



TECHSPRAY[®]

- MAINTENANCE & REPAIR
- PRECISION CLEANING
- PCB ASSEMBLY
- REWORK & REPAIR



PRODUCT CATALOG & APPLICATION GUIDE

V1.0

www.techspray.com



Dusters

Techspray dusters blow away dust, microscopic contaminants, lint, metallic oxide deposits and other soils that can cause heat build-up or shorts in sensitive electronics. They are completely portable, ultra-pure, and free of moisture, oil, and other contaminants.

- Moisture free
- Zero residue
- Safe on plastics
- Non-ozone depleting
- VOC exempt

Nonflammable Duster

Nonflammable, 100% HFC-134a duster

1671-10S 10 oz. (283g) aerosol

1671-15S 15 oz. (425g) aerosol

CAN1671-10S 10 oz. (283g) aerosol

Canada compliant packaging

CAN1671-15S 15 oz. (425g) aerosol

Canada compliant packaging



1671-10S 1671-15S

- Nonflammable
- Safest choice for energized equipment
- Velocity – 11.3 M/s



Vortex™ High Velocity Duster

High velocity, 100% HFC-134a duster

- Most powerful blast
- Nonflammable
- Safest choice for energized equipment
- Vortex 360° sprays upside-down
- Velocity – 14.6 m/s

1697-8S Vortex 360° 8 oz. (227g) aerosol

1697-10S 10 oz. (283g) aerosol



1697-8S 1697-10S

Economy Duster

Economical HFC-152a duster

- Best value – 30% more volume
- Lower global warming potential – 10% of HFC-134a
- Velocity – 11.4 m/s

1673-10S 10 oz. (283g) aerosol

Note: not for use on powered electrical equipment, on hot surfaces, and around open flames or sparks.



1673-10S



Renew-Duster

1580-10S 10 oz. (283g) aerosol



- Very low GWP
- Nonflammable*
- Non-ozone depleting
- Velocity – 12 m/s

** under ambient conditions*

DUSTER SELECTION GUIDE

| | Spray Power | Nonflammable | 360° Spray | Contents | GWP** | Use On Live Circuits |
|-----------------------------------|-------------|--------------|------------|------------|-------|----------------------|
| 1697-10S Vortex Duster | Best | Yes | No | HFC-134a | 1300 | Yes |
| 1697-8S Vortex 360° Duster | Best | Yes | Yes | HFC-134a | 1300 | Yes |
| 1671 Duster | Good | Yes | No | HFC-134a | 1300 | Yes |
| 1673 Economy Duster | Good | No | No | HFC-152a | 140 | No |
| 1580 Renew-Duster | Good | Yes* | No | HFO-1234ze | <1 | Yes |

** Global warming potential (GWP) is calculated based on a 100 year time horizon. Carbon dioxide has a GWP of 1.

Alcohol Cleaners

Techspray has the broadest line of isopropyl alcohol (IPA) in the industry, ranging from aerosol, pre-saturated wipes, and bulk packaging. Two grades of IPA are available: 99.8% anhydrous (containing as little water as possible) for fast-drying cleaning and 70% IPA / 30% DI for stencil and other cleaning when slower evaporation is desired.

- Plastic safe
- Non-corrosive
- Low toxicity

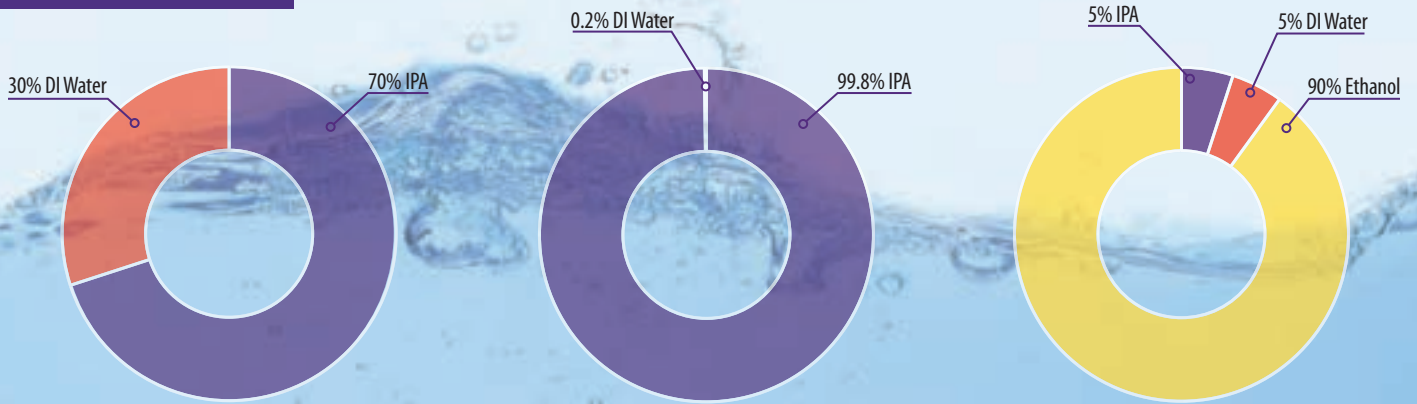


ALCOHOL SELECTION GUIDE

| Item # | Solvent | Wipe Material | Packaging |
|---------------|-------------|---------------------------------|----------------------------|
| 1610-12S | 99.8+% IPA | — | 12 oz aerosol |
| 1608-P | 70% IPA | — | 1 pint bottle |
| 1608-G4 | 70% IPA | — | 1 gal container, 4/case |
| 1608-5G | 70% IPA | — | 5 gal container |
| 1608-54G | 70% IPA | — | 54 gal drum |
| 1610-P | 99.8+% IPA | — | 1 pint bottle |
| 1610-PT | 99.8+% IPA | — | 1 pint bottle w/sprayer |
| 1610-G1 | 99.8+% IPA | — | 1 gal container, 1/case |
| 1610-G4 | 99.8+% IPA | — | 1 gal container, 4/case |
| 1610-5G | 99.8+% IPA | — | 5 gal container |
| 1610-54G | 99.8+% IPA | — | 54 gal drum |
| 1608-100DSP | 70% IPA | Non-woven poly | Disposable tub, 100ct |
| 1608CP-150DSP | 70% IPA | Commercial-grade poly-cellulose | Disposable tub, 150ct |
| 1608-100FL | 70% IPA | Non-woven poly | Flip-top tub, 100ct |
| 1608-100R | 70% IPA | Non-woven poly | Refill rolls, 100ct |
| 1608CP-150R | 70% IPA | Commercial-grade poly-cellulose | Refill rolls, 150ct |
| 1610-100DSP | 99.8+% IPA | Non-woven poly | Disposable tub, 100ct |
| 1610CP-150DSP | 99.8+% IPA | Commercial-grade poly-cellulose | Disposable tub, 150ct |
| 1610-100FL | 99.8+% IPA | Non-woven poly | Flip-top tub, 100ct |
| 1610-100R | 99.8+% IPA | Non-woven poly | Refill rolls, 100ct |
| 1610CP-150R | 99.8+% IPA | Commercial-grade poly-cellulose | Refill rolls, 150ct |
| 1608-50PK | 70% IPA | Commercial-grade poly-cellulose | Individually wrapped, 50ct |
| 1610-50PK | 99.8+% IPA | Commercial-grade poly-cellulose | Individually wrapped, 50ct |
| 1606-30PK | 90% Ethanol | Commercial-grade poly-cellulose | Individually wrapped, 30ct |



SOLVENT



70% Isopropyl Alcohol (IPA)
Controlled evaporation allows soak time for thick soils (e.g. solder paste).
 Effective on lipophilic viruses (e.g. herpes, vaccinia, and influenza)*.

99.8% Isopropyl Alcohol (IPA)
Faster evaporation for efficient cleaning (e.g. flux removal from PCB).

90% Ethyl Alcohol (Ethanol)
Lower odor and up to 4X faster dry time.
 Effective on lipophilic viruses (e.g. herpes, vaccinia, and influenza) and hydrophilic viruses (e.g. adenovirus, enterovirus, rhinovirus, and rotaviruses)*.

* Source: <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/chemical.html>

WIPE MATERIAL

Commercial-Grade Nonwoven Cellulose-Poly
 Ideal for high volume applications like SMT stencil cleaning and industrial applications.

- 5"x8" (127mm x 203mm) wipe
- More alcohol per wipe and more absorbent
- Lint-free & snag resistant
- 150 wipes per tube – 50% MORE WIPES!

Nonwoven Polyester

- 5"x8" (127mm x 203mm) wipe
- Lint-free
- 100 wipes per tub

WIPE PACKAGING



Disposable Tubs
 Low cost container can be reused, but is often discarded after use.



Flip-Top Tubs
 Reusable container with spring-loaded flip-top lid to prevent dry-out.



Refill Rolls
 Presaturated refill rolls fit both flip-top and disposable tubs to save money and reduce trash.



Individually Wrapped Wipes
 One wipe per foil pouch avoids cross-contamination and is ideal for tool boxes and field service trucks.
 Wipe size:
 5.5" x 5.5" (140mm x 140mm).

Degreasers / Contact Cleaners

Techspray offers a variety of solvents, industrial degreasers, and water-based cleaner that allows you to match the right products for your cleaning needs.

Degreasers are designed to remove grease, oils, cutting fluids, corrosion inhibitors, handling soils, finger prints, and other contamination common in assembly, stamping, other types of metal fabrication, refineries, motor repair, airplane hangars, and many other applications.

Contact cleaner are engineered to remove contamination from electrical contacts, the conductive surfaces of connectors, switches and other electrical and electronic components with moving surface contacts.

Advantages of Techspray maintenance cleaners:

- Powerful cleaners - grease and oil flow right off
- Safer solvents - do not contain TCE, nPB or Perc
- Safe on the most common plastics
- Available in spray can and bulk packaging



MAINTENANCE CLEANER SELECTION GUIDE

Maintenance cleaners clean oil and contaminants off of metal parts, printed circuit boards, barcode instruments, switch boxes, gear boxes, and engines.

| | 3400 PWR-4 Maintenance Cleaner | 1630 G3 Maintenance Cleaner | 1632 G3 Contact Cleaner | 1635 G3 Industrial Cleaner | 1638 G3 Universal Solvent | 1651 Precision-V | 2851-20S PWR4 Aviation Degreaser | 1647-16S Aviation Degreaser II | 1610 E-LINE IPA | 1620 E-LINE Maintenance Cleaner | 1622 E-LINE Contact Cleaner | 1621 E-LINE Bulk Solvent |
|-----------------------------------|--------------------------------|-----------------------------|-------------------------|----------------------------|---------------------------|------------------|----------------------------------|--------------------------------|-----------------|---------------------------------|-----------------------------|--------------------------|
| PROPERTIES | | | | | | | | | | | | |
| Nonflammable | ● | ● | ● | | ● | ● | ● | ● | | | | |
| Sensitive plastics | | | | | | ● | | ● | ● | ● | ● | |
| Evaporation rate (1=slow, 5=fast) | 5 | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 3 | 4 | 4 | 4 |
| VOC% (EPA) - Aerosol | 75 | 64 | 64 | 69 | - | 37 | 65 | 12.6 | 75 | 75 | 75 | - |
| VOC% (EPA) - Bulk | - | - | - | - | 61 | 49 | - | - | 100 | - | - | 100 |
| VOC% (CARB) - Aerosol | 75 | 75 | 75 | 69 | - | 75 | - | - | 75 | 75 | 75 | - |
| VOC% (CARB) - Bulk | - | - | - | - | 100 | 100 | - | - | 100 | - | - | 100 |
| Dielectric Strength (kV) | 24 kV | 27 kV | 36 kV | - | 27 kV | 14 kV | 12 kV | - | - | - | - | |
| kB Values | 100 | 83 | 78 | 89 | 78 | 54 | 29 | - | 87 | 87 | 8 | |
| APPLICATIONS | | | | | | | | | | | | |
| Benchtop cleaning | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Ultrasonic | ● | | | | ● | ● | | | | | | |
| Vapor degreasing | ● | | | | | | | | | | | |

NOTE: Test for substrate compatibility as a part of your qualification process.



Maintenance Cleaner

Blasts away oil and contaminants off of contacts, printed circuit boards, barcode instruments, switch boxes, gear boxes, and electronic motor controllers. Grease and oil flow right off, reducing the time and materials needed to scrub off stubborn soils.

- Nonflammable
- Much safer than most common industrial solvents — TCE, nPB, Perc & Methylene Chloride
- Powerful cleaner — Ideal for degreasing and contact cleaning
- Available in aerosol or bulk for vapor degreasing, ultrasonic and immersion cleaning
- Rapid evaporation
- Non-ozone depleting
- Cleaning applications: electronics, relays, switches & breakers, transformers, and electric motors and generators
- NSF registered K1, K2



- 3400-20S** 20 oz. (567g) aerosol
- 3400-G** 1 gal. (3.8L) pail
- 3400-5G** 5 gal. (18.9L) pail
- 3400-54G** 54 gal. (204L) drum



Transit Equipment Degreaser

Nonflammable & strong single purpose transit degreaser

Strong removal ability of an oxidized hydraulic fluid, carbonized oils and fuels, lubricating oils and greases, and other organic residues. It is fast evaporating, quick penetrating, and ideal for cleaning heavily soiled parts.

2863-20S 20 oz (567g) aerosol



- Nonflammable
- Powerful, long-reaching spray to clean hard-to-reach parts
- Fast evaporation
- Zero residue
- Non-ozone depleting
- Does not contain n-propyl bromide, trichloroethylene, perchloroethylene or methylene chloride
- Dielectric breakdown of 28 kV per ASTM D877
- Patent 10920181



Blue Shower Maintenance Cleaner

Nonflammable, powerful cleaner

Clean oil and contaminants off of metal parts, printed circuit boards, barcode instruments, switch boxes, gear relays, and electronic motor controllers.

1630-16S 16 oz. (454g) aerosol

1638-G 1 gal. (3.8L) pail

1638-5G 5 gal. (19L) pail

1638-54G 54 gal. (205L) drum



- Nonflammable
- Powerful cleaner
- Rapid evaporation
- Non-ozone depleting
- Dielectric strength – 27.3 kV
- NSF registered K1, K2

Specifications: Meets Boeing D6 17487, Rev P



TECHSPRAY®



Industrial Maintenance Cleaner

High power, fast evaporating maintenance cleaner

Blast away heavy oils and greases off of metal parts, gear boxes, and engines.

1635-20S 20 oz. (567g) aerosol



- All-in-one electronic maintenance & contact cleaner
- Rapid evaporation
- Non-ozone depleting
- Low toxicity compared to TCE, nPB & Perc
- Dielectric strength – 30.5 kV



Contact Cleaner

Nonflammable, powerful contact cleaner

Clean oxidation, oil, and other contaminants from contacts, metal switches, relays, edge connectors, buss bars, and circuit breakers.

1632-16S 16 oz. (454g) aerosol



- Nonflammable
- Powerful cleaner
- Rapid evaporation
- Non-ozone depleting
- Dielectric strength – 36.2 kV
- NSF registered K1, K2

Specifications: Meets Boeing D6 17487, Rev P



Flux Remover & Maintenance Cleaner

Nonflammable and powerful precision cleaner

Clean off flux residues, oil, and other contamination from electronics and other sensitive surfaces.

1651-16S 16 oz. (454g) aerosol

1651-5G 5 gal. (19L) pail

1651-54G 54 gal. (205L) drum



- Nonflammable
- Low VOC
- Safe on most plastics
- High precision – residue-free
- Rapid evaporation
- Non-ozone depleting
- Dielectric strength – 14 kV



Blue Shower Maintenance Cleaner

Powerful and economical aerosol cleaner

Clean oil and contaminants off of metal parts, printed circuit boards, barcode instruments, switch boxes, gear boxes, and engines.

1620-10S 10 oz. (284g) aerosol



- Powerful cleaner
- Ideal for sensitive plastics
- Low toxicity
- Non-ozone depleting
- NSF registered K1, K2



Flux Remover & Maintenance Cleaner

Powerful and economical liquid cleaner

Engineered to remove oils, fluxes and other contamination using soak cleaning process or ultrasonic equipment.

- Effective as maintenance cleaner and flux remover
- Ideal for sensitive plastics
- Non-ozone depleting

- 1621-G** 1 gal. (3.8L) pail
1621-5G 5 gal (18.9L) pail
1621-54G 54 gal. (204L) drum



Contact Cleaner

Powerful and economical electronic contact cleaner

Clean oxidation, oil, and other contaminants from contacts, metal switches, relays, edge connectors, buss bars, and circuit breakers.

- 1622-10S** 10 oz. (284g) aerosol
1622-13S 13 oz. (369g) aerosol



- Powerful cleaner
- Ideal for sensitive plastics
- Low toxicity
- Non-ozone depleting



IPA Electronics Cleaner

99.8% IPA in convenient aerosol package

Ideal for defluxing, stencil cleaning and fiber optic connector cleaning.

- 1610-12S** 12 oz. (340g) aerosol

Specifications for IPA: 99.8% IPA filtered to 0.2 microns, Fed spec TT-1-735A (amend 3, notice 2) grades A&B, ASTM D770-05



- 99.8% pure IPA
- Compliant with SCAQMD rule 1171
- Plastic safe
- Low toxicity
- Non-ozone depleting



Eco-Shine™ Glass & Surface Cleaner

Eco-friendly, nonflammable, streak-free glass cleaner

Cleans glass, stainless steel, chrome, mirrors, tile, plastic, ceramic and enamel and leaves a streak-free finish.

1505-QT 1 qt. (0.95L) w/ trigger sprayer

- Streak-free
- Nonflammable
- Non-ammoniated – safe on sensitive surfaces
- Low VOC, no GWP
- Non-ozone depleting
- NSF registered K1, K2



Glass Cleaner

Foaming aerosol glass and surface cleaner

1625-18S 18 oz. (510g) aerosol



- Foaming action
- Streak-free
- Safe on glass & plastics
- Nonflammable

Specifications: GM H1018, Ford Tox #142432

Label & Adhesive Remover

Fast acting, citrus-based label and adhesive remover

Citrus-based solvent safely and effectively removes labels and adhesive gums off equipment and products. Penetrates quickly and allows label to be peeled off without gummy residue.

1613-6S 4.5 oz. (128g) aerosol



- Removes labels and adhesive without scraping
- Penetrates rapidly
- Citrus-based solvent
- Safe on most plastics

Note: Not available in California



Specialized Degreasers for Aviation and Aircraft Parts

Techspray offers degreasers, presaturated wipes, and oxygen line validation fluid engineered specifically for the critical needs of aerospace and aviation MRO applications. Products are manufactured to strict quality standards and are tested to a wide variety of aviation specifications, including Boeing D6 17487, Boeing BSS7432, Airbus UK ABR9-0140 and NASA/TP-2015-218207.

For the full selection of Techspray's aerospace and aviation MRO products, check out the "Aviation Cleaning & Maintenance Selection Guide" or go to www.techspray.com/aviation.



Aviation Degreaser

Exceptional nonflammable cleaner for aircraft parts degreasing

Specially engineered aviation degreaser featuring powerful removal of hydraulic fluid, fuel oils, lubricating oils and greases, and other organic residues. PWR-4 Aviation Degreaser features a powerful, long reaching spray to clean hard-to-reach parts from as far as 10 feet.

2851-20S 20 oz (567g) aerosol

Specifications: Meets Airbus UK ABR9-0140 General Purpose Cleaning Solvent, FedEx CPN 0311737, Boeing D6 17487, Rev T



- Nonflammable
- Fast evaporation
- Zero residue
- Non-ozone depleting
- Does not contain n-propyl bromide
- Dielectric breakdown of 13.7 kV
- CARB compliant

Aviation 2000 Degreaser

High pressure cleaner to quickly flush out grease & other soils

Quickly blast away encrusted dirt, carbonized oils, grease and Skydrol from aircraft engine housings, parts and avionic components. Can be used as an electronic contact and plug cleaner for non-energized equipment. Excellent wetting action lifts and removes soils from the tightest areas.

2859-13S 13 oz. (369g) aerosol

Specifications:

Boeing BSS7432, Douglas CSD No.1



- Trigger allows for greater control of spray, providing a throttling action for better controlled cleaning
- Moderate evaporation for soak-in time
- Zero residue
- Low toxicity - does not contain n-propyl bromide
- Does not contain CFCs, HCFCs or chlorinated solvents
- Meets EU F-gas requirements
- 360° valve sprays upside-down
- Extension tube included for pin-point accuracy

Techspray Clean & Prep Wipes

High pressure cleaner to quickly flush out grease & other soils

Clean & Prep Pre-Saturated Wipes combine aerospace approved chemistries and wiping material in easy-to-use dispensing tubs. Four solvents are available for paint and composite prep: isopropyl alcohol (IPA), acetone, methyl ethyl ketone (MEK), methyl propyl ketone (MPK). Pre-saturated nonwoven, lint-free, durable rayon material reduces solvent consumption, environmental release of volatile chemicals (e.g. VOCs), accidental spills, and worker exposure. Consistent wipe saturation allows for greater efficiency, error-free process repeatability, and final quality compared to saturating shop rags as you go.



2811-100-69-C

2813-100-69-C



Flux Removers

Flux removers (defluxers) remove flux residues and other contaminants left by manufacture, rework, or repair of printed circuit boards. Residues from higher, lead-free temperatures are more baked on and harder to clean. PWR-4™, G3®, E-LINE™ and Precision-V™ flux removers have been proven very effective at removing fluxes baked on at lead-free temperatures.

Micro-components and fine pitch leads are delicate and easily damaged, so brushing and scrubbing should be avoided if possible. Both G3, E-LINE™ and Precision-V have a powerful spray and strong solvent that blasts off residues and cleans areas under components that a brush cannot touch.

Techspray offers traditional solvent-based cleaners and cutting edge water-based technologies marketed under the Techspray Renew™ brand.



TECHSPRAY RENEW™ branded cleaners are innovative solutions that combine the best of current “green” technologies to make the most powerful eco-friendly cleaners on the market.



All Techspray flux removers have the following advantages:

- Help create bright, shiny solder joints
- Improve PCB reliability
- Prevent conformal coating defects
- Prevent corrosion from contamination
- RoHS compliant

FLUX REMOVER SELECTION GUIDE

| | 3401 PWR-4 Flux Remover | 1631 G3 Flux Remover | 1634 G3 No-Clean Flux Remover | 1638 G3 Bulk Solvent | 1651 Precision-V | 1610 E-LINE IPA | 1621 E-LINE Flux Remover | 1550 Eco-dFluxer-SMT100 | 1520 Eco-dFluxer-SMT200 | 1530 Eco-dFluxer-SMT300 |
|-----------------------------------|-------------------------|----------------------|-------------------------------|----------------------|------------------|-----------------|--------------------------|-------------------------|-------------------------|-------------------------|
| PROPERTIES | | | | | | | | | | |
| Nonflammable | ● | ● | ● | ● | ● | | | ● | ● | ● |
| Sensitive plastics | | | | | ● | ● | ● | ● | ● | ● |
| Evaporation rate (1=slow, 5=fast) | 5 | 5 | 5 | 5 | 5 | 3 | 4 | 1 | 1 | 1 |
| VOC% (EPA) - Aerosol | 73 | 64 | 64 | - | 37 | 75 | 75 | - | - | - |
| VOC% (EPA) - Bulk | 95 | - | - | 61 | 49 | 100 | - | 45 | 22 | 52 |
| VOC% (CARB) - Aerosol | 70 | 75 | 75 | - | 75 | 75 | 75 | - | - | - |
| VOC% (CARB) - Bulk | 100 | - | - | 100 | 100 | 100 | - | 45 | 52 | 22 |
| kB Values | 100 | 83 | 83 | 78 | 54 | - | 87 | - | - | - |
| APPLICATIONS | | | | | | | | | | |
| Benchtop cleaning | ● | ● | ● | ● | ● | | ● | ● | | |
| Ultrasonic | ● | | | ● | ● | | | + | + | + |
| Vapor degreasing | ● | | | | ● | | | | | |
| Inline defluxing system | | | | | | | | ● | ● | ● |
| Batch defluxing system | | | | | | | | ● | ● | ● |

NOTE: Test for substrate compatibility as a part of your qualification process.

+ Rinse required





Solvent Defluxers



Flux Remover

Powerful, nonflammable and cost effective cleaner

Cleans away flux residues and other contaminants in vapor cleaning and ultrasonic application. Easily removes residues from high temperature lead free soldering operations, no-clean fluxes and all handling soils.

- 3401-G** 1 gal. (3.8L) pail
- 3401-5G** 5 gal. (18.9L) pail
- 3401-54G** 54 gal. (204L) drum



- Nonflammable
- Much safer than most common industrial solvents — TCE, nPB, Perc & Methylene Chloride
- Powerful cleaner - Effective on R, RMA & no-clean fluxes
- Available in bulk for vapor degreasing, ultrasonic and immersion cleaning
- Rapid evaporation
- Non-ozone depleting



Flux Remover

Strong and fast-acting flux remover

Remove flux residues and other contaminants left by manufacture, rework, or repair of printed circuit boards.

- 1631-5S** 5 oz. (142g) aerosol w/brush attachment
- 1631-16S** 16 oz. (454g) aerosol
- 1631-16SB** 16 oz. (454g) aerosol w/brush attachment



- Nonflammable
- Powerful cleaner
- Proven effective for lead-free processes
- All-in-one cleaner and defluxer
- Rapid evaporation
- Non-ozone depleting

Specifications: Meets Boeing D6 17487, Rev P



No-Clean Flux Remover

Strong and fast-acting no-clean flux remover

Remove no-clean flux and white residues left by manufacture, rework, or repair of printed circuit boards.

- 1634-12S** 12 oz. (340g) aerosol



- Nonflammable
- Ideal for no-clean fluxes
- Proven effective for lead-free processes
- Rapid evaporation
- Non-ozone depleting

Specifications: Meets Boeing D6 17487, Rev P



Universal Cleaner

Nonflammable, powerful liquid cleaner

Engineered to remove oils, fluxes and other contamination from electronics using a manual soak cleaning process or ultrasonic equipment.

- 1638-G** 1 gal. (3.8L) pail
- 1638-5G** 5 gal. (19L) pail
- 1638-54G** 54 gal. (205L) drum



- Nonflammable
- Powerful cleaner
- Effective as maintenance cleaner and flux remover
- Rapid evaporation
- Non-ozone depleting
- Dielectric strength – 27.3 kv



PRECISION V

Flux Remover & Maintenance Cleaner

Nonflammable and powerful precision cleaner

Formulated to reduce VOCs within your facility. Ideal for aviation and other applications where strict VOC caps apply (based on EPA VOC exemptions). Bulk chemicals ideal for soak cleaning and ultrasonics (not intended for vapor degreaser).

- Nonflammable
- Low VOC
- High precision – residue-free
- Rapid evaporation
- Non-ozone depleting
- Safe on most plastics

1651-16S 16 oz. (454g) aerosol

1651-5G 5 gal. (19L) pail



1651-16S



Flux Remover & Maintenance Cleaner

Powerful and economical flux remover

Hydrocarbon-based defluxer formulated to be powerful, yet very economical. Eliminates brushing and scrubbing, saving time and materials.

1621-10S 10 oz. (283g) aerosol

1621-10SB 10 oz. (283g) aerosol w/brush attachment

1621-G 1 gal. (3.8L) can

1621-5G 5 gal (19L) pail

1621-54G 54 gal (205L) drum



1621-G

1621-10S

1621-10SB

1621-5G

- Powerful cleaner
- Proven effective for lead-free processes
- Ideal for sensitive plastics

Specifications: GM H1013; Ford Tox #142431, USDA: NSF registered K-2 aerosol and bulk.



Vapor Degreaser Solvents

Techspray offers a wide variety of vapor degreaser formulas engineered to meet challenging requirements like cleanliness specifications, difficult-to-clean soils, solvent-sensitive materials, and restrictive regulations.

All Techspray solvents have azeotropic properties that allow them to remain stable as they are cycled in a vapor degreaser. They are not reactive or corrosive to metals commonly found in the construction of vapor degreasers.

PWR-4™ solvents are designed to replace nPB, TCE and Perc, matching and surpassing cleaning performance without the safety concerns.

Precision-V™ vapor degreaser solvents are ideal replacements for AK-225 based cleaners, which were phased out due to the ozone depletion restrictions of the Montreal Protocol.

To order, add the following to the part # shown in the chart below:
 -1G for 1 gal. (3.8L)
 -5G for 5 gal. (19L)
 -54G for 54 gal. (205L)



Vapor Degreaser Solvents

| Part # | Product Name | Base Solvents | kB value | Boiling Point (°F/°C) | VOC (g/l) | GWP | Degreasing | Defluxing | Plastic-Safe |
|--------|--------------------------|--------------------|----------|-----------------------|-----------|-----|------------|-----------|--------------|
| 1654 | VC-1200 | DuPont Vertrel® XF | 56 | 94/34 | 552 | 684 | ● | | |
| 1655 | VC-1500 | DuPont Vertrel® XF | 62 | 90/32 | 562 | 663 | | ● | |
| 1656 | VC-1600 | DuPont Vertrel® XF | 100 | 106/41 | 1063 | 264 | | ● | |
| 1686 | ME-1500 | 3M Novec 7100/7200 | 58 | 104/40 | 889 | 43 | ● | ● | |
| 1680 | AE-1000 | Asahi AE3000 | ~0 | 133/56 | ND | 540 | | | ● |
| 1681 | AE-1400 | Asahi AE3000 | ND | 139/54 | ND | 540 | ● | ● | ● |
| 3400 | PWR4 Maintenance Cleaner | 3M Novec 7100 | 100 | 118/48 | 1201 | ND | ● | | |
| 3401 | PWR4 Flux Remover | 3M Novec 7100 | 100 | 118/48 | 1201 | ND | | ● | |

ND=Not Defined



Water-Based Defluxers

Eco-dFluxer

Water-based Inline & Batch Flux Removers

Eco-dFluxer cleaners are water-based, environmentally friendly and designed to work in both inline and batch cleaning equipment. They are optimal combinations of solvents and saponifiers that lower surface tension for penetration under low stand-offs, and powerful cleaning action to remove all flux residues.

Effective on a wide variety of solders and fluxes: lead, lead-free, aqueous, RMA, no-clean, and new halide-free fluxes. High compatibility with common PCB metals and plastics. Eco-dFluxer cleaners are highly filterable with long bath life.

High performance cleaning gives you brilliant solder joints and allows you to increase dilution, increase line speeds, reduce waste water, decrease cost per board, and most importantly... eliminate field failures due to ionic contamination!

- High performance cleaning
- Nonflammable
- Low VOC, zero GWP
- Also used for pallet cleaning in batch systems

Eco-dFluxer SMT100

Powerful defluxer, allowing you to optimize your cleaning process. Reduce concentration and increase line speed to maximize your profit. Effective on no-clean, R, RMA and OA fluxes.

| | |
|-----------------|----------------------|
| 1550-G | 1 gal. (3.8L) bottle |
| 1550-54G | 54 gal. (205L) drum |

Eco-dFluxer SMT200

Superior metals compatibility, preventing oxidation and leaving shiny solder joints. Eco-friendly formula reduces shipping and disposal costs. Effective with reduced concentration even on the toughest no-clean, R, RMA, OA and new halide-free fluxes.

| | |
|-----------------|----------------------|
| 1520-G | 1 gal. (3.8L) bottle |
| 1520-54G | 54 gal. (205L) drum |



Eco-dFluxer SMT300

Powerful defluxer but safe on sensitive metals, preventing oxidation and leaving shiny solder joints. Safe, eco-friendly formula. Effective on no-clean, R, RMA, OA fluxes and new halide-free fluxes.

| | |
|-----------------|------------------------|
| 1530-G | 1 gal. (3.8L) bottle |
| 1530-5G | 5 gal. (19L) container |
| 1530-54G | 54 gal. (205L) drum |

Defoamer DF1

Defoaming Agent for Inline & Batch Cleaners

Reduce foaming as cleaner becomes loaded to extend bath life. Add directly to sump at 1 to 4 fl oz. (30-120ml) per 100 gallons (379L). Dilute in spray bottle to 15% with DI water to eliminate foaming issue on the spot.

- Effective at all processing temperatures
- Extends bath life
- Silicone & particulate free
- Nonflammable

| | |
|---------------|-------------------------|
| 1555-P | 1 pt. (473mL) container |
|---------------|-------------------------|





Stencil Cleaners

Eco-Stencil UM

Manual & Under Stencil Cleaner

- Quickly clean paste or uncured adhesive
- Safe for stencils, tools, misprinted boards
- Nonflammable
- Low VOC, zero GWP

Applications:

- Manual stencil tool, work surface, and squeegee cleaning
- Automatic underside wipe stencil cleaning
- Batch ultrasonic cleaning
- Removes unsoldered leaded & lead-free solder pastes
- Cleans off uncured adhesives

1570-100DSP 100 count pre-saturated wipes, 6"x8" (15cm x 20cm)

1570-QT 1qt. (0.95L) w/ trigger sprayer



1570-QT

1570-100DSP

Specification: Compliant with Speedline / ITW EAE compatibility criteria for Accelta, Momentum and MPM 125 printers.

Eco-Stencil RF

Rinse-Free Batch Stencil Cleaner

1571-G 1 gal. (3.8L) bottle



1571-G

- Nonflammable
- Rinse-free
- Drop in replacement for IPA
- Effective at ambient temperature
- Low VOC, zero GWP
- Highly concentrated - 20% dilution

SMT Equipment Maintenance

Eco-Oven

Reflow Oven, Wave Finger & Pallet Cleaner

- Quickly clean flux residue from oven & wave fingers
- Safe on warm ovens
- Nonflammable
- Low VOC, zero GWP

Applications:

- Removal of baked-on flux residues from SMT oven and wave equipment
- Maintenance cleaning for heat exchange systems (NOTE: rinse thoroughly from aluminum and copper)
- Finger cleaning in wave solder equipment
- Remove accumulated flux from wave solder pallets

1573-QT 1 qt. (0.95L) w/ trigger sprayer



1573-QT



Wave finger cleaning



ESD Products



LICRON CRYSTAL

Permanent ESD Coating

- Rugged static dissipative coating
- Surface resistivity of 10^6 To 10^9 ohms
- Operating temperature range – up to 302°F (155°C)
- Humidity independent
- Superior adhesion to variety of surfaces: glass, plastic, etc.
- Non-ozone depleting

1756-8S 8 oz. (226g) aerosol (coats up to 200ft²)

1756-G 1 gal. (3.8L) jug

1756-54G 54 gal. (204L) drum



1756-8S



Zero Charge Anti-Stat Coating

Anti-static coating for fabrics & flexible surfaces

- All-purpose static control
- For plastics, fabrics, and carpet
- Fast drying
- Nonflammable

1726-QT 1 qt. (.95L) bottle with trigger sprayer



Zero Charge Mat & Tabletop Cleaner

Safe, effective cleaner for ESD mats

- Rejuvenates ESD-safe mats
- Will not dry out surfaces
- Leaves no insulative film
- Nonflammable
- No ammonia
- Non-corrosive

1733-QT 1 qt. (.95L) bottle with trigger sprayer

1733-G 1 gal. (3.8L) bottle



1733-QT

Zero Charge® ESD-Safe Floor Coating

ESD-safe floor coating

- Resistivity between 10^6 To 10^{10}
- Effective in low humidity
- High gloss polymer
- Zinc free
- Slip resistant

1720-G 1 gal. (3.8L) bottle (coats @1,200 ft²)



1720-G

Zero Charge Hand Lotion

Non-contaminating hand lotion for ESD sensitive environments

- Improves wrist and heel strap contact
- Does not contain silicone or lanolin
- Non-contaminating — does not interfere with soldering
- Non-greasy

1702-8FP 8 fl. oz. (237ml) bottle with finger pump

1702-G 1 gal. (3.8L) bottle



1702-8FP

Zero Charge Screen & Keyboard Cleaner

Cleans surfaces and leaves behind dissipative residue

1743-50PK 50 pre-saturated wipes in packets

1743-QT 1 qt. (.95L) bottle w/trigger sprayer



1743-50PK



1743-QT

- Cleans plastic & glass
- Leaves ESD-safe coating
- Leaves no insulative film
- Nonflammable
- Non-corrosive



Conformal Coatings

Techspray offers a variety of coating formulas to match field and engineering requirements. Specifications generally depend on the type of protection needed: e.g. thermal, moisture, and static resistance (see reference chart on the next page).

Application method considerations:

Dip – High volume method to fully coat boards. Thickness of final coating is controlled by viscosity and withdrawal speed from the pot.

Selective spray system – Computer controlled selective spray systems, eliminate the need for masking. Higher viscosity than full coverage sprayer is generally needed (70-200 cps) to create precise edge definition and prevent splattering.

Manual Application – Aerosol and brushing are generally used for small production runs, rework and repair. If using for rework, the aerosol needs to be compatible with the original coating.



FINE-L-KOTE™ SR

Silicone coating that's ideal for moisture and vibration protection

Standard Viscosity — 4-10 CPS

Coverage (1 mil dry film):
 1 aerosol can - 16 ft² (1.5 M²)
 1 gal. liquid - 224 ft² (20.8 M²)

- 2102-12S** 12 oz. (355ml) aerosol
- 2102-P** 1 pt. (473ml) can
- 2102-G** 1 gal. (3.8L) can

High Viscosity — 60-90 CPS

- 2102-GHV** 1 gal. (3.8L) pail



2102-12S

- UL recognized
- Thermal resistance — to 392°F (200°C)
- Dielectric strength — 1100 volts/mil
- Moisture resistant
- Chemically resistant
- Vibration resistant — flexible

Specifications: Meets or exceeds IPC-CC-830B. UL94 V-0 rated. Passes the laboratory tests of MIL-I-46058C. However, it is not qualified on QPL-46058.



FINE-L-KOTE™ SRV

Low VOC coating that's ideal for corrosion, moisture, thermal and vibration protection

Fine-L-Kote SRV – Standard Viscosity

- 2127-P** 1 pint / 0.47L liquid
- 2127-G** 1 gallon / 3.8L liquid
- 2127-5G** 5 gallon / 18.9L liquid
- 2127-54G** 54 gallon / 204L liquid

Fine-L-Kote SRV 950 – High Viscosity

- 2127-P950** 1 pint / 0.47L liquid
- 2127-G950** 1 gallon / 3.8L liquid
- 2127-5G950** 5 gallon / 18.9L liquid
- 2127-54G950** 54 gallon / 204L liquid

- Low VOC
- High gloss, superior transparency
- Thermal resistance - 392°F (200°C)
- Dielectric strength - 720 volts/mil
- Moisture and chemically resistant
- Vibration resistant & flexible
- Low toxicity — HAPs free
- Meets IPC-CC-830B
- UL 94 V-0 flammability rating
- Meets MIL-STD 810G & MS941-04 salt spray tests

Specifications: Meets or exceeds IPC-CC-830B. UL94 V-0 rated. Passes the laboratory tests of MIL-I-46058C. However, it is not qualified on QPL-46058.





FINE-L-KOTE™ HT

Silicone coating engineered for superior thermal and moisture resistance

Coverage (1 mil dry film):
 1 aerosol can - 20 ft² (1.9 M²)
 1 gal. liquid - 880 ft² (81.8 M²)

2106-12S 12 oz. (355ml) aerosol
2106-G 1 gal. (3.8L) can



2106-12S

- Designed for high temperature environments
- Fast-drying silicone – 1-step process
- Thermal resistance – to 662°F (350°C)
- Dielectric strength – 560 volts/mil
- Moisture resistant
- Vibration resistant – flexible

Specifications: Meets or exceeds IPC-CC-830B. UL94 V-0 rated. Passes the laboratory tests of MIL-I-46058C. However, it is not qualified on QPL-46058.

FINE-L-KOTE™ LED2

Silicone conformal coatings designed to coat over LEDs

Coat directly over LEDs without the time and expense of masking. Optical clarity prevents light from diffusing, scattering, or changing wavelength. Fine-L-Kote LED provides maximum protection from extreme temperatures on the flexible and rigid PCBs found in LED displays.

Coverage (1 mil dry film):
 1 gal liquid - 723 ft² (67.2 m²)

2125-P 1 pt. / 473 mL can
2125-G 1 gal / 3.7 L liquid
2125-5G 5 gal / 18.5 L liquid



2125-G

- Fully transparent - will not block or change light intensity or wavelength
- Protects against adverse environments
- Flexibility prevents cracking
- Resists moisture, salt, fungus and corrosive vapors from severe environments
- Withstands high heat from PCB and operating environment
- Thick film build
- High gloss -- repels dirt & dust
- Low VOC

FINE-L-KOTE™ AR

Acrylic Conformal Coating

Coverage (1 mil dry film):
 1 aerosol can - 12 ft² (1.1 M²)

2103-12S 12 oz. (355ml) aerosol
2103-5G 5 gal. (19L) pail



2103-12S

- Fast & easy rework & repair
- UV indicator for black light QC inspection

FINE-L-KOTE™ UR

Urethane Conformal Coating

Coverage (1 mil dry film):
 1 aerosol can - 10 ft² (0.9 M²)
 1 gal. liquid - 320 ft² (29.7 M²)

2104-12S 12 oz. (355ml) aerosol
2104-G 1 gal. (3.8L) can
2104-5G 5 gal. (19L) pail



2104-12S

- Thermal resistance – to 248°F (120°C)
- Dielectric strength – 380 volts/mil
- Moisture resistant
- Chemically resistant
- Abrasion resistant
- UL94 V-0 – nonflammable final coat

Specifications: Meets or exceeds IPC-CC-830B. UL94 V-0 rated. Passes the laboratory tests of MIL-I-46058C. However, it is not qualified on QPL-46058.





TURBO-COAT™ Acrylic Conformal Coating

Coverage (1 mil dry film):
1 aerosol can - 14 ft² (1.3 M²)
1 gal. liquid - 272 ft² (25.3 M²)

- 2108-12S** 12 oz. (355ml) aerosol
- 2108-P** 1 pt. (473mL) can
- 2108-G** 1 gal. (3.8L) can
- 2108-5G** 5 gal. (19L) pail



2108-12S

- Fastest cure – dry to touch in 3 minutes!
- Low toxicity
- No Toluene, Xylene or MEK
- UL94 V-0 rated – nonflammable final coat
- Fast & easy rework & repair
- UV indicator for black light QC inspection

Specifications: Meets or exceeds IPC-CC-830B. UL94 V-0 rated. Passes the laboratory tests of MIL-I-46058C. However, it is not qualified on QPL-46058.

CONFORMAL COATING SELECTION GUIDE

| | 2127 Fine-L-Kote SRV | 2127-950 Fine-L-Kote SRV 950 | 2102 Fine-L-Kote SR | 2103 Fine-L-Kote AR | 2104 Fine-L-Kote UR | 2106 Fine-L-Kote HT | 2108 Turbo-Coat |
|-------------------------------------|--|--|--|--|--|-----------------------------|------------------------------|
| Product Benefits | Moisture & Vibration Resistant | Moisture & Vibration Resistant | Moisture & Vibration Resistant | Economical | Durable & Chemically Resistant | High Operating Temperature | Economical With Fastest Cure |
| Selective Spray System | ● | ● | ○ | ○ | ● | ● | ○ |
| Atomized Spray System | ● | ● | ○ | ○ | ○ | ○ | ○ |
| Dip | ● | ● | ● | ○ | ● | ● | ● |
| Aerosol Available | NO | NO | YES | YES | YES | YES | YES |
| Thermal Resistant | ● | ● | ● | ○ | ○ | ● | ○ |
| Moisture /Fungus Resistant | ● | ● | ● | ○ | ● | ● | ○ |
| Chemical Resistant | ● | ● | ● | ○ | ● | ● | ○ |
| Vibration Resistant | ● | ● | ● | ○ | ○ | ● | ○ |
| Ease of Rework | ● | ● | ● | ● | ○ | ● | ● |
| Tack Free Time (minutes) | 10 | 10 | 60 | 15 | 15 | 45 | 3 |
| Accelerated Cure Time/Temp | 2 Step 30 Min.@ 32°C 45 Min.@ 93°C | 2 Step 30 Min.@ 32°C 45 Min.@ 93°C | 2 Step 30 Min.@ 32°C 45 Min.@ 93°C | 2 Step 20 Min.@ 120°F 30 Min.@ 180°F | 2 Step 20 Min.@ 49°C 30 Min.@ 82°C | 1 Step 15 Min.@ 49°C | 1 Step 20 Min.@ 65°C |
| Ambient Cure Time | 24 Hrs. | 24 Hrs. | 72 Hrs. | 24 Hrs. | 24 Hrs. | 24 Hrs. | <15 Hrs. |
| IPC-CC-830 Qualified | | | YES | NO | YES | YES | YES |
| UL 94 Rated | V-0 | V-0 | V-0 | | V-0 | V-0 | V-0 |
| Solids Content (% by weight) | 48% | 85% | Aerosol 11% Bulk 14% | Aerosol 6.1% Bulk 21% | Aerosol 7% Bulk 20% | Aerosol 16% Bulk 25% | Aerosol 7% Bulk 17% |
| Viscosity (centipoise) | Bulk 82 | Bulk 950 | Aerosol 4-10 Bulk 4-10 | Aerosol 22 Bulk 44 | Aerosol 12-22 Bulk 10-20 | Aerosol 15-25 Bulk 15-25 | Aerosol 10-20 Bulk 15-25 |
| UV Indicator | YES | YES | YES | YES | YES | YES | YES |
| Operating Temp Range | -65° to 200° C | -65° to 200° C | -65° to 200° C | -65° to 125° C | -30° to 121° C | -40° to 350° C | -65° to 125° C |
| Dielectric Strength | 720 kV/Mil | 720 kV/Mil | 1.1 kV/Mil | 2086 kV | 380 V/Mil | 560 V/Mil | 1 kV/Mil |
| Dielectric Constant | 1.017 | 1.017 | 2.66 | 3.1 | 3.8 | 2.5 | |
| Insulation Resistance (ohms) | >1.4 x 10 ¹² | >1.4 x 10 ¹² | 6.87 x 10 ¹⁵ | 4 x 10 ¹³ | 1.78 x 10 ¹⁶ | 1.33 x 10 ¹⁶ | 4.89 x 10 ¹⁶ |
| VOC | Bulk 13% | Bulk 4% | Aerosol 46% Bulk 58% | Aerosol 29% Bulk 54% | Aerosol 52% Bulk 54% | Aerosol 51% Bulk 79% | Aerosol 33% Bulk 64% |

Key: ● = Best ○ = Acceptable ○ = Not applicable / Not recommended



TURBO-COAT HV™

Acrylic Conformal Coating

Coverage (1 mil dry film):
1 gal. liquid - 391 ft² (36.3 M²)

2109-P 1 pt. (473mL) can

2109-G 1 gal. (3.8L) can

2109-5G 5 gal. (19L) pail

- Designed for selective sprayers
- Low toxicity
- No Toluene, Xylene or MEK
- Dry to touch in under 10 minutes!
- UL94 V-0 – nonflammable final coat

Specifications: Meets or exceeds IPC-CC-830B. UL94 V-0 rated. Passes the laboratory tests of MIL-I-46058C. However, it is not qualified on QPL-46058.



2109-G

2109-5G

| | 2109 Turbo-Coat HV | 2125 Fine-L-Kote LED2 |
|--|------------------------------|--|
| | Economical With Fastest Cure | Optically Clear |
| | ● | ● |
| | ● | ● |
| | ● | ● |
| | USE 2108-12S | NO |
| | ○ | ● |
| | ○ | ● |
| | ○ | ● |
| | ○ | ● |
| | ○ | ● |
| | 9 | 10 |
| | 1 Step 55 Min. @ 55°C | 2 Step 30 Min. @ 32°C 45 Min. @ 93°C |
| | <15 Hrs | 24 Hrs. |
| | YES | YES |
| | V-0 | V-0 |
| | Bulk 24% | Bulk 48% |
| | Bulk 55-60 | Bulk 66-76 |
| | YES | NO |
| | -65° to 125° C | -65° to 200° C |
| | 1 kV/Mil | 1 kV/Mil |
| | | 720 kV/Mil |
| | 4.89 x 10 ¹⁶ | >1.4 x 10 ¹² |
| | Bulk 7% | Bulk 13% |

FINE-L-KOTE™ Conformal Coating Remover XT Safer Conformal Coating Stripper

- Strong cleaner for dissolving most common types of coatings
- Removes silicones, acrylics, urethanes and one component epoxies
- Safer solvent – no MEK, xylene and other highly toxic solvents
- Non-corrosive
- Non-ozone depleting

2130-G 1 gal. (3.8L) can

2130-5G 5 gal. (19L) pail

2130-54G 54 gal. (204L) drum



2130-G

Conformal Coating Remover

Quickly and precisely removes most conformal coatings including acrylic, urethane, and silicone.

- Fast stripping action
- Non-corrosive
- Rapid evaporation

2510-N 10 ml pen

2510-P 1 pt. (473mL) can



2510-N



2510-P

Turbo-Coat Thinner

Thinner ideally matched to Turbo-Coat coatings

2110-P 1 pt. (473mL) can

Temporary Solder Masks

Techspray's WonderMASK is the industry leading temporary solder mask brand because of quality and versatility. Depending on the product, mask can be peeled off manually, or washed off in a batch or inline system.

All Techspray WonderMASK products have the following advantages:

- Can be cured in pre-heat
- Withstands lead-free soldering temperatures up to 640°F (343°C) in wave soldering process
- RoHS compliant



Washable Masks *Used with aqueous cleaning processes.*

WonderMASK WSOL

Water-washable mask, safe on ion beds and filters

Ideal water-washable mask for closed-loop systems. Quickly and easily removed with in-line and batch cleaning system.

- 2204-8SQ** 8 fl. oz. (237mL) squeeze bottle
2204-G 1 gal. (3.8L) bottle



2204-8SQ

- 100% Water-soluble
- Safe on ion beds & filters in closed-loop cleaning systems
- Non-corrosive
- Low odor

WonderMASK W

Nonflammable, water-washable

Quick drying water-washable mask. Quickly and easily removed with in-line and batch cleaning systems.

Note: do not use in closed-loop wash systems.

Hand Applications:

- 2205-8SQ** 8 fl. oz. (237mL) squeeze bottle
2205-G 1 gal. (3.8L) bottle

Robotic & Pneumatic Applications:

- 2206-G** 1 gal. (3.8L) bottle



2205-8SQ

- Water washable
- Non-corrosive
- Low odor
- Nonflammable

Specifications: Meets MIL-STD-2000 paragraph 5.3.18 parts a,b, and d. (2206) HP 8500-4214

TEMPORARY SOLDER MASK SELECTION GUIDE

| PRODUCT | APPLICATION | VISCOSITY | SUGGESTED THICKNESS | THINNER | CURE TIME | REMOVAL |
|----------------------|------------------------------------|---------------------|---------------------|------------|---|-------------------------------------|
| PEELABLE | | | | | | |
| 2211 WonderMASK P | Template, Hand, Pneumatic, Robotic | 28,000 – 32,000 cps | 20 – 30 mils | D.I. Water | 1 hr. Ambient 30 min. @65° C 20 min. @82° C | Peelable |
| 2222 WonderMASK PX | Hand Applied | 9,000 – 16,000 cps | 15 mils | D.I. Water | 15 min. Ambient | Peelable |
| TC-533 Techform | Hand Applied | 9,000 – 15,000 cps | 15 mils | D.I. Water | 1 hr. min. Ambient 30 min. @65° C | Peelable |
| WATER-SOLUBLE | | | | | | |
| 2204 WonderMASK WSOL | Hand, Pneumatic | 11,500 – 15,500 cps | 5 – 15 mils | Methanol | 30 min. @65° C | Soluble in Water 49° C or higher |
| 2205 WonderMASK W | Hand Applied | 8,000 – 12,000 cps | 10 – 15 mils | D.I. Water | 30 min. @80° C 1-2 hrs. Ambient | Soluble in Water 49° C or higher |
| 2206 WonderMASK W | Pneumatic, Robotic | 6,050 – 6,450 cps | 10 – 15 mils | D.I. Water | 1-2 hrs. Ambient 30 min. @80° C | Soluble in Water 49° C or higher |




Peelable Masks *Used with solvent cleaning and no-clean processes.*
WonderMASK PX

Natural latex peelable solder mask with fastest cure time.

Natural latex temporary solder mask that is specially formulated to cure in half the time of other masks.

WonderMASK PX cures over its entire surface area, including where it adheres to the PCB. This allows it to be peeled quickly and easily when other masks are still sticky at the bottom. Even the thickest bead of mask cures completely.

Specifications: Meets MIL-STD-2000 paragraph 5.3.18 parts a, b, and d.

- Fastest full cure
- Easily peelable
- Highest strength to avoid breakage
- Nonflammable

2222-8SQ 8 fl. oz. (237ml) squeeze bottle
2222-G 1 gal. (3.8L) bottle



2222-8SQ



WonderMASK PX peels after 15 min.



Typical mask after 15 min.

WonderMASK P

Non-ammoniated, low odor peelable mask

Techspray's original ammonia-free synthetic latex peelable solder mask.

Specifications: MIL-STD-2000 paragraph 5.3.18 parts a,b, and d. Ford Tox #039772.

2211-8SQ 8 fl. oz. (237mL) squeeze bottle
2211-G 1 gal. (3.8L) bottle
2211-5G 5 gal. (19L) pail
2211-54G 54 gal. (205L) drum



2211-8SQ

- Easily peelable
- Low odor
- Cure indicator – darkens as it cures
- Compatible with gold and copper leads
- Non-corrosive
- Nonflammable

Techform TC-533 Peelable Mask

Techform TC-533 peelable mask is a high-temperature flexible solder masking compound specially formulated of natural latex rubber. Prevent solder from flowing into contacts, terminals, screw heads and plated through holes.

Latex has been chemically enhanced so that it is heat stable enough for wave soldering processes. Effectively mask and protect the board from the time it is manufactured, through all assembly and reflow operations.

NOTE: Not recommended on bare copper because ammonia may cause discoloration.

- Fast cure
- Easily peelable
- Will not tarnish gold or phosphor bronze
- Protects delicate components
- Nonflammable

53-4008-0533
8 fl. oz (237mL) squeeze bottle

53-4003-0533
1 gal. (3.8L) bottle



53-4008-0533



Freeze Sprays

Freeze sprays blast fast evaporating liquid that super-chills isolated areas. Used as a troubleshooting aid for intermittently faulting capacitors, resistors, semiconductors, and other defective components. They also increase visibility of cold solder joints, cracks in printed circuit boards and oxidized junctions.

- Nonflammable
- Safe on plastics
- Zero residue
- Moisture free
- Non-ozone depleting
- VOC exempt

Freeze Spray

Pure HFC-134a Freeze Spray

- Chills down to -60°F (-51°C)
- Nonflammable
- Safe for energized equipment

1672-10S 10 oz. (283g) aerosol

1672-15S 15 oz. (425g) aerosol



1672-10S



1672-15S



Anti-Static Freeze Spray

ESD-Safe Diagnostic Freeze Spray

1747-10S 10 oz. (283g) aerosol



1747-10S

- Avoids static build-up
- Prevents latent failures
- Chills down to -60°F (-51°C)
- Nonflammable
- No frost buildup

Eco-Freezer

Eco-Friendly Freeze Spray

Eco-Freezer is formulated with new HFO-1234ze propellant, with a fraction of the global warming potential (GWP) of HFC-134a based freeze sprays. HFO-1234ze has a GWP of 1, compared to HFC-134a with GWP of 1300. Eco-Freezer can be a drop-in replacement when GWP needs to be lowered.

1583-10S 10 oz. (283g) aerosol



- Chills down to -49°F (-45°C)
 - Ultra-low GWP
 - Nonflammable*
 - Non-ozone depleting
- *under ambient conditions*

Desoldering Braid

Desoldering braid (wick) is pre-fluxed copper braid that is used to remove solder, which allows components to be replaced and excess solder to be removed.

Techspray wick is available in static dissipative bobbins (except where indicated) for static sensitive environments.

Techspray No-Clean wick is coated with proprietary flux that only leaves a slight clear residue, which does not cause service issues. Cleaning after using Techspray No-Clean wick is strictly optional.

Specifications: Meets or Exceeds MIL-F-14256; NASA NHB 5300, 4 (34-1); NASA NPC 200-4; NASA SP5002; 1821:HP 8690-0588; 1823: HP 8690-0577; IPC Standard-J-STD-004

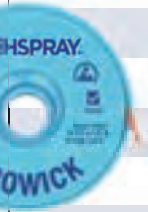
DESOLDERING BRAID SELECTION CHART

| #1 White | #2 Yellow | #3 Green |
|------------------|------------------|------------------|
| .035" (0.9mm) | .055" (1.4mm) | .075" (1.9mm) |
| #4 Blue | #5 Brown | #6 Red |
| .098" (2.5mm) | .130" (3.3mm) | .193" (4.9mm) |

Wick in selection chart shown actual size.

Pro-Wick® Rosin — ESD-Safe Bobbin

For the fastest wicking action, rosin flux coated braid is ideal for high volume PCB production/repair environments.




| | Size/Color | 5' | 10' | 25' | 100' | 500' |
|------|------------|---------|----------|----------|------------|------------|
| 1808 | #1 White | 1808-5F | 1808-10F | — | 1808-100F | — |
| 1809 | #2 Yellow | 1809-5F | 1809-10F | 1809-25F | 1802-100F* | 1802-500F* |
| 1810 | #3 Green | 1810-5F | 1810-10F | 1810-25F | 1810-100F | 1803-500F* |
| 1811 | #4 Blue | 1811-5F | 1811-10F | 1811-25F | 1811-100F | 1804-500F* |
| 1812 | #5 Brown | 1812-5F | — | — | — | — |
| 1813 | #6 Red | 1813-5F | — | — | 1806-100F* | — |

* Not packaged in ESD-safe bobbins

No-Clean Wick — ESD-Safe Bobbin


The cleanest No-Clean braid in the industry. The proprietary flux formula is specially designed to avoid catastrophic and latent PCB failures caused by ionic flux residue.



| | Size/Color | 5' | 10' | 25' | 50' | 100' |
|------|------------|---------|----------|----------|----------|------------|
| 1820 | #1 White | 1820-5F | 1820-10F | — | 1820-50F | 1814-100F* |
| 1821 | #2 Yellow | 1821-5F | 1821-10F | 1821-25F | 1821-50F | 1815-100F* |
| 1822 | #3 Green | 1822-5F | 1822-10F | — | 1822-50F | 1822-100F |
| 1823 | #4 Blue | 1823-5F | 1823-10F | 1823-25F | — | 1823-100F |
| 1824 | #5 Brown | 1824-5F | — | 1824-25F | — | — |
| 1825 | #6 Red | 1825-5F | — | — | — | — |

Unfluxed Wick — ESD-Safe Bobbin

For customers who use water-soluble flux, or their own flux for aqueous processes.



| | Size/Color | 5' | 10' |
|------|------------|---------|----------|
| 1830 | #1 White | — | 1830-10F |
| 1831 | #2 Yellow | — | 1831-10F |
| 1832 | #3 Green | 1832-5F | — |
| 1833 | #4 Blue | — | 1833-10F |



Match braid width to contact area



Rework & Repair Pens

TraceTech™

Flux Remover Pen

Spot cleaning for PCB rework and repair

2506-N Single-pack of 11.5 ml pen



- Safe on plastics
- Rapid evaporation
- Pen tip allows controlled application

TraceTech™

No-Clean Flux Dispensing Pen

No-clean flux applicator pen for PCB rework and repair

2507-N Single-pack of 11.5 ml pen

2507-N100 144 pack of 11.5 ml pens, 12 boxes of 12



- Excellent wetting
- Works with lead and lead-free solders
- Boosts wetting for lead-free wire solder
- No cleaning necessary
- Halide free

TraceTech™

Conductive Pen

Silver ink pen for repairing electronic traces

2505-N Single-pack of 4.9 ml pen



- Repairs traces
- Makes smooth jumpers

TraceTech™

Overcoat Pen

Resist repair pen for PCB rework and repair

2509-GN Single-pack of 5 ml pen



- Repairs solder resist
- Green to match resist
- Prevents shorting and arcing

TraceTech™

Conformal Coating Remover Pen

Spot coating remover in applicator pen for PCB rework and repair

2510-N 11 ml pen

2510-P 1 pt. (0.47L) can



- Fast stripping action
- Non-corrosive
- Rapid evaporation

Heat Sink / Transister Grease

Silicone Heat Sink Compound

Heat sink compound for electrical applications

1977-DP 4 oz. (118ml) squeeze tube



- Thermal conductivity – 0.70 W/m-K
- Functional temperature Range -67°F to 401°F (-55°C to 205°C)
- Easy application
- Will not harden and crack

Silicone-Free Heat Sink Compound

Heat-sink for electronics, avoid silicone contamination

1978-DP 4 oz. (118ml) squeeze tube

1978-1 1 lb. (454g) jar



- Thermal conductivity – 0.92 W/m-K
- Functional temperature range -40°F to 392°F (-40°C to 200°C)
- Avoid solder defects due to silicone contamination
- Easy application
- Will not separate
- Will not harden and crack



Wipes

Techspray offers a large array of wipes for a variety of applications, including cleanroom, PCB rework, polishing, and maintenance. A large number of different materials are available to meet each unique requirement.

- **Cleanroom Wipers:** Meet the particulate count and extractables for Class 10 / ISO Class 4 and Class 100 / ISO Class 5 cleanrooms.



- **Maintenance Wipers:** Lower cost, high quality wipers for heavy-duty cleaning.
- **Delicate Task Wipers:** Cellulose tissue for light cleaning, like in lab settings.
- **Microfiber Wipes:** Polishing wipes that are ideal for screen and display cleaning, with or without a cleaner.
- **SMT Roll Wipes:** DEK and MPM understencil roll wipes to fit the most common printers.



TECHCLEAN® WIPES SELECTION GUIDE

Key: ● = Best ● = Acceptable ○ = Not applicable / Not recommended

| | Properties | | | | | Application | | | | | | | |
|---------------------------------|-------------|------------------|--------------|------------|----------|-------------|---------------|--------------|------------------|-----|--------|------------|--------|
| | Cleanroom | Material | Construction | Absorbency | Strength | Electronics | ESD-Sensitive | LCD Cleaning | Stencil Cleaning | Lab | Optics | Industrial | Office |
| 2340 Cotton Wiper | | Cotton | Non-woven | ● | ● | ● | ○ | ○ | ● | ● | ○ | ● | ● |
| 2350 Wiper | 100 / ISO 5 | Poly / Cellulose | Non-woven | ● | ● | ● | ● | ○ | ● | ● | ○ | ● | ● |
| 2351/2352 Absorbwipe | 100 / ISO 5 | Polyester | Non-woven | ○ | ● | ● | ○ | ○ | ○ | ● | ● | ○ | ○ |
| 2355 Purewipe | 100 / ISO 5 | Polyester | Knit | ● | ● | ● | ○ | ● | ● | ● | ○ | ● | ● |
| 2357 Twill Wipe | n/a | Cotton | Woven | ● | ● | ○ | ○ | ○ | ○ | ● | ○ | ● | ● |
| 2359/2364/2365 Maintenance Wipe | n/a | Poly / Cellulose | Non-woven | ● | ● | ● | ● | ○ | ● | ● | ○ | ● | ● |
| 2362 Antistatic Wipe | 10 / ISO 4 | Polyester | Knit | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ○ |
| 2363 Microfiber Wipe | n/a | Poly / Nylon | Knit | ● | ● | ● | ○ | ● | ○ | ○ | ● | ○ | ● |
| 2366/2367 Roll Wipes | n/a | Poly / Cellulose | Non-woven | ● | ● | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ |
| 2368 LCD Wipe | n/a | Nylon | Knit | ● | ● | ○ | ○ | ● | ○ | ● | ● | ○ | ● |

Note: To qualify for your cleanroom requirements, please refer to www.techspray.com for full data sheets.





TechClean Wiper CLASS 100 General Purpose Wipe

Hydroentangled cellulose/polyester wipe with high absorbency and extra low particulate count and no chemical extractables.

2350-100 100 - 8"x10" (20cm x 25cm) c-fold wipes, double-bagged



- Class 100 cleanroom qualified
- High absorbency
- Very low particulate count

Specifications: Exceeds U.S. Air Force requirements for surface contamination, HP 9300-1618

TechClean Purwipe™ CLASS 100 Low-Linting Poly Wipe

100% polyester wipe is a strong, low-linting wipe that is ideal for SMT stencil cleaning and PCB rework. Tear resistant to allow cleaning around leads without fraying.

2355-100 100 - 9"x9" (23cm x 23cm) flat wipes, double-bagged



- Class 100 cleanroom qualified
- Very low particulate count
- Tear resistant

Cotton Cleanroom Wiper

This hydroentangled cotton wipe has high absorbency with extra low particulate and chemical extractables. Ideal for stencil cleaning.

2340-100 100 - 9" x 9", (23cm x 23 cm), flat wipes, double-bagged



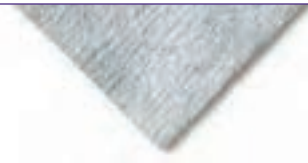
- Low chemical extractables
- Lint-free & soft
- Biodegradable & sustainable
- High absorbency - 6 times its weight
- Made with USA grown cotton

TechClean Absorbwipe™ CLASS 100 For Sensitive Surfaces

Very soft and absorbent hydroentangled polyester wipe for cleaning optical equipment, fiber optics, and other sensitive surfaces.

2351-100 100 - 4"x4" (10cm x 10cm) flat wipes, double-bagged

2352-100 100 - 9"x9" (23cm x 23cm) flat wipes, double-bagged



- Non-abrasive
- Extremely soft
- Highly absorbent

TechClean Maintenance Wipes

Hydroentangled cellulose/polyester wipe with high absorbency. Economical, but very high quality wipes are ideal for production and maintenance applications.

2359-300 300 - 9"x9" (23cm x 23cm) flat wipes

Economy Grade

2364-50 50 - 12"x 12" (30.5cm x 30.5cm) dry wipes

2365-300 300 - 9" x 9" (23cm x 23cm) dry wipes



- High absorbency
- Economical



Anti-Static Wipe



Polyester wipe that is interwoven with DuPont's NEGA-STAT carbon yarn. NEGA-STAT dissipates static charge, preventing static buildup and allowing dissipation. Perfect for dry wiping ESD-sensitive components and boards. Tear resistant to allow cleaning around through-hole leads without fraying.

2362-150 150 - 9"x9" (23cm x 23cm) flat wipes



- Anti-static — will not generate charge
- Class 10 cleanroom laundered & qualified
- Tear resistant

TechClean Twill Wipe

Tear Resistant Cotton

100% cotton twill weave designed for wiping abrasive surfaces. Tear resistant to allow cleaning around leads without fraying. Low static generation, so good for static sensitive areas.

2357-100 100 - 6"x6" (15cm x 15cm) flat wipes, double-bagged



- Tightly woven 100% cotton
- Tear resistant
- Low static generation

Microfiber Glass & Plastic Cleaning Wipes

Cleans and polishes glass or plastic. Ideal for removing fingerprints and light oils without the use of solvent cleaners.

2363-50 50 - 8"x 8" (20cm x 20cm) dry wipes w/hemmed edges, double-bagged



- Cleans & polishes glass or plastic
- Low-linting
- Washable (avoid fabric softener)

LCD & Plasma Screen Cleaning Wipes

Soft and low-linting microfiber terry cloth is ideal for cleaning and polishing LCD and plasma screens, plexi-glass, chrome, and other sensitive surfaces. Buffs surface to a shine with or without cleaner.

2368-2 2 - 16"x 16" (40.6cm x 40.6cm) dry wipes w/hemmed edges



- Cleans & polishes sensitive surfaces
- Perfect for chrome polishing
- Effective wet or dry
- Washable (avoid fabric softener)
- Low-linting

Roll Wipes for DEK and MPM SMT Printers

Made from low lint fabric and designed for vacuum operation.

- Maximum absorbency
- Strong both wet & dry
- Textured non-woven poly-cellulose fabric
- Low linting – prevents misprints
- Density 68 GSM



| Part # | OEM Brand | Equip model | Core ID | Notch | Paper Width | Core Width | Matl Length |
|-----------------|-----------|--------------------------------|--------------|-------|---------------|---------------|--------------|
| 2366-DEK | DEK | DEK 265, #129051/GS, GSX & 288 | 0.75" (19mm) | 1 | 20.3" (515mm) | 20.9" (530mm) | 39' (11.9 M) |
| 2367-MPM | MPM | MPM #1485/AP & UP2000 | 0.75" (19mm) | 0 | 17.5" (444mm) | 18" (457mm) | 39' (11.9 M) |



TechSwabs

Precisely designed, manufactured and packaged to serve a wide variety of cleaning and maintenance needs. TechSwabs are manufactured in accordance with Techspray's rigid specifications, using specialized materials to ensure low particle generation.

Cotton TechSwabs

Tightly wrapped, pre-cleaned cotton ensures the least amount of extractable contaminants. The most economical choice for high volume usage.

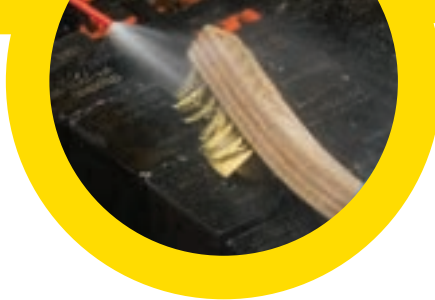
All swabs shown actual size – 1:1 scale

| Product | Tip Width | Attachment of Tip | Handle Length | Handle Material | 30 Pack Bag | 100 Pack Bag | 1000 Pack Bag |
|-------------|-----------------|-------------------|---------------|-----------------|-------------|--------------|---------------|
| 2300 | 0.1875" (4.8mm) | Wrapped | 6" (15cm) | Wood | — | 2300-100 | 2300-1000 |
| 2301 | 0.1875" (4.8mm) | Wrapped | 6" (15cm) | Wood | — | 2301-100 | 2301-1000 |
| 2313 | 0.125" (3.2mm) | Wrapped | 3.25" (8.3cm) | Paper | 2313-30PK | — | — |

Foam TechSwabs

All foam swabs are manufactured with 100 pores per inch reticulated polyurethane foam, which ensures excellent absorbency while minimizing contamination. Tips are affixed by heat seal to prevent tip loss, even while saturated with solvent. Flexible tips provide versatility and softer touch, while rigid heads allow for more aggressive cleaning.



| Product | Tip Width | Attachment of Tip | Handle Length | Handle Material | 50 Pack Bag | 1000 Pack Bag |
|-------------|----------------|---|----------------|-----------------|-------------|---------------|
| 2302 | 0.44" (11.2mm) | Heat Sealed | 6" (15cm) | Polypropylene | 2302-50 | 2302-1000 |
| | | <i>Cotton Bud Wrapped in Foam, Rigid Head</i> | | | | |
| 2303 | 0.19" (4.8mm) | Heat Sealed | 6" (15cm) | Polypropylene | 2303-50 | 2303-1000 |
| | | <i>Rigid Head</i> | | | | |
| 2306 | 0.5" (13mm) | Heat Sealed | 5" (13cm) | Polypropylene | 2306-50 | 2306-1000 |
| | | <i>Rigid Head</i> | | | | |
| 2307 | 0.19" (4.8mm) | Heat Sealed | 4" (10cm) | Polypropylene | 2307-50 | 2307-1000 |
| | | <i>Flexible Tip</i> | | | | |
| 2309 | 0.125" (3.2mm) | Heat Sealed | 3" (7.6cm) | Polypropylene | — | 2309-1000 |
| | | <i>Flexible Tip</i> | | | | |
| 2311 | 0.125" (3.2mm) | Heat Sealed | 2.625" (6.7cm) | Polypropylene | — | 2311-1000 |
| | | <i>Flexible Tip</i> | | | | |



Fiber Optic TechSwabs CLASS 100

All swabs shown actual size – 1:1 scale

Ideal for removing transmission disrupting contaminants in bulkhead connectors. The head conforms to the various connector shapes, cleaning the conductor bulkhead corners inside the bulkhead pocket. Tips are heat bonded, so no contaminating adhesives have been used.

| Product | Tip Width | Attachment of Tip | Handle Length | Handle Material | 50 Pack Bag | 1000 Pack Bag |
|---|-------------------|-------------------|-----------------|-----------------|-------------|---------------|
| 2316 | 0.05" (1.25mm) | Heat Sealed | 6.25" (16cm) | Polypropylene | 2316-50 | 2316-1000 |
| Flexible Tip  | | | | | | |
| 2317 | 0.1" (2.5mm) | Heat Sealed | 6.25" (16cm) | Polypropylene | 2317-50 | 2317-1000 |
| Flexible Tip  | | | | | | |

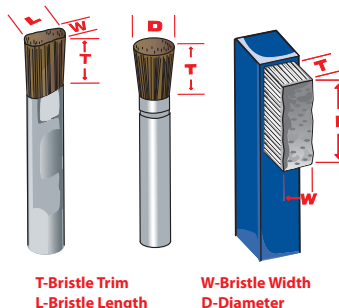
Brushes

Techspray's TechClean® brushes are made of premium grade materials. Don't be fooled by cheap imports. Bristles are securely stapled in place, eliminating loose bristles.

Choose the Right Bristle Material for Your Needs:

Natural — Soft, resilient and long lasting. Hog bristles are stiffer than horsehair.



Metal — For burnishing, polishing, non-sparking static dissipation and deburring. Brass is a softer bristle than stainless steel.



Selecting the right brush:
Brushes dimensions are specified as bristle length (L), width (W), and trim (T).

General Cleaning Brushes

A wide variety of sizes and bristle material for general maintenance cleaning. All handles are made of strong, static neutral wood.

| FRONT VIEW | SIDE VIEW | Product | L Bristle Length | W Bristle Width | T Bristle Trim | Bristle Material | Handle Material | Handle Length |
|---|---|---------------|------------------|-------------------|------------------|-------------------------|-----------------|--------------------|
|  |  | 2020-1 | 1.375" (35mm) | 0.25" (6.4mm) | 0.44" (11mm) | Horse Hair | Wood | 7.75" (19.7cm) |
|  |  | 2021-1 | 1.375" (35mm) | 0.25" (6.4mm) | 0.44" (11mm) | Hog Bristle | Wood | 7.75" (19.7cm) |
|  |  | 2022 | 2.125" (54mm) | 0.875" (22mm) | 0.75" (19mm) | Hog Bristle | Wood | 8.375" (21.3cm) |
|  |  | 2025-1 | 1.375" (35mm) | 0.25" (6.4mm) | 0.44" (11mm) | Brass .003" (0.08mm) | Wood | 7.75" (19.7cm) |
|  |  | 2027-1 | 0.875" (22mm) | 0.375" (9.5mm) | 0.5" (12.7mm) | Hog Bristle | Wood | 4.94" (12.5cm) |



Static Sensitive Brushes

Ideal for cleaning static sensitive electronics or components. Anodized aluminum falls within the static dissipative range (10^5 to 10^{12} ohms/square per ASTM D-257). Steel bristles are conductive, and horse hair is dissipative when saturated with solvent.

| FRONT VIEW | SIDE VIEW | Product | L Bristle Length | W Bristle Width | T Bristle Trim | Bristle Material | Handle Material | Handle Length |
|------------|-----------|---------------|-------------------|-------------------|-------------------|--------------------------------------|-------------------|-------------------|
| | | 2040-1 | 1.19" (30.2mm) | 0.125" (3.2mm) | 0.44" (11.2mm) | Horse Hair | Anodized Aluminum | 6.44" (16.4cm) |
| | | 2042-1 | 1.19" (30.2mm) | 0.375" (9.5mm) | 0.44" (11.2mm) | Horse Hair | Anodized Aluminum | 6.44" (16.4cm) |
| | | 2043-1 | 1.19" (30.2mm) | 0.375" (9.5mm) | 0.44" (11.2mm) | Stainless Steel .003" (0.08mm) | Anodized Aluminum | 6.44" (16.4cm) |

Technical Brushes

Small, precision brushes for technical cleaning and coating or adhesive application. Double-sided brushes include tapered end for tight areas.

| FRONT VIEW | SIDE VIEW | Product | L Bristle Length | W Bristle Width | T Bristle Trim | Bristle Material | Handle Material | Handle Length |
|------------|---|---------------|-------------------|--------------------|--|------------------|-------------------|------------------|
| | | 2030-1 | 0.125" (3.2mm) | 0.0625" (1.6mm) | 0.125" (3.2mm) | Goat Hair | Stainless Steel | 3.5" (8.9cm) |
| | <p>Top View</p> <p>Side View</p> <p>A B</p> | 2031-1 | 0.25" (6.4mm) | 0.19" (4.8mm) | A - 0.25" (6.4mm) B - 0.5" (13mm) | Horse Hair | Stainless Steel | 4.5" (11.4cm) |
| | <p>Top View</p> <p>Side View</p> <p>A B</p> | 2032-1 | 0.5" (13mm) | 0.375" (9.5mm) | A - 0.19" (4.8mm) B - 0.25" (6.4mm) | Horse Hair | Zinc Plated Steel | 4.5" (11.4cm) |
| | | 2033-1 | 0.44" (11.2mm) | 0.375" (9.5mm) | 0.75" (19mm) | Horse Hair | Zinc Plated Steel | 4.5" (11.4cm) |



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Go to www.techspray.com

for up-to-date product specs, documents, videos & more!



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