

# TegraCore™ R-1050 PPSU

## polyphenylsulfone

Tegracore™ R-1050 is a high-performance foam based on Radel® polyphenylsulfone (PPSU), a versatile, super-tough thermoplastic with a long history of success in structural and decorative aircraft interior components. Tegracore™ R-1050 foam exhibits exceptionally high damage tolerance and withstands prolonged exposure to water, aggressive chemicals including Skydrol® and jet fuel, and temperatures ranging from -40°C to 204°C (-40°F to 400°F).

In addition, it is compliant with aerospace flame/smoke and toxicity (FST) standards. R-1050 foam can be continuously produced in shapes, making it particularly well-suited to implement cost-effective, highly automated interior part production processes. Because R-1050 foam is fully thermoplastic, it can be repaired and recycled. It can be cut, bonded and formed with conventional equipment.

### General

Material Status	• Commercial: Active
Availability	• Asia Pacific • Europe • North America
Processing Method	• Foam Processing

Physical	Typical Value Unit	Test method
Density	0.0500 g/cm <sup>3</sup>	ASTM D1622

Mechanical	Typical Value Unit	Test method
Tensile Strength	1.90 MPa	ASTM C297
Compressive Modulus	23.0 MPa	ASTM D1621
Compressive Strength	0.620 MPa	ASTM D1621
Shear Modulus <sup>1</sup>	9.30 MPa	ASTM C273
Shear Strength	0.690 MPa	ASTM C273

Thermal	Typical Value Unit	Test method
Thermal Conductivity		
20°C <sup>2</sup>	0.038 W/m/K	ASTM C177
20°C	0.039 W/m/K	ISO 8301
Coefficient of Linear Thermal Expansion		
Flow : -65 to 175°C	42 cm/cm/°C	ASTM E831
Transverse : -65 to 175°C	44 cm/cm/°C	ASTM E831
Z-Direction : -65 to 175°C	55 cm/cm/°C	GE

Flammability	Typical Value Unit	Test method
NBS Smoke Density		
at 4.0 min	2.00	FAR 25.853
Max	2.00	F814/E662
Toxicity - Flaming, 12.7 mm		BSS 7239/ATS 1000/ABD 0031
-- <sup>3</sup>	< 2 ppm	
-- <sup>4</sup>	< 1 ppm	
-- <sup>5</sup>	< 1 ppm	
-- <sup>6</sup>	< 1 ppm	
-- <sup>7</sup>	< 1 ppm	

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Flammability	Typical Value	Unit	Test method
Vertical Burn - 60 second			
Burning Length	6.00	cm	DMS 1510
Burning Time	4.0	sec	FAR 25.853
Longest Burning Particle	0.0	sec	DMS 1510

Additional Information	Typical Value	Unit	Test method
OSU Test			FAR 25.853
Maximum Heat Release, 12.7 mm	35.0	kW·min/m <sup>2</sup>	
Total Heat Release , 2 min, 12.7 mm	< 30.0	kW·min/m <sup>2</sup>	
R-Value (2.54 cm)	0.64	m <sup>2</sup> ·K/W	

Specifications for R-1050 have not been defined.

## Notes

Typical properties: these are not to be construed as specifications.

<sup>1</sup> Tested in tension mode

<sup>2</sup> ISO 8301

<sup>3</sup> NO + NO<sub>2</sub>

<sup>4</sup> HCL

<sup>5</sup> HCN

<sup>6</sup> SO<sub>2</sub>

<sup>7</sup> HF

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