

PRODUCT INFORMATION

PRODUCT	<p style="text-align: right;"><i>(TYPICAL PROPERTIES)</i></p> <p style="text-align: right;">These should not be considered as specifications.</p> <p>KEY TOUGH-SEAL 42 (PC2042A/B) FLAME RETARDANT TOUGH-SEAL</p>												
DESCRIPTION	<p>KEY Tough-Seal 42A/B is a flame retardant version of Tough-Seal 22. The self-extinguishing flame retardant performance meets UL 94V-0 requirements and has been validated by UL for the official rating. KEY Tough-Seal 42A/B achieves flame retardant properties without antimony or halogenated compounds. Like Tough-Seal, it is a tough and durable two component, hybrid epoxy elastomer that features excellent thermal cycling and exceptional flexibility. Since KEY Tough-Seal 42A/B is an epoxy and not a urethane, it does not incorporate isocyanates and, accordingly, KEY Tough-Seal 42A/B has a mild health and safety profile. KEY Tough-Seal 42A/B is ideal for electrical potting applications requiring thermal cycling and thermal shock resistance, low embedment stress and flame retardant properties.</p>												
ADVANTAGES & APPLICATIONS	<ul style="list-style-type: none"> ✓ Excellent thermal cycling performance & thermal shock resistance ✓ Resilient, Tough, Durable ✓ Low embedment stress on electronics, Low shrinkage ✓ UL 94V-0 Rating ✓ Antimony Free ✓ Halogen Free Flame Retardants 												
PHYSICAL PROPERTIES <i>(Typical)</i>		Tough-Seal 42A	Tough-Seal 42B	MIX									
CURED PROPERTIES <i>(Typical)</i>	Flame Retardant Ultimate Hardness Operating Temperature Range	UL 94V-0 Rating 75 Shore A -40°C to 150°C (-40°F to 302°F)											
CURE SCHEDULE <i>(Typical)</i>	Gel Time (100g) Hard Cure Full Cure Accelerated Cure	60 minutes at 25°C (77°F) Overnight at 25°C (77°F) Within 24-72 hours Mild 66°C to 80°C (150°F-175°C) heat cures can accelerate cure											
INSTRUCTIONS FOR USE	<table border="1" data-bbox="464 1293 1170 1388"> <thead> <tr> <th>MIX RATIO By</th> <th>WEIGHT</th> <th>VOLUME</th> </tr> </thead> <tbody> <tr> <td>KEY Tough-Seal 42 Part A</td> <td>53 A</td> <td>1 A</td> </tr> <tr> <td>KEY Tough-Seal 42 Part B</td> <td>100 B</td> <td>2 B</td> </tr> </tbody> </table> <p>Combine Part A and B and mix thoroughly, being careful to limit entrapped air during mixing. Scrape sides, walls and bottom of container. Pour material into part and cure. Bulk meter-mix dispensing machines and convenient cartridges provide air free mixing.</p>				MIX RATIO By	WEIGHT	VOLUME	KEY Tough-Seal 42 Part A	53 A	1 A	KEY Tough-Seal 42 Part B	100 B	2 B
MIX RATIO By	WEIGHT	VOLUME											
KEY Tough-Seal 42 Part A	53 A	1 A											
KEY Tough-Seal 42 Part B	100 B	2 B											
SAFETY & HANDLING	<p>PLEASE READ MATERIAL SAFETY DATA SHEET BEFORE USING.</p> <p>Avoid all contact with skin, eyes, clothing and food. Wash thoroughly after handling.</p>												
SHELF LIFE & STORAGE <i>For Unopened, Factory Sealed Containers.</i>	KEY Tough-Seal 42A (PC2042A) KEY Tough-Seal 42B (PC2042B) KEY Tough-Seal 42AB Cartridges	12 Months from Date of Manufacture (-18°C to 35°C) 12 Months from Date of Manufacture (-18°C to 35°C) 12 Months from Date of Shipment (-18°C to 35°C)											

DCO 4816

KEY POLYMER

CORPORATION

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SPECIALTY CHEMICAL COMPOUNDS

17 Shepard Street, Lawrence, MA 01843-1023 ■ 978/683-9411 ■ FAX 978/686-7729

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CURED PROPERTIES (Typical) Page 2

Electrical Properties	ASTM	Temperature	Value		
Dielectric Strength	D149	25°C (77°F)	310 Volts/mil		
Volume Resistivity	D257	25°C (77°F)	1.2 x 10 ¹² Ω-cm		
Dielectric Constant	1 MHz	D150	25°C (77°F)	5.00	
		1 kHz	D150	25°C (77°F)	5.50
			D150	25°C (77°F)	5.75
Dissipation Factor	1 MHz	D150	25°C (77°F)	0.026	
		1 kHz	D150	25°C (77°F)	0.028
			D150	25°C (77°F)	0.064
Thermal Properties	ASTM	Condition	Value		
	Heat Capacity, Cp	E1461	25°C (77°F)	1.69 J/g°K	
	Thermal Conductivity	E1461	25°C (77°F)	0.29 W/m°K	
	Coefficient of Thermal Expansion	E831	-50°C to 150°C	167 ppm/°C	
Mechanical Properties	ASTM	Condition	Value		
	Tensile Strength	D638	25°C (77°F)	327 psi	
	Elongation at Break	D638	25°C (77°F)	140%	
	Linear Shrinkage (Upon Cure)	D2256	25°C (77°F)	<0.001 in/in	
	Hardness vs Temperature Shore A	D2240	-75°C (-103°F)	90 A	
		D2240	-25°C (-13°F)	80 A	
		D2240	5°C (41°F)	78 A	
		D2240	25°C (77°F)	75 A	
		D2240	50°C (122°F)	65 A	
		D2240	66°C (150°F)	63 A	
		D2240	80°C (176°F)	61 A	
		D2240	100°C (212°F)	59 A	
		D2240	120°C (248°F)	54 A	
		D2240	150°C (302°F)	49 A	
Hardness vs RT Cure	1 Hour	D2240	25°C (77°F)	0 A	
	2 Hours	D2240	25°C (77°F)	0 A	
	4 Hours	D2240	25°C (77°F)	29 A	
	8 Hours	D2240	25°C (77°F)	38 A	
	12 Hours	D2240	25°C (77°F)	45 A	
	1 Day	D2240	25°C (77°F)	55 A	
	2 Days	D2240	25°C (77°F)	63 A	
	3 Days	D2240	25°C (77°F)	69 A	
	4 Days	D2240	25°C (77°F)	69 A	
	1 Week	D2240	25°C (77°F)	71 A	
1 Month	D2240	25°C (77°F)	75 A		

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CURED PROPERTIES
(Typical) Page 3

METALLIC ADHESION	ASTM	Temperature	Value
Tensile Lap Shear Strength, 1" x 4" Adherands, 1 inch overlap Co = Cohesive Bond Mode Ad = Adhesive Bond Mode			
Aluminum Bare	D1002	25°C (77°F)	530 psi [Ad]
Steel Bare	D1002	25°C (77°F)	490 psi [Ad]
Stainless Steel 304	D1002	25°C (77°F)	410 psi [Ad]
Brass Alloy 360	D1002	25°C (77°F)	420 psi [Ad]
Galvanized Steel	D1002	25°C (77°F)	290 psi [Ad]
Copper Alloy 110	D1002	25°C (77°F)	450 psi [Ad]
Circuit Board	ASTM	Temperature	Value
Tensile Lap Shear Strength, 1" x 4" Adherands, 1 inch overlap Co = Cohesive Bond Mode Ad = Adhesive Bond Mode			
FR-4	D3163	25°C (77°F)	510 psi [Ad]
THERMOPLASTIC ADHESION	ASTM	Temperature	Value
Tensile Lap Shear Strength, 1" x 4" Adherands, 1 inch overlap Co = Cohesive Bond Mode Ad = Adhesive Bond Mode			
Acrylic	D3163	25°C (77°F)	410 psi [Ad]
Acrylic / PVC	D3163	25°C (77°F)	410 psi [Ad]
CPVC - Chlorinated PVC	D3163	25°C (77°F)	467 psi [Ad]
ABS Acrylonitrile Butadiene Styrene	D3163	25°C (77°F)	350 psi [Ad]
PETG Polyethylene Terephthalate	D3163	25°C (77°F)	390 psi [Ad]
Polycarbonate	D3163	25°C (77°F)	90 psi [Ad]
Nylon 6/6 - Polyamide	D3163	25°C (77°F)	450 psi [Ad]
Polypropylene	D3163	25°C (77°F)	40 psi [Ad]
Polyethylene LDPE	D3163	25°C (77°F)	20 psi [Ad]
Polyethylene HDPE	D3163	25°C (77°F)	40 psi [Ad]
Noryl Polyphenylene Oxide/Polystyrene	D3163	25°C (77°F)	110 psi [Ad]
Ultem - Polyetherimide	D3163	25°C (77°F)	350 psi [Ad]

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**KEY POLYMER CORP.
LAWRENCE, MA 01843**

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DCO 3383