted hazardous waste management facility. Care must be taken when using or disposing of chemical materials and/or their contain-ers to prevent environmental contamination. It is your duty to dispose of the chemical materials and/or their containers in accordance with the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act as well as any other relevant federal, state or local laws/regulations regarding disposal.

------SECTION 8 - SPECIAL PROTECTION INFORMATION ------▲

RESPIRATORY PROTECTION: None required for adequately vented work situations. Use NIOSH approved self-contained or supplied-air respira-tors for emergencies and in situations where air may be displaced by vapors.

VENTILATION (TYPE): Local exhaust: At filling zones and where leakage
is probable. Mechanical (General): Adequate for storage areas.

EYE PROTECTION: Splashproof Goggles

GLOVES: Protective gloves and full protective clothing if there is prolonged or repeated contact of liquid with skin.

OTHER PROTECTIVE EQUIPMENT: Safety shower and eye-wash fountain in immediate area. Personal protective clothing and use of equipment must be in accordance with 29 CFR 1910.133 and 29 CFR 1910.132.

------SECTION 9 - SPECIAL PRECAUTIONS ------▲

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:

* DO NOT use in poorly ventilated or confined spaces.
* Trichlorotrifluoroethane vapors are heavier than air and will collect
  in low areas.
* Keep container closed when not in use.
* DO, NOT store in open, unlabeled or mislabeled containers.
* This material or its vapors when in contact with flames, hot glowing
  surfaces or electric arcs can decompose to form hydrogen chloride gas
  hydrofluoric acid and traces of phosgene.

* **AVOID CONTAMINATION OF WATER SUPPLIES:** Handling, storage and use procedures must be carefully monitored to avoid spills or leaks. Any spill or leak has the potential to cause underground water contamination which may, if sufficiently severe, render a drinking water source unfit for human consumption. Contamination that does occur cannot be easily corrected.
* DO NOT puncture container. DO NOT crush or incinerate container.
* DO NOT expose to high temperatures.

This product no longer available from Hewlett-Packard as of 1/90 due to CFC content.

Replacement P/N is 92193N (pre-packaged isopropanol wipes).

OTHER PRECAUTIONS:
* AVOID PROLONGED OR REPEATED BREATHING OF VAPORS. High vapor concentrations can cause dizziness, unconsciousness or death.
* USE ONLY WITH ADEQUATE VENTILATION. Ventilation must be sufficient to limit employee exposure to product below OSHA permissible exposure limits (8-hour TWA).
* AVOID CONTACT WITH EYES. Will cause irritation and pain.
* AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. May cause irritation or dermatitis.
* DO NOT TAKE INTERNALLY. Swallowing may cause injury or death.
* DO NOT EAT, DRINK OR SMOKE IN WORK AREAS.
* **NEVER enter a pit or tank without observing safety procedures:**
* Never alone, always with a life line, and always with positive supply of fresh air.
* Employ respiratory protection when exposure to vapors is possible.

REFERENCES:
1. NIOSH Registry of Toxic Effects of Chemical Substances, 1978.
2. Industrial Hygiene and Toxicology, Volume 11, Second Edition, F.A. Patty, 1986.
3. Dangerous Properties of Industrial Materials, Sixth Edition, N.I. Sax, 1984.
4. Federal Register, 45FR Hazardous Waste Management Systems Part III, Identification and Listing of Hazardous Wastes, Page 33084, May 19, 1980.
5. EPA Science Advisory Board, Subcommittee on Airborne Carcinogens, September, 1980.

CONTAINED HEREIN.

ALLIED-SIGNAL, INC. GENESOLV/BARON-BLAKESLEE

ENVIRONMENTAL DATA SHEET

SUPPLEMENT TO PSDS: SLIDEWIRE CLEANER

CURRENT ISSUE DATE: NOV 1987 PSDS#: M007940 (2ND ED)

SARA - TITLE III (40 CFR 300)

1. THIS PRODUCT CONTAINS THE FOLLOWING EXTREMELY HAZARDOUS SUBSTANCE(S) (SELECTIONS 302 AND 304)

COMPONENT	TPQ (LBS)	RQ(LBS)
NONE		

2. THIS PRODUCT CONTAINS THE FOLLOWING CERCLA HAZARDOUS SUBSTANCE(S) (SECTIONS 302 AND 304)

COMPONENT	RQ(LBS)
DICHLORODIFLUOROMETHANE CAS NO. 75-71-8	5000

NOTE: THE INFORMATION PROVIDED IN SECTION 1 AND 2 IS REQUIRED FOR EMERGENCY RESPONSE REPORTING.

3. THIS PRODUCT HAS THE FOLLOWING HAZARDS (SECTION 311 AND 312):

	YES	NO
IMMEDIATE	X	
DELAYED	X	
FIRE		X
PRESSURE		X
REACTIVE		X

4. THESE PRODUCTS CONTAIN THE FOLLOWING TOXIC CHEMICALS (SECTION 313):

	WT %
112 TRICHLORO 122 TRIFLUOROETHANE CAS 76-13-1	75
DICHLORODIFLUOROMENTHANE CAS 75-71-8	25

FOR ADDITIONAL INFORMATION ON THE ABOVE CHEMICALS, SEE SECTION 5 OF THE MATERIAL SAFETY DATA SHEET.

5. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES:

HEALTH	FLAMMABILITY	REACTIVITY
2	1	0

11/7/88