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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832 Email & Skype: info@chipsmall.com Web: www.chipsmall.com Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



TDS # VVV1614

Chemtronics Technical Data Sheet

Electro-Wash[®] Tri-V

Precision Cleaner

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

Boiling Point	118° F (48° C)
Evaporation Rate (butyl acetate=1)	>1
Flash Point (TCC)	None
Specific Gravity	
Liquid	1.27
Aerosol	1.22
Vapor Pressure @	68°F
Liquid	267 mmHg
Aerosol	175mmHG
Appearance	Clear, colorless liquid
Odor	Mild
Solubility in Water	r Negligible
Dielectric Breakdo (ASTM D-877)	own
Liquid	23.7 kV
Aerosol	8.0 kV
Kauri-Butanol (KB) Number	100
Shelflife Ae	rosol - 5 years from DOM
Lic	quids - 2 years after opening
	T T T T T T T T T T
VOC* Content:	Liquid Aerosol
VOC* Content: CARB	Liquid Aerosol 100% 73%
	•

*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).

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.

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

Performance

Soil Removal – Vapor Degreasin	ıg
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 Clear	ning
Lubrizol Corrosion Inhibitor	100% Removal
Unilube All Purpose Grease	100% Removal
5W30 Synthetic Oil	100% Removal
Fire Resistant Hydraulic Fluid	100% Removal
Chain Lubericant	100% Removal
Silicone Fluid	100% Removal

USAGE INSTRUCTIONS

For commercial use only.

Read MSDS 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.

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

VVV1141 gallon LiquidVVV5145 gallon Liquid	VVV1614	12 oz Aerosol
0 1	VVV114	1 gallon Liquid
	VVV514	5 gallon Liquid
VVV5514 53 gallon Liquid	VVV5514	53 gallon Liquid

TECHNICAL & 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.

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CHEMTRONICS

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MCAL PROPERTIES WONT 6 Jac Contract 6 Jac Contract 6 Jac Desite 6 Jac Jac Desite 6 Jac Jac Desite 6 Jac Jac <thjac< th=""> Jac <</thjac<>						
Onte None None <th< th=""><th>PHYSICAI PROPERTIES</th><th>Electro-Wash Tri-V VW114 - 1 gal VW514 - 5 gal VVV5514 - 53 gal</th><th>n-Proovl Bromide (nPB)</th><th>Trichloroethvlene (TCE)</th><th>Perchloroethvlene (Perc)</th><th>Methvlene Chloride</th></th<>	PHYSICAI PROPERTIES	Electro-Wash Tri-V VW114 - 1 gal VW514 - 5 gal VVV5514 - 53 gal	n-Proovl Bromide (nPB)	Trichloroethvlene (TCE)	Perchloroethvlene (Perc)	Methvlene Chloride
u 100 125 126	Flash Point	None	None	None	None	None
circ Strength (kV) 23.7 24 30 45.7 a Tasin Rate (n-UVM) acetate =1) 1 1 2 2 2 3 45.7 Point 136 Rate (n-UVM) acetate =1) 137 L (45°C) 155 F / 7°°C 155 F / 7°°C 155 F / 7°°C 250°F / 121°C Point 136 T (47) 137 L (45°C) 135 T (45°C) 135 T (45°C) 250°F / 121°C Point 136 T (47°C) 136 T (45°C) 267 30 45.7 Vaporization (calg) 26 357 30 143 143 Vaporization (calg) 0 0 0 0 0 0 Depleting Devination (calg) 10 0 0 0 0 0 Optimize Compounds (VOC) Yes Yes Yes Yes Yes Yes Optimize Compounds (VOC) Yes Yes Yes Yes Yes Yes Optimize Compounds (VOC) Yes Yes Yes Yes Yes Yes Optimize Compou	KB Valu	100	125	129	06	136
Tension (synesterin) 22 24 26 32 13 32 13 <th>Dielectric Strength (kV)</th> <th>23.7</th> <th>24</th> <th>30</th> <th>45.7</th> <th>24</th>	Dielectric Strength (kV)	23.7	24	30	45.7	24
ation Rate (n-bury) acetta = 1) >1 0.08 445 15 15 Point (137) (137) (135) (137)	Surface Tension (dynes/cm)	22	24	29	32	27
Point 118° I / 46° 155° I / 12°C 136° I / 46° 156° I / 12°C 250° I / 12°C 162 163 163 164 162 163 <t< th=""><th>Evaporation Rate (n-butyl acetate =1)</th><th>7</th><th>0.28</th><th>4.45</th><th>1.5</th><th>7</th></t<>	Evaporation Rate (n-butyl acetate =1)	7	0.28	4.45	1.5	7
Clavity@20°C 127 135 146 182 182 Vaporization (alig) 20°C 267 39 57 59 14 Vaporization (alig) 20°C 267 39 72 59 14 Vaporization (alig) 20°C 267 39 72 50 14 Vaporization (alig) 0 0 0 0 0 14 Negligible 14 Vaganing Potential (ODP) Ves	Boiling Point	118°F / 48°C	158°F / 70°C	189°F / 87°C	250°F / 121°C	104°F / 40°C
Pressure (mm Hg) @ 20°C 267 111 56 1.4 Vaporization (cald)) 68 59 57.2 14 Vaporization (cald)) 68 59 57.2 14 Depleting Potential (SWP) 0 0.016-019 0 0 0 Depleting Potential (SWP) Low 0.31 140 Negligible Negligible Optiming Potential (SWP) Ves Ves Ves Ves Ves Ves Optiming Potential (SWP) No No 0.31 140 Negligible Optiming Potential (SWP) No Ves Ves Ves Ves Opting Potential (SWP) No Ves	Specific Gravity @ 20°C	1.27	1.35	1.46	1.62	1.31
Vaporization (allq)689957.250.11Depletion (allq)000000Depletion (allq)000000Depletion (allq)000000Depletion (allq)000000Depletion (allq)000000Depletion (allq)NoYesYesYesYesApprovedYesYesYesYesYesApprovedYesYesYesYesYesApprovedYesYesYesYesYesApprovedYesYesYesYesYesApprovedYesYesYesYesYesApprovedYesYesYesYesYesApprovedYesYesYesYesYesAdd Lintt Value (ppm) (TU, V)20011Add ComPATIBILITYAttent + 5 cod011Add ComPATIBILITYAttent + 5 cod111Add ComPATIBILITYAttent + 5 cod111Add ComPATIBILITYAttent + 5 cod11	Vapor Pressure (mm Hg) @ 20°C	267	111	58	14	355
COMENTAL & HEALTH REGULATORY Depleting Poential (OPP) 0 <th>Heat of Vaporization (cal/g)</th> <th>68</th> <th>59</th> <th>57.2</th> <th>50.1</th> <th>78.7</th>	Heat of Vaporization (cal/g)	68	59	57.2	50.1	78.7
Depleting Potential (OP) 0 0016-0019 0 <	ENVIROMENTAL & HEALTH REGULATORY					
Warming Potential (GWP) Low 0.31 140 Negligible Neglible Negligible Neglible	Ozone Depleting Potential (ODP)	0	0.016-0.019	0	0	0
Constant Compounds (VOC) Yes Yes Yes Yes Kennt Yes Kennt Yes	Global Warming Potential (GWP)	Low	0.31	140	Negligible	8.7
αproved by proved ous Air Polutant (HAP) Yes Yes Yes Yes Yes ous Air Polutant (HAP) No Proposed Yes Yes Yes Yes ous Air Polutant (HAP) No Yes Yes Yes Yes Yes old Limit Yaue (pm) (TLV) No Yes Yes Yes Yes Yes old Limit Yaue (pm) (TLV) 20 Yes Yes Yes Yes Yes All Locatin Yaue (pm) (TLV) 20 Yes Yes Yes Yes Yes All Locatin Yaue (pm) (TLV) 20 Yes Yes Yes Yes Yes All Locatin Yaue (pm) (TLV) 20 Yes Yes Yes Yes Yes All Locatin Yaue (pm) (TLV) 20 Yes Yes Yes Yes Yes All Locatin Yaue (pm) (TLV) 20 Yes Yes Yes Yes Yes All Locatin Yaue (pm) (TLV) 20 Yes Yes Yes Yes <td< th=""><th>Volatile Organic Compounds (VOC)</th><th>Yes</th><th>Yes</th><th>Yes</th><th>Exempt</th><th>Exempt</th></td<>	Volatile Organic Compounds (VOC)	Yes	Yes	Yes	Exempt	Exempt
ous Air Pollutant (HAP) No Proposed Yes Yes Yes 5 Chemical No Yes Yes Supercisid Yes Yes Supercisid Yes Supercisid Yes Yes <td< th=""><th>SNAP Approved</th><th>Yes</th><th>Yes</th><th>Yes</th><th>Yes</th><th>Yes</th></td<>	SNAP Approved	Yes	Yes	Yes	Yes	Yes
Schemical No Yes Yes Ves Supercted old Limit Value (ppm) (TLV) 200 Yes Ves Supercted old Limit Value (ppm) (TLV) 200 10 25 Supercted I - - 1 - 25 Supercted I - - - - - - - I -	Hazardous Air Pollutant (HAP)	No	Proposed	Yes	Yes	Yes
Ogen (or suspected) No Yes Yes Suspected old Limit Value (ppm) (TLV) 200 10 25 25 25 RAL COMPATIBILITY ++ = Exolent = Good 0 + 25 25 25 It Limit Value (ppm) (TLV) 200 10 25 25 25 25 RAL COMPATIBILITY ++ 0 +	Prop 65 Chemical	No	Yes	Yes	Yes	Yes
old Limit Value (ppm) (TLV)2001025262526RIAL COMPATIBILITY $\cdot \cdot $	Carcinogen (or suspected)	No	Yes	Yes	Suspected	Suspected
Ral COMPATIBILITY III = Exellent I = Good O = Fair I = Poor 1 0 1 0 1 <	Threshold Limit Value (ppm) (TLV)	200	10	25	25	25
Lander E Caracteria Ca	MATERIAL COMPATIBILITY		" +	O = Fair	= Not Compatible	
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te File Fi	Buna-N	0	+	,		
te ine ine ine pylene ren	EPDM	0		:		
ine E Rubber Rubber Rubber	Graphite	ŧ	‡	‡		
ine E Rubber e Rubber ine ine ine ine ine ine ine ine	HDPE	ŧ	ŧ	0		
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ne Rubber O :	PVC	+	+			
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	Teflon	ŧ	‡	ŧ		
	Viton	+	++	++		