TDS #1530

CHEMTRONICS®
Technical Data Sheet

Flux-Off® Water Soluble

PRODUCT DESCRIPTION

Flux-Off® Water Soluble is a proprietary blend of powerful cleaning solvents designed to replace TMS based solvents. This defluxing agent removes R, RMA, RA, and synthetic flux residues, as well as ionic and non-ionic soils.

- Removes R, RMA, RA, and synthetic flux residues
- Penetrates hard to reach areas
- Evaporates quickly
- Leaves no residues
- Removes light oil and grease residues
- Removes ionic and non-ionic residues
- Excellent material compatibility
- Non-corrosive formulation
- Contains no CFCs or HCFCs
- Contains no 1,1,1 Trichloroethane

TYPICAL APPLICATIONS

Flux-Off® Water Soluble removes flux residues and cleans:

- Chip Carriers
- Heat Sinks
- Plugs
- Printed Circuit Boards
- Relays
- Sockets
- Surface Mount Device Pads
- Switches

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Boiling Point	180°F Initial
Vapor Density (air=1)	>1
Solubility in Water	Soluble
Specific Gravity (water = 1@77°F)	0.79
Evaporation Rate (butyl acetate=1)	>1
Appearance	Clear, Colorless Liquid
Odor	Ethereal
Surface Tension (dynes/cm @21.6°C)	21.1
Flash Point (TCC) Flammable	70°F
Kauri-Butanol (KB) Number	80
Shelflife Aerosols	5 years
Liquids	2 years after opening
RoHS/WEEE Status	RoHS WEEE Compliant

COMPATIBILITY

Flux-Off® Water Soluble is generally compatible with most materials used in the electronics industry. As with any cleaning agent, solvent/component compatibility must be determined on a non-critical area prior to use.

Material	Compatibility
ABS	Good
Buna-N	Good
EPDM	Good
Graphite	Excellent
HDPE	Excellent
LDPE	Excellent
Lexan™	Good
Neoprene	Good
Noryl®	Excellent
Nylon™ 66	Excellent
Cross-Linked PE	Excellent
Polypropylene	Excellent
Polystyrene	Good
PVC	Excellent
Silicone Rubber	Good
Teflon™	Excellent
Viton™	Excellent

Performance

Product Required for Rosin Removal

(mg solvent/ 1 mg rosin flux)

Flux-Off Water Soluble	**71.0**
Conventional TF Solvent Blends	**277.0**

Rosin Removal Rate (mg / in^2 sec.)

Flux-Off Water Soluble	**3.69**
Conventional TF Solvent Blends	**1.23**

USAGE INSTRUCTIONS

For industrial use only.
Read MSDS carefully prior to use.
Spray 4-6" from surface to clean. Wash parts from top to bottom, allowing the liquid to flush away dirt and dissolved grease. For precise application use attached extension tube. Product is Extremely Flammable - Do not use near sources of ignition and energized equipment.

AVAILABILITY

ES1530	14.0 oz. Aerosol
ES130	1 Gal. Liquid
ES830BE	6 oz. Brush Clean System - Europe

ENVIRONMENTAL IMPACT DATA

ENVIRONMENTAL IMPACT DATA			
CFC	0.0%	VOC	100%
HCFC	0.0%	HFC	0.0%
CL Solv.	0.0%	ODP	0.0

CFC, HCFC, CL. SOLV., VOC, and HFC numbers shown are the content by weight. Ozone depletion potential (ODP) is determined in accordance with the Montreal Protocol and U.S. Clean Air Act of 1990. The ODP of this product is 0.0. It is the sum of the ODP of the substances that may contribute to the depletion of stratospheric ozone, based upon the weight of each substance in the product's formulation.

NOTE: This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly.
CHEMTRONICS® does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Information: 800-TECH-401

Product Identification

FLUX-OFF® WATER SOLUBLE
(Formerly Flux-Off II and Flux-Off NR 2000)

Product Code: ES1530, ES1530CB, ES830B, ES1530C, ES1530CBC, ES830BC

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Product Ingredient Information	CAS#	Wt. % Range
Isopropanol	67-63-0	50.0-75.0
Hexamethyldisiloxane	107-46-0	0.1-0.10
n-Propyl acetate	109-60-4	1.0-5.0
1,1-difluoroethane	75-37-6	10.0-25.0
Carbon Dioxide	124-38-9	1.0-5.0

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: Clear, colorless liquid with strong ethereal odor. This product is flammable. Liquid may irritate eyes and skin under repeated or prolonged exposure. Breathing high concentrations of product vapor may produce drowsiness and a headache.

Potential Health Effects:

Eyes: Liquid, aerosols and vapors of this product may be irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation.

Skin: Contact may cause skin irritation.

Ingestion: Harmful if swallowed. Irritating to mouth, throat and stomach. May cause vomiting.

Inhalation: Harmful if inhaled. High concentrations of vapors in immediate area can displace oxygen and can cause dizziness, unconsciousness, and even death with longer exposure. Keep people away from such vapors without self-contained breathing apparatus.

Pre-Existing Medical Conditions Aggravated by Exposure: Heart, lung, skin, eye.

SECTION 4: FIRST AID MEASURES

Eyes: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel if irritation develops or persists.

Skin: Wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persist. Wash clothing separately before reuse.

Ingestion: Swallowing less than an ounce will not cause significant harm. For larger amounts, do not induce vomiting, but give one or two glasses of water to drink and get immediate medical attention.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: 53 F (12C) (TCC) LEL/UEL: Not established (% by volume in air)

Extinguishing Media: Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

Fire Fighting Instructions: As in any fire, wear self-contained breathing apparatus (pressure-demand, MSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Large Spills: Shut off leak if possible and safe to do so. Wear self-contained breathing apparatus and appropriate personal protective equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal. Do not flush to sewer. Avoid runoff into storm sewers and ditches which lead to waterways.

Small Spills: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal.

SECTION 7: HANDLING AND STORAGE

Avoid prolonged or repeated contact with eyes, skin, and clothing. Wash hands before eating. Use with adequate ventilation. Avoid breathing product vapor or mist. Do not reuse this container. Store in a cool dry place away from heat, sparks and flame. Keep container closed when not in use. Do not store in direct sunlight.

KEEP OUT OF REACH OF CHILDREN.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

CHEMICAL NAME	ACGIH TLV	OSHA PEL	STEL / OTHER
Isopropanol	200ppm	400ppm	400ppm
n-Propyl Acetate	200ppm	200ppm	250ppm
Silicone Fluid	NA	NA	NA
1,1-difluoroethane	NA	NA	1,000 ppm (DuPont)

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. If vapor concentration exceeds TLV, use NIOSH approved organic vapor cartridge respirator. Wear safety glasses with side shields (or goggles) and rubber or other chemically resistant gloves when handling this material.

NFPA and HMIS Codes:	NFPA	HMIS
Health	1	1
Flammability	3	3
Reactivity	1	1
Personal Protection	- B	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear, colorless liquid
Odor: Sweet solvent
pH: NA
Vapor Pressure: 33 mm Hg @ 68F (Liquid)
Vapor Density: >1 @ 100°F
(Air=1)
Percent Volatile: 99.5%

Solubility in Water: Negligible
Specific Gravity: (Water =1) 0.79
Evaporation Rate: <1
(Butyl acetate=1)
Viscosity: 1 (Approx.)
(Water = 1)
Boiling Point: 180° F (82ºC)

SECTION 10: STABILITY AND REACTIVITY

Stability - This product is stable. Conditions to Avoid: Do not spray near open flames, red hot surfaces or other sources of ignition.
Incompatibility: Do not mix with powdered alkali and alkaline earth metals or strong oxidizing agents.
Products of Decomposition: Thermal decomposition may release carbon monoxide, carbon dioxide and incompletely burned hydrocarbons, as well as oxides of silicone.
Hazardous Polymerization: Will not occur Conditions to Avoid: NA

SECTION 11: TOXICOLOGICAL INFORMATION

Inhalation:

Isopropanol	LC50/rats	12,000 ppm/8 hrs
n-Propyl Acetate	TCLo/human	1,000 mg/m3
1,1-difluoroethane *	Rat ALC	383,000 ppm/4hrs

Ingestion:

Isopropanol	LD50/rats	5,800 mg/kg
n-Propyl Acetate	LD50/rats	9,370 mg/kg
1,1-difluoroethane *	Rat ALD	>1500 mg/kg
Hexamethyldisiloxane	LDLo rat	8 mL/kg

Skin:

n-Propyl Acetate	Rabbit	500 mg open MILD
Hexamethyldisiloxane	Rabbit LD50	16 mL/kg
Isopropanol	Rabbit	MILD

Eye:

n-Propyl Acetate	rabbit	500 mg/24H MILD
Isopropanol	rabbit	SL-MODERATE

*Information from Dupont.
Cancer Information: No ingredients listed as human carcinogens by NTP or IARC
Reproductive effects: none Teratogenic effects: none Mutagenic effects: none

SECTION 12: ECOLOGICAL INFORMATION

Environmental Impact Information
Avoid runoff into storm sewers and ditches which lead to waterways. Water runoff can cause environmental damage.

REPORTING
US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is:**1-800-424-8802**

SECTION 13: DISPOSAL CONSIDERATIONS
Dispose of in accordance with all federal, state and local regulations. Water runoff can cause environmental damage.

SECTION 14: TRANSPORTATION INFORMATION

	Proper Shipping Name	UN Number	Class	Sub. Risk	Pkg. Group	Hazard Label	Pkg. Instr.	Max. Quantity
Air:	Aerosols flammable n.o.s.	UN 1950	2.1	NA	NA	Flammable Gas	203 Y203	75 k.g; 150k.g. 30 kg
Ground:	Consumer Commodity	NA	ORM-D	NA	NA	ORM-D	Pkg. Auth.	173.306

SECTION 15: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372).
This information should be included on all MSDSs copied and distributed for this material.
TOXIC SUBSTANCES CONTROL ACT (TSCA).
All ingredients of this product are listed on the TSCA Inventory.
WHMIS: Class A; Class B5; Class D2B
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

Product is a Level 3 aerosol. Do not puncture or incinerate containers. Normal ventilation for standard manufacturing practices is usually adequate. Local exhaust should be used when large amounts are released.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.