Precision-V 3810
Vapor Degreaser
& Thermal Transfer Solvent
Product# 3810

Product Description

Techspray® has formulated Precision-V 3810 to be a drop-in replacement for 3M Novec 7100, 7200 & 7300.

Precision-V cleaners leave no residue and evaporate extremely fast, and are nonflammable with no flash-point. Electronics, optics, and metal parts are quickly and thoroughly cleaned, eliminating the need for further rinsing.

Precision –V 3810 with its unique physical properties make it suitable for two phase immersion and thermal management in semiconductor fabrication.

NOTE: 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.

Features / Benefits

- **Drop-in replacement for 3M Novec 7100**
- Nonflammable
- Non-conductive
- Compatible with plastics
- Low toxicity
- Low global warming potential (GWP)
- Zero ozone depletion potential (ODP)
- VOC-exempt solvent (US EPA)
- Low surface tension for cleaning within tight areas

Applications

- Used in vapor-degreasers and general solvent cleaner
- Cleaning, Data Center Cooling
- Deposition Solvent
- Electronic Cooling
- Heat Transfer
- Immersion Cooling for Data Centers
- Oxygen System Cleaning
- Preservation for Biological Specimens

Typical Product Data and Physical Properties

Exposure Limit	>200 ppm
Physical State	Liquid
Odor	ethereal
Appearance	Clear, colorless liquid
Flash Point	none
Percent Volatile	100
Vapor Pressure	0.32 kg/cm^2
Initial Boiling Point	133°F (56°C)
Density	1.47 g/ml
Dielectric Strength	40 kV
Surface Tension	16.4 dynes/cm
GWP	540
VOC	exempt (EPA)
	Carb 100%
Kb Value	10
Volume resistivity	1.3X10^9 Ωm
Specific heat (25 °C)	1.26 KJ/Kg.K
Latent heat of evaporation	163 KJ/Kg
Shelf life	5 years

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Material Compatibility

Precision-V cleaners are generally compatible within normal operating conditions of vapor degreaser and with exposed materials normally found with the equipment. Specific plastic and elastomeric formulations vary with manufacturers; therefore, we recommend compatibility verification when required.

Reclamation Process

The reclamation (ie. boil down) process utilizes the vapor-degreaser as a still to distill solvent from the dirty boil sump and allows you to reclaim and reuse this solvent.

When it is determined that the Boil Sump needs to be cleaned out, you should do the following things to boil down the solvent:

1. If you have a 2 sump vapor-degreaser, drain the rinse sump into a clean container for reuse. If you have a one-sump vapor-degreaser, drain the spray reservoir using the spray wand. This material should be collected in a clean container, so it can be reused.

2. Allow the solvent to continue to boil, and the vapors to condense, until such time as one of two things happens:
a. the High Temperature Control (HTC) trips and turns off the heat to the heating elements or b. the Liquid Level Control trips because the level in the Boil Sump is too low.

3. Drain the remaining solvent/soil mixture into a container that is labeled as Hazardous Waste. This material can be used in future “boil downs” to reclaim more of the solvent in the mixture.

4. Use the retained solvent (from step 1) to refill the vapor-degreaser and add whatever volume of solvent is necessary to completely fill the machine.

This process can be repeated as often as necessary, depending on the amount of usage of the vapor-degreaser and the amount of soil that is introduced into the vapor-degreaser.

When you “boil down”, always put the solvent/soil mixture into the vapor-degreaser to reclaim additional amount of the solvent from this mixture.

Packaging and Availability

Precision-V Vapor-Degreaser Flux Remover available in the following sizes:

3810-G	1 gal (3.8L)
3810-5G	50 lbs. in 5 gal (18.9L)
3810-54G	580 lbs. in 54 gal (204L)

Environmental Policy

Techspray® is committed to developing products to ensure a safer and cleaner environment. We will continue to meet and sustain the regulations of all federal, state and local government agencies.

Resources

Techspray® products are supported by global sales, technical and customer services resources.

For additional technical information on this product or other Techspray® products in the United States, call the technical sales department at 800-858-4043, email tsales@techspray.com or visit our web site at: www.techspray.com.

Important Notice to Purchaser/User: The information in this publication is based on tests that we believe are reliable. The results may vary due to differences in tests type and conditions. We recommend that each user evaluate the product to determine its suitability for the intended application. Conditions of use are outside our control and vary widely. Techspray’s only obligation and your only solution is replacement of product that is shown to be defective when you receive it. In no case will Techspray® be liable for any special, incidental, or consequential damages based on breach of warranty, negligence or any other theory.

Specification Comparisons

Specifications	Precision-V 3810	Novec 7100	Novec 7200	Novec 7300
Boiling point	133°F / 56°C	142°F / 61°C	169°F / 76°C	208°F / 98°C
Cleaning strength	Light duty	Light duty	Light duty	Light duty
Dielectric strength (kV)	40	>25	>25	>25
Molecular weight	200	250	654	350
Liquid density (g/ml)	1.47	1.52	1.43	1.66
Surface tension (dynes/cm)	16	14	14	15
Solubility of solvent in water (ppm)	900	12	<20	586
Solubility of water in solvent (ppm)	90	95	92	57
Fluorocarbon Solubility	high	High	High	High
Hydrocarbon solubility	medium	Medium	Medium	Medium
Flash point	none	none	none	none
Flammability range in air	none	none	1.4-12.4%	
Plastic elastomer compatibility	Excellent	Excellent	Excellent	Excellent
Exposure guidelines (TWA)	50	750	200	
Vapor pressure (mmHg)	235	202	109	45
Ozone depletion potential (ODP)	0	0	0	0
Global warming potential (GWP)	540	320	55	200
Atmospheric lifetime (years)	6.0	4.1	0.77	3.8

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