

## Electro-Wash® Tri-V™ Precision Cleaner

**Product# VVV1614, VVV114, VVV514, VVV5514**

### Product Description

Electro-Wash Tri-V Precision Cleaner is a nonflammable cleaner that quickly removes flux, grease, oils, dirt, dust, and other contaminants from electronic components and assemblies. This solvent system is engineered to remove all types of oil and grease while evaporating quickly and leaving no residues. Tri-V nPB replacement chemistry is a novel new chemistry that does not contain any n-propyl bromide, TCE, any hazardous air pollutants or ozone depleting compounds.

- Powerful cleaning agent to remove flux, oils, dirt, grease, dust, and other contaminants, one cleaner for electronics cleaning
- Nonflammable, can be used on energized equipment
- Penetrates to clean hard to reach areas
- Evaporates quickly and leaves no residues, minimizes down time
- Does not contain n-propyl bromide, trichloroethylene, or perchloroethylene
- Stabilized for metals such as aluminum, magnesium, titanium, and brass
- Noncorrosive, safe for sensitive metals

### Typical Applications

Electro-Wash Tri-V Cleaner Degreaser removes flux, dirt, grease, oxidation and other soils from:

- Printed Circuit Boards
- Relays and switches
- Transformers
- Electro-Mechanical Devices
- Electric Motors and Generators
- Electronic Controllers
- Circuit breakers



### Typical Product Data and Physical Properties

<b>Boiling Point:</b>	118°F / 48°C	
<b>Solubility in Water:</b>	Negligible	
<b>Specific Gravity:</b>	Aerosol: 1.22	Liquid: 1.27
<b>Vapor Pressure @68°F</b>	Aerosol: 175 mm Hg	Liquid: 267mmHg
<b>Appearance</b>	Clear, colorless liquid	
<b>Odor</b>	Mild	
<b>Flash Point (TCC):</b>	None	
<b>Evaporation Rate:</b> (butyl acetate =1)	>1	
<b>Dielectric Breakdown</b> (ASTM D-877)	Aerosol: 8.0 kV	Liquid: 23.7 kV
<b>VOC* Content:</b>	Aerosol: 73%	Liquid: 100%
CARB	73%	100%
SCAQMD	854g/L	1201g/L
Federal	70%	95%
<b>Kauri-Butanol</b> <b>(KB) Number</b>	100	
<b>Shelflife</b>	Aerosol: 5 years	Liquid: 2 years after opening

**RoHS Compliant** Yes

\* Volatile Organic Compound (VOC) information is calculated on a weight basis using the VOC definition of California Air Resources Board (CARB) Consumer Product Regulations, South Coast Air Quality Management District (SCAQMD) Rule 102 and the Federal definition published in 40 CFR 51.100(s).

## Electro-Wash® Tri-V™ Precision Cleaner

Product# VVV1614, VVV114, VVV514, VVV5514

### Compatibility

Electro-Wash Tri-V 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.

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

#### Soil Removal – Vapor Degreasing

Lubrizol Corrosion Inhibitor	100% Removal
Unilube All Purpose Grease	80.5% Removal
5W30 Synthetic Oil	100% Removal
Fire Resistant Hydraulic Fluid	100% Removal
Chain Lubricant	100% Removal
Silicone Fluid	100% Removal

#### Soil Removal – Ultrasonic Cleaning

Lubrizol Corrosion Inhibitor	100% Removal
Unilube All Purpose Grease	100% Removal
5W30 Synthetic Oil	100% Removal
Fire Resistant Hydraulic Fluid	100% Removal
Chain Lubricant	100% Removal
Silicone Fluid	100% Removal

### Usage Instructions

**For industrial use only. Read SDS carefully prior to use.**

For vapor degreasing or ultrasonic cleaning application, charge sump tank with solvent. For ultrasonic or soak applications, be sure to cover tank when not in use to prevent evaporation. For aerosol applications, spray 4 to 6 inches from surface to clean. Wash parts from top to bottom, allowing the liquid to flush away dirt and dissolved soils. For precise application use attached extension tube.

### Vapor Degreaser Setting Guidelines

Boiling point	118°F (48°C)
Boil sump temp set	127°F (53°C)
High solvent temp set	136°F (58°C)
Refrigerant high temp set	109°F (43°C)

*As with all vapor degreaser equipment and processes, observe all safety precautions, guidelines and operating rules associated with these units. Failure to do so may put operations personnel at risk. Avoid excessive vapor losses, loss of refrigeration, excessive boil sump heat, etc. Make sure all equipment is operated in accordance with the manufacturer's guidelines and instructions. If in doubt, contact your manufacturer immediately.*

### Availability

VVV1614	12 oz. / 340 g Aerosol
VVV114	1 gal. / 3.7 L Liquid
VVV514	5 gal. / 19 L Liquid
VVV5514	53 gal. / 200 L Liquid

### Technical and Application Assistance

Chemtronics provides a technical hotline to answer your technical and application related questions.  
The toll free number is: 1-800-TECH-401.

### 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.

	Electro-Wash <sup>®</sup> Tri-V				
	None	n-Propyl Bromide (nPB)	Trichloroethylene (TCE)	Perchloroethylene (Perc)	Methylene Chloride
<b>PHYSICAL PROPERTIES</b>					
Flash Point	None	None	None	None	None
KB Valu	100	125	129	90	136
Dielectric Strength (kV)	23.7	24	30	45.7	24
Surface Tension (dynes/cm)	22	24	29	32	27
Evaporation Rate (n-butyl acetate =1)	>1	0.28	4.45	1.5	7
Boiling Point	118°F / 48°C	158°F / 70°C	189°F / 87°C	250°F / 121°C	104°F / 40°C
Specific Gravity @ 20°C	1.27	1.35	1.46	1.62	1.31
Vapor Pressure (mm Hg) @ 20°C	267	111	58	14	355
Heat of Vaporization (cal/g)	68	59	57.2	50.1	78.7

**ENVIRONMENTAL & HEALTH REGULATORY**

Ozone Depleting Potential (ODP)	0	0.016-0.019	0	0	0
Global Warming Potential (GWP)	Low	0.31	140	Negligible	8.7
Volatile Organic Compounds (VOC)	Yes	Yes	Yes	Exempt	Exempt
SNAP Approved	Yes	Yes	Yes	Yes	Yes
Hazardous Air Pollutant (HAP)	No	Proposed	Yes	Yes	Yes
Prop 65 Chemical	No	Yes	Yes	Yes	Yes
Carcinogen (or suspected)	No	Yes	Yes	Suspected	Suspected
Threshold Limit Value (ppm) (TLV)	200	10	25	25	25

**MATERIAL COMPATIBILITY**

	+	++ = Excellent	+ = Good	O = Fair	- = Poor	- - = Not Compatible
ABS	-	O				
Buna-N	O	+				
EPDM	O	-				
Graphite	++	++				
HDPE	++	++		O		
LDPE	++	O				
Lexan	-	-				
Neoprene	O	O				
Noryl	-	+				
Nylon 66	+	++		O		
Cross-Linked PE	+	++				
Polypropylene	++	+		O		
Polystyrene	-	- -				
PVC	+	+				
Silicone Rubber	O	- -				
Teflon	++	++		++		
Viton	+	++		++		