Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!


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Chemtronics®

# Technical Data Sheet

**TDS # VVV2279**

# Max-Kleen™ Tri-V

The extra-strength, nonflammable cleaner with high dielectric

## PRODUCT DESCRIPTION

Max-Kleen™ Tri-V is ideal for removal of all types of soils including oxidized oil and grease from electronic / electrical motors and relays. 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. It is the ideal solvent for most electronic / electrical applications. This extra-strength cleaner evaporates quickly without leaving a residue behind.

- Quickly removes all types of tough soils including oxidized oil and grease
- Best product for electrical applications
- Dielectric strength of >30 kV (liquid)
- Does not contain n-propyl bromide, trichloroethylene, perchloroethylene, HAP's, or any ozone depleting compounds
- Nonflammable, no flash point
- Stabilized for metals such as aluminum, magnesium, titanium, and brass
- Noncorrosive, safe for sensitive metals
- Leaves no residue

## TYPICAL APPLICATIONS

Max-Kleen™ Tri-V can be used for all repair, maintenance, and manufacturing applications including:

- Removes grease, oil, lubricants, wax and tar
- Cleans contacts, relays and switches, circuit breakers and fuse blocks
- All repair and maintenance cleaning including: controls, conveyors and gear drives controllers
- Cleans electric motors and logic controllers

## COMPATIBILITY

Max-Kleen™ Tri-V is compatible with most metals. As with any solvent, compatibility with plastics should be determined on a non-critical area prior to use. Materials such as polystyrene, ABS, polycarbonate and PVC are not compatible with the cleaning solvent in Max-Kleen™ Tri-V.

## TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

| | |
|---|---|
| **Boiling Point** | |
| **Liquid** | 108° F/42° C |
| **Aerosol** | 118°F/48°C |
| **Evaporation Rate (butyl acetate=1)** | >1 |
| **Flash Point (TCC)** | None |
| **Specific Gravity** | |
| Liquid | 1.26 |
| Aerosol | 1.22 |
| **Vapor Pressure @68°F** | |
| Liquid | 405 mmHg |
| Aerosol | 175mmHg |
| **Appearance** | Clear, colorless liquid |
| **Odor** | Mild |
| **Solubility in Water** | Negligible |
| **Dielectric Breakdown (ASTM D-877)** | |
| Liquid | 32 kV |
| Aerosol | 8kV |
| **Kauri-Butanol (KB) Number** | 128 |
| **Shelflife** | Aerosol - 5 years from DOM<br>Liquids - 2 years after opening |

| **VOC* Content:** | **Liquid** | **Aerosol** |
|---|---|---|
| CARB | 100% | 73% |
| SCAQMD | 1138 g/L | 854g/L |
| Federal | 90% | 70% |

*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).

| Material | Compatibility |
|---|---|
| ABS | Non-Compatible |
| Buna-N | Fair |
| EPDM | Fair |
| Graphite | Excellent |
| HDPE | Excellent |
| LDPE | Good |
| Lexan™ | Poor |
| 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 | 91.3% 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 Lubericant | 100% Removal |
| Silicone Fluid | 100% Removal |

## USAGE INSTRUCTIONS

**Read MSDS carefully prior to use.**

For aerosol usage - Spray 4-6 inches from surface to clean. Wash parts from top to bottom, allowing the liquid to flush away dissolved soils. For precise application use attached extension tube.

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.

*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.*

Soak applications - Allow the soiled article to soak in Max-Kleen™ Tri-V for 5 - 10 minutes, then remove and loosen any remaining soils with a Controlwipes™ Wipe. For wipe applications, wet a Controlwipes™ Wipe with Max-Kleen™ Tri-V and wipe away soils.

## 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.**

## AVAILABILITY

| | |
|---|---|
| VVV2279 | 20oz aerosol |
| VVV179 | 1 gallon liquid |
| VVV579 | 5 gallon liquid |
| VVV5579 | 53 gallon liquid |

## 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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8125 COBB CENTER DRIVE
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**DISTRIBUTED BY:**

| PHYSICAL PROPERTIES | Max-Kleen™ Tri-V<br>VVV179 - 1 gal<br>VVV579 - 5 gal<br>VVV5579 - 53 gal | n-Propyl Bromide (nPB) | Trichloroethylene (TCE) | Perchloroethylene (Perc) | Methylene Chloride |
|---|---|---|---|---|---|
| **Flash Point** | **None** | None | None | None | None |
| **KB Valu** | **128** | 125 | 129 | 90 | 136 |
| **Dielectric Strength (kV)** | **32** | 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** | **108°F / 42°C** | 158°F / 70°C | 189°F / 87°C | 250°F / 121°C | 104°F / 40°C |
| **Specific Gravity @ 20°C** | **1.26** | 1.35 | 1.46 | 1.62 | 1.31 |
| **Vapor Pressure (mm Hg) @ 20°C** | **405** | 111 | 58 | 14 | 355 |
| **Heat of Vaporization (cal/g)** | **68** | 59 | 57.2 | 50.1 | 78.7 |
| **ENVIROMENTAL & 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** | | **++ = Exellent + = 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** | + | ++ | ++ | | |