

Technical Data Sheet**Electro-Wash® NR New & Improved!
Cleaner Degreaser****PRODUCT DESCRIPTION**

Electro-Wash® NR New & Improved! Cleaner Degreaser is a nonflammable cleaner that quickly removes flux, grease, oils, dirt, dust, and other contaminants from electronic components and assemblies. This high pressure solvent system is engineered to remove all types of oil and grease while evaporating quickly and leaving no residues.


- Same great features as original, without HCFC-141b
- Removes flux, oils, dirt, grease, dust, and other contaminants
- Nonflammable; can be used on energized equipment
- Penetrates to clean hard to reach areas
- Evaporates quickly
- Leaves no residues
- Noncorrosive; safe for sensitive metals
- Available with All-Way Spray valve

TYPICAL APPLICATIONS

Electro-Wash® NR New & Improved! Cleaner Degreaser removes flux, dirt, grease, oxidation and other soils from:

- Printed Circuit Boards
- Relays and switches
- Transformers
- Mechanical Devices
- Electric Motors and Generators
- Electronic Controllers
- Pneumatic / Hydraulic Systems

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Boiling Point	156° F (Initial)
Evaporation Rate (butyl acetate=1)	>1
Flash Point (TCC)	None
Specific Gravity	1.35
Vapor Pressure @68°F	112 mmHg
Appearance	Clear, colorless liquid
Odor	Mild
Solubility in Water	Negligible
Dielectric Breakdown (ASTM D-877)	23.5 kV
Kauri-Butanol (KB) Number	125
Shelflife	5 years
RoHS/WEEE Status	

COMPATIBILITY

Electro-Wash® NR New & Improved! Cleaner Degreaser is generally compatible with most materials used in printed circuit board fabrication, except acrylics, ABS resins, polycarbonates and polystyrenes. As with any cleaning agent solvent/component compatibility must be determined on a non-critical area prior to use.

<u>Material</u>	<u>Compatibility</u>
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	
Grease Removal per gram solvent (mg)	
Electro-Wash NR New & Improved!	15.4
HFC-based Cleaner	0.5
Grease & Lubricating Oil Removal per gram solvent (mg)	
Electro-Wash NR New & Improved!	22.5
HFC-based Cleaner	0.5

USAGE INSTRUCTIONS

For commercial use only.

Read MSDS carefully prior to use.

Spray 4 to 6 inches 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.

AVAILABILITY

ES1614 12 oz. Aerosol
 ES114 1 gallon Liquid
 ES5514 55 gallon Liquid

ES1614 - ENVIRONMENTAL DATA

ENVIRONMENTAL IMPACT DATA			
CFC	0.0%	VOC	87.0%
HCFC- 141b	0.0%	HFC	10.0%
HCFC-225	0.0%	nPB	87.0%

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 Electro-Wash® NR

Product Code: ES1614

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt. % Range
n-propyl bromide	106-94-5	65.0-75.0
1,1,1,2-Tetrafluoroethane	811-97-2	5.0-25.0
Carbon Dioxide	124-38-9	1.0-5.0
1,2 Epoxybutane	106-88-7	0.1-1.0
t-Butanol	75-65-0	0.1-1.0

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview: Clear, colorless liquid with faint ethereal odor. This product is nonflammable. Liquid may irritate eyes and skin under repeated or prolonged exposure. Breathing high concentrations of product vapor may produce dizziness and nausea.

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: Prolonged contact can cause skin irritation, including redness, burning, drying and/or cracking of skin..

Ingestion: May be harmful if swallowed. Swallowing this material may result in nausea, vomiting and weakness followed by central nervous system depression.

Inhalation: Can be harmful if inhaled. High concentrations of vapors in immediate area can cause dizziness, nausea, vomiting, unconsciousness and death.

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 before reuse.

Ingestion: If swallowed, do not induce vomiting. If conscious, give 2 glasses of water. Never give anything by mouth to an unconscious person. Keep head below knees to minimize chance of aspirating material into the lungs. Get medical attention immediately.

Inhalation: Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: None to boiling (TCC) Flammable/Explosion limits: LEL 4.0 / UEL 8.0 (% volume in air)

Extinguishing Media: Use water spray or fog, CO2, dry chemical or water stream 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

Spills: Shut off leak if possible and safe to do so. 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.

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	OTHER
n-propyl bromide	10 ppm	NE	
1,2 Epoxybutane	NE	NE	
t-Butanol	100 ppm	100 ppm	150 ppm STEL NIOSH
1,1,1,2-Tetrafluoroethane	NE	NE	1000 ppm (Dupont)

NE = Not Established

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. 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.

NFPA and HMIS Codes:

	NFPA	HMIS
Health	2	2
Flammability	1	1
Reactivity	1	1
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear, colorless liquid
Odor: Characteristic Odor
pH: NA
Vapor Pressure: 112 mmHg@ 68F
Boiling Point: 156°F (69C)

Solubility in Water: Negligible
Specific Gravity: 1.35
 (Water =1)
Evaporation Rate: >1 (Butyl acetate=1)
Percent Volatile: 100%

SECTION 10: STABILITY AND REACTIVITY

Stability - This product is stable under normal conditions.
Conditions to Avoid: Steam, oxidizers, elevated temperatures. Do not spray near open flames, red hot surfaces or other sources of ignition.
Incompatibility: Do not mix with strong oxidizers and strong bases.
Products of Decomposition: Thermal decomposition may release hydrogen bromide, carbon monoxide and carbon dioxide.
Hazardous Polymerization: Will not occur
Conditions to Avoid: Keep away from ignition source.

SECTION 11: TOXICOLOGICAL INFORMATION

Inhalation:
 n-propyl bromide LC50 rats 253 000 mg/m3/0.5hr* Reproductive effects: n-propyl bromide NOEL rats 100 ppm
 Tetrafluoroethane Rats ALC 567,000ppm/4hrs (Rozman and Doull, 2002) LOEL rats 250 ppm
 Carbon Dioxide LCLo/Human 9pph/5min

Ingestion:
 n-propyl bromide LD50/rats 4260 mg/kg*

*Information provided by manufacturer.

Cancer Information: No ingredients in this product are listed as human carcinogens by IARC or NTP.

Reproductive effects: n-propyl bromide Teratogenic effects: none Mutagenic effects: none

SECTION 12: ECOLOGICAL 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
<u>Air:</u>	Aerosols non-flammable	UN 1950	2.2	NA	NA	Non-flammable	203	75 k.g; 150k.g.
<u>Ground:</u>	Consumer Commodity ORM-D	NA	ORM-D	NA	NA	ORM-D	Pkg. Auth.	173.306

SECTION 15: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION

This product contains the following 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 No.	Wt. % Range
1,2 Epoxybutane	106-88-7	0.1-1.0

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.

CALIFORNIA PROPOSITION 65: This product contains n-propyl bromide, a chemical known to the state of California to cause birth defects or other reproductive harm.

WHMIS: Class A; Class D2A; 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

This product is a Level 1 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.