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Laboratory Data Sheet

EXP FP4804

December 2024

PRODUCT DESCRIPTION

EXP FP4804 provides the following product characteristics:

Technology	Epoxy
Appearance	Black liquid paste
Cure	Heat cure
Product benefits	High purity PFAS-free Void-free wire penetration Low warpage
Application	Encapsulating

EXP FP4804 is designed for use on semiconductor packages and can withstand solder reflow temperatures up to 260C after being exposed to Grade 1 preconditioning. It was formulated to meet high purity requirements.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Property	Method	Typical Value
Viscosity, AR G2		
20 s^{-1} (5 rpm), cps	20mm Plate-plate	102,000
Thix Index		1.3
Filler content, %		78
Specific gravity at 25°C		1.84
Work Life at 25°C, hours		>24

TYPICAL CURING PERFORMANCE

Gel Time at 120°C, sec.	420

Cure Schedule

30 min ramp to 100°C, soak 2hrs at 100°C, then ramp 30min to 150°C, soak 1hr at 150°C

Alternative Cure Schedule

30 min ramp to 100°C, soak 1hr at 100°C, then ramp 30min to 150°C, soak 2hrs at 150°C

The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Property	Method	Typical Value
Coefficient of Thermal Expansion, ppm/°C:		
CTE_1 (<55°C)	TMA	15
CTE_2 (>100°C)	TMA	53
Glass Transition Temperature (Tg), °C		51
Modulus:		
25°C, GPa	DMA	20
150°C, MPa	DMA	82
Extractable Ionic Content @ 121°C, ppm		
Chloride (Cl-)		< 10
Sodium (Na+)		< 5
Potassium (K+)		< 5

Performance Properties

Property	Method	Typical Value
Moisture absorption %	DVS	0.30

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet (SDS).

THAWING (if applicable)

1. Allow container to reach room temperature before use.
2. After removing from freezer, set the syringes to stand vertically while thawing.
3. Do not open the container before contents reach 22°C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.
4. Do not re-freeze. Once thawed to 22°C, the adhesive should not be re-frozen.

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DIRECTIONS FOR USE

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: -40°C.

Material removed from containers may be contaminated during use. Do not return products to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

NOTE

This product is a developmental product. It is not now, and may not be in the future, commercially available. The properties of the uncured material and the physical properties of the cured material have been established as a point of reference only. Henkel recommends that each prospective user test his proposed application before repetitive use, using this data as a guide. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any **Henkel Corporation and its affiliates ("Henkel")** patents that may cover such processes or compositions. This product may contain materials that are not regulatory listed on TSCA, EINECs and other global inventories.

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