ITW Chemtronics® /Americas

NEW and IMPROVED Flux-Off® No Clean Flux Remover

The nonflammable flux remover for cleaning no-clean flux

- Removes all types of no-clean flux
- Nonflammable
- Dries fast
- Leaves no residue
- Test on plastics
- Contains HCFC-225

Applications:
- Removes rosin-based and synthetic no-clean fluxes
- Can be used in ultrasonic or immersion bath

ES1695* 12 oz / 340 g aerosol
ES895B* 6 oz / 170 g BrushClean™ System
ES195 1 gal / 3.7 L liquid

*Not for sale in Canada.

RoHS WEEE Compliant

CHEMTRONICS®

TDS # 1695

Technical Data Sheet

Flux-Off® No Clean New & Improved!

Flux Remover

PRODUCT DESCRIPTION

Flux-Off® No Clean New & Improved! Flux Remover is an extra strength nonflammable solvent that removes heavy and encrusted flux deposits. This high pressure aerosol or bulk liquid penetrates quickly to remove all types of flux, oxide particles, dust, grease and oil, then evaporates quickly leaving no residues.

- Same great features as original, without HCFC-141b
- Non-corrosive, safe for metals
- Nonflammable
- Fast drying
- Powerful cleaner removes R, RA, RMA, and synthetic fluxes
- Removes encrusted fluxes
- All-Way Spray valve - even sprays upside down
- Available with BrushClean™ System

TYPICAL APPLICATIONS

Flux-Off® No Clean New & Improved! Flux Remover effectively cleans flux from:

- Chip Carriers
- Heat Sinks
- Metal Housings and Chassis
- Printed Circuit Boards
- Plugs
- Relays and Contacts
- Sockets
- Surface Mount Device Pads
- Switches

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Boiling Point	114°F Initial
Evaporation Rate (butyl acetate=1)	>1
Flash Point (TCC)	None
Specific Gravity	1.34
Vapor Pressure @68°F	205 mm Hg
Appearance	Clear, Colorless Liquid
Odor	Ethereal
Solubility in Water	Negligible
Kauri-Butanol (KB) Number	87
Shelflife	5 years
RoHS/WEEE Status	RoHS WEEE Compliant

COMPATIBILITY

New & Improved Flux-Off® No Clean is generally compatible with most materials used in the electrical and electronic assemblies, except acrylics, ABS resins, Polycarbonates and Polystyrenes. With any cleaning agent solvent/component compatibility must be determined on a non-critical area prior to use.

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

Performance	
Flux removal per gram solvent (mg)	
Flux-Off No Clean New & Improved!	**11.3**
Competitive flux remover	**7.6**

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 flux residue. Flux-Off® No Clean New & Improved! may be used to remove all types of fluxes in an ultrasonic cleaner.

AVAILABILITY

ES1695 12 oz. Aerosol
ES895B 8 oz. Brush Clean System
ES195 1 Gal. Liquid

ENVIRONMENTAL IMPACT DATA

ENVIRONMENTAL IMPACT DATA			
CFC	0.0%	VOC	41.5%
HCFC-141b	0.0%	HFC	18.0%
HCFC-225	38.4%	nPB	0.0%

CFC, HCFC-225, HCFC-141b, VOC, HFC, and nPB percentages shown are the content by weight.

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. ITW 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 IDENTIFICATION

Product Information: 800-TECH-401

Product Identification

NEW & IMPROVED FLUX-OFF® NO CLEAN (Liquid)

Product Code: ES195

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt. % Range
trans-1,2-dichloroethylene	156-60-5	20.0-50.0
HCFC-225ca	422-56-0	10.0-20.0
HCFC-225cb	507-55-1	10.0-20.0
Tetrahydrofuran	109-99-9	1.0-5.0
Methanol	67-56-1	1.0-3.0

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: Clear, colorless liquid with strong ethereal odor. This product is nonflammable. Liquid may irritate eyes and skin under repeated or prolonged exposure. Breathing high concentrations of product vapors 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: Lung, skin, eye, gastrointestinal tract, central nervous system.

SECTION 4: FIRST AID

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: If swallowed, do not induce vomiting. Keep head below knees to minimize chance of aspirating material into the lungs. Never give anything by mouth to an unconscious person. Get medical attention immediately.

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: None (TCC) LEL/UEL: Not available

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 a 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 or flames. 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	ACGIH STEL	OTHER
trans-1,2-dichloroethylene	200 ppm	200 ppm	not established	
HCFC-225ca/HCFC-225cb	not established	not established	not established	100 ppm*
Tetrahydrofuran	50 ppm	200 ppm	100 ppm	
Methanol	200 ppm	200 ppm	250 ppm	

* Supplier's Occupational Exposure Limit

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	0	0
Reactivity	1	1
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear colorless liquid
Odor: Ethereal
pH: NA
Vapor Pressure: 205 mm Hg @68 F
Vapor Density: >1
(Air = 1)
Boiling Point: 99 F (37C)

Solubility in Water: Negligible
Specific Gravity: (Water =1) 1.34
Evaporation Rate: >1
(Butyl acetate=1):
Viscosity: 1 (Approx.)
(Water = 1)
Percent Volatile: 100%

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 hydrochloric and hydrofluoric acid vapor.
Hazardous Polymerization: Will not occur Conditions to Avoid: NA

SECTION 11: TOXICOLOGICAL INFORMATION:

Inhalation:

Methanol	LC50 rat	64,000 ppm/4 hrs
HCFC-225ca	LC50 rat	37,300 ppm/4 hrs
HCFC-225cb	LC50 rat	36,800 ppm/4 hrs
trans-1,2-dichloroethylene	LC50 rat	24,100 ppm/4 hrs
Tetrahydrofuran	LC50 Rat	18,000ppm/4hrs

Ingestion:

trans-1,2-dichloroethylene	LD50 rat	>5,000 mg/kg
HCFC-225ca	LD50	>5,000 mg/kg
HCFC-225cb	LD50	>5,000 mg/kg
Tetrahydrofuran	LD50 rat	3240 mg/kg

Eye:

trans-1,2-dichloroethylene		MOD – SEV
HCFC-225ca/HCFC-225cb	rabbit	Not an irritant
Tetrahydrofuran		Moderate irritant

Skin

trans-1,2-dichloroethylene	LD50 rabbit	>5,000 mg/kg
Methanol	LD50 rabbit	15,800 mg/kg
HCFC-225ca/HCFC-225cb	LD50 rabbit	>2,000 mg/kg
Tetrahydrofuran		Severe irritant

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
Air & Ground: Cleaning Compound, Not Regulated

SECTION 15: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION This product contains the following 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).

Chemical Name	CAS#	Wt. % Range
HCFC-225ca	422-56-0	10.0-20.0
HCFC-225cb	507-55-1	10.0-20.0
Methanol	67-56-1	1.0-3.0

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 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:

Normal ventilation for standard manufacturing practices is usually adequate. Local exhaust should be used when large amounts are released.