



HYSOL®FP4451

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PRODUCT DESCRIPTION

Hysol® FP4451 is a high purity, liquid damming material. It is designed as a flow control barrier around areas of bare chip encapsulation. FP4451 exhibits minimal slumping and can be co-cured after encapsulation of the chips. It is based upon the same chemistry as Hysol® FP4450, therefore, is completely compatible with this encapsulant material. Hysol® FP4451/FP4450 used together have passed pressure pot performance on live devices up to 500 hours with no failures. This material is designed for temperature cycling up to -65°C to 150°C. Actual performance depends upon a number of variables, including: device type, packaging design, substrate, and process conditions.

TYPICAL APPLICATIONS

Flow control dam

PROPERTIES OF UNCURED MATERIAL

Color	Black
Filler Content, %, (ITM3A)	72
Specific Gravity, (ITM9A)	1.76
Shelf Life @-40°C (-40°F), months	9
	Typical Value
Viscosity @ 25°C, (77°F) (ITM2A) Brookfield RVT Spindle 7, Speed 2, Cp	1,300,000
Spindle 7, Speed 4, Cp	860,000

PHYSICAL PROPERTIES, CURED MATERIAL

Color	Black
Coefficient of Thermal Expansion, (in/in/°C) (ITM65B) (40°C-120°C)	24 x 10 ⁻⁶
Glass Transition, (T _g), °C, (ITM65B)	145
Extractable Ionic Content (ITM107B)	
Chloride (Cl ⁻), ppm	25
Sodium (Na ⁺), ppm	25
Potassium (K ⁺), ppm	15

HANDLING

Pot Life @ 25°C, 77°F, days, (200 gram mass), (ITM10T),	2
Gel Time @ 121°C, (250°F), minutes (ITM10N)	8

Do not store above -40°C. Frozen packages must be completely thawed before use. Warm at room temperature until no longer cool to the touch (normally 20-60 minutes). Do not thaw in an oven. Elevated temperatures reduce working life.

GENERAL INFORMATION

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

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or their strong oxidizing materials

CURE SCHEDULE

Recommended Cure	30 minutes @ 125°C plus 90 minutes @ 165°C
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Designed to be used with packages which are affected by higher levels of stress. This cure will give optimum properties.

Alternate Cure 1 hour @ 165°C
Designed for robust packages which are not sensitive to stress.

Use suggested cure schedules as general guidelines; other cure schedules may yield satisfactory results.

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Loctite Electronics

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