Technical Data Sheet

HYSOL® FP4451TD

October 2003

PRODUCT DESCRIPTION

Hysol® FP4451TD (FP0105) is a high purity, liquid damming material. It features a cured aspect ratio of 0.70 (height/width). It is based on Hysol® FP4450 resin chemistry, therefore exhibiting excellent chemical resistance and thermal stability properties. This material is designed for temperature cycling ranges up to –65°C to 150°C. FP4451TD utilizes silica filler with a median particle size of 20 microns; its maximum particle size is 200 microns.

TYPICAL APPLICATIONS

Encapsulant for damming

PROPERTIES OF UNCURED MATERIAL

Color	Black
Filler content, %, (ITM3A)	73
Specific Gravity (ITM9A)	1.79
Shelf Life @-40°C, (-40°F), months	9

	Typical Value
Viscosity @ 25°C, (77°F) (ITM2A)	
Brookfield RVF	
Spindle 7, Speed 2, cP	900,000
Spindle 7, Speed 20, cP	300,000

PHYSICAL PROPERTIES, CURED MATERIAL

Color	Black
Aspect Ratio (H/W)	0.70
Glass Transition (Tg), °C (ITM65B	Tg= 150 °C
Coefficient of Linear Thermal Expansion, In/in/°C (ITM65B)	
α_1 (40-120°C)	CTE=21x 10^{-6}
α_2 (190-220°C)	CTE=76 x 10^{-6}
Filler Content, %	73.0
Extractable Ionic Content, (ITM107B)	
Chloride (Cl-), ppm	<10
Sodium (Na+), ppm	<1
Potassium (K+), ppm	<1

Handling

Gel Time @ 121°C, (250°F), minutes, (ITM10N)	13
Pot Life @ 25°C, (77°F), days (ITM10T)	10

Frozen storage at –40°C or lower is required for maximum shelf life. Frozen packages must be completely thawed before use. Warm at room temperature until no longer cool to the touch (normally 60-90 minutes). Do not thaw in an oven. A positive displacement pump is recommended for reproducible shot sizes. Due to the size of the filler in this product, a needle size larger than or equal to 18 gauge should be used. For best results, FP4451TD should be dispensed onto a substrate warmed to approximately 80°C. Elevated storage significantly reduces working life. Care should be taken to protect syringe material from excessive heat prior to dispense. Once dispensed, material should be cured within 30 minutes to prevent moisture contamination. The cured properties of moisture contaminated material will be poorer than those described.

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

FP4451TD must be completely cured in order to achieve optimum properties. Use suggested cure schedules as general guidelines; other cure schedules may yield satisfactory results.

Note

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