BR® 623P4

BR® 623P4 is a one-part epoxy material designed for use in insert or edge filing of honeycomb structures. BR® 623P4 offers the benefit of low viscosity, making it especially suitable for hand filling of small cell size [3.2 mm (1/8 inch)] and deep section [> 25.4 mm (> 1 inch)] honeycomb core and for applications with automated pumping or dispensing equipment.

The low cured nominal density [0.60 – 0.78 g/cm^3 (0.022 – 0.028 lb/in^3)] and high mechanical performance of BR® 623P4 allows for excellent specific properties in honeycomb structures. The thixotropic nature of BR® 623P4 ensures that there is no slump of the potting compound when used for edge filling of honeycomb panels.

Features and Benefits

- Pale yellow thixotropic void filler
- BR® 623P4L Low odour variant available
- No slump during cure
- -55°C to 110°C (-67°F to 230°F) service temperature
- Co-curable with most 120°C to 180°C (250°F to 356°F) advanced composite materials
- Flammability: Self-extinguishing
- Smoke density: Passes CS/JAR/FAR 25.853 Part V
- Resistant to aerospace fluids and solvents

CHARACTERISTICS

Table 1 | Physical Properties

Property	Value	Test Method
Volatiles	1.3% maximum	ASTM D 3530
Shelf Life	12 months at -18°C (0°F) from date of shipment	
Shop Life	30 days at or below 24°C (75°F)	

Table 2 | Product Availability

Property	Description			
Color	Pale yellow			
Package Size	600 mL (20.3 oz.) [1]	1 L (1 qt.)	5 L (5 qt.)	20 L (21 qt.)
Nominal weight	0.42 kg (0.9 lb)	0.7 kg (1.5 lb.)	3.7 kg (8.2 lb)	14.6 kg (32.2 lb)

[1] Dispenser tube cartridges

PROPERTIES

Table 3 | Flammability Properties

Property	Test	Result	Limit
Vertical burn 60 second	Burn Length, mm (in) After – flame time (s) Drip flame time (s)	110 (4.3) 3 0	152 (6) 15 3
Specific optical smoke density	Flaming mode Ds at 4 min.	< 150 N/A	200 N/A
Concentration of smoke components, ppm	HCN CO NOx SO2/H2S HCl HF	5 200 1 1 20 5	150 3500 100 100 150 100

Specimen thickness 3.0 ± 0.2 mm (0.12 ± 0.01 in).

All Properties meet CS/JAR/FAR 25.853 Part V requirements.

Table 4 | Mechanical Properties for BR® 623P4

Property	Test Temperature	Nominal Value	Test Method
Block Compression Strength, MPa (psi)	-55°C (-67°F) 23°C (73°F) 80°C (176°F)	66 (9600) > 40 (> 5800) > 25 (> 3630)	ISO 604
Block Compression modulus, GPa (msi)	-55°C (-67°F) 23°C (73°F) 80°C (176°F)	3.3 (0.5) 3.2 (0.5) 2.6 (0.4)	ISO 604
Pin shear strength, N (lbf)	-55°C (-67°F) 23°C (73°F) 80°C (176°F)	3300 (740) 3800 (850) 2700 (610)	ISO 20337

Compressive and shear properties are dependent on product density

Table 5 | Mechanical Properties for BR® 623P4 after 30 days exposure

Property	Conditioning	Test Temperature	Nominal Value	Test Method
Block Compression Strength, MPa (psi)	Distilled water at RT Dry heat at 80°C (176°F) Skydrol 500 B-4 Hydraulic fluid at RT JP4 Jet fuel at RT 70°C (158°F)/70% RH	23°C (73°F) 23°C (73°F) 23°C (73°F) 23°C (73°F) 23°C (73°F)	52 (7500) 57 (8300) 54 (7800) 52 (7500) 49 (7100)	ISO 604

Compressive and shear properties are dependent on product density

PROCESSING

BR® 623P4 potting compound can be co-cured with most 121°C to 177°C (250°F to 350°F) advanced composite systems under press bonding or autoclave curing conditions.

Recommended Cure Cycle

Cure Cycle	Apply 0-700 kPa (0-100 psi) autoclave pressure. Heat from 24°C (75°F) to 120 ± 3°C (250 ± 5°F) at 1°C – 5°C (2°F - 9°F)/minute. Hold at 121 ± 3°C (250 ± 5°F) for 60 minutes. Cool under pressure below 60°C ± 3°C (140°F ± 5°F) at 2°C - 3°C (4°F - 5°F)/minute.
Alternate Cure Cycle	Apply 0-700 kPa (0-100 psi) autoclave pressure. Heat from 24°C (75°F) to 135 ± 3°C (275 ± 5°F) at 1°C – 5°C (2°F - 9°F)/minute. Hold at 135 ± 3°C (275 ± 5°F) for 40 minutes. Cool under pressure below 60°C ± 3°C (140°F ± 5°F) at 2°C - 3°C (4°F - 5°F)/minute.

HEALTH & SAFETY

Please refer to the product SDS for safe handling, personal protective equipment recommendations and disposal considerations.