

Cymat A35620SC 040SS Stabilized Aluminum Foam

Category : Metal , Metal Foam, Mesh, or Honeycomb , Metal Matrix Composite , Nonferrous Metal , Aluminum Alloy , Other Engineering Material , Composite Core Material

Material Notes:

Description: Cymat A35620SC 040SS stabilized aluminum foam (SAF) is a closed cell aluminum foam formed from A356 aluminum alloy with a density of 0.4 g/cm³. The mechanical properties of SAF make it ideal for many varied applications. These properties include: High strength and stiffness to-weight ratio Strain rate insensitive (the speed of loading does not affect the strength) Notch insensitive (holes do not affect material strength) Constant properties over time, temperature and moisture range High mechanical energy absorption in all directions Not flammable or susceptible to environmental degradation Acoustic and thermal insulation properties Electromagnetic insulation properties Recyclable Applications: Energy absorption for vehicle crashworthiness Energy absorption for blast protection Structural stability Core for a casting Information provided by Cymat.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Cymat-A35620SC-040SS-Stabilized-Aluminum-Foam.php

Physical Properties	Metric	English	Comments
Density	0.400 g/cc	0.0145 lb/in ³	
Cell Length	3.00 mm	0.118 in	Average Cell Size

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	3.20 MPa	464 psi	Through Plane Direction
	3.70 MPa	537 psi	Foaming Direction
	5.00 MPa	725 psi	In Plane Direction
Elongation at Break	0.15 %	0.15 %	Through Plane Direction
	0.20 %	0.20 %	Foaming and In Plane Directions
Tensile Modulus	1.20 GPa	174 ksi	Through Plane Direction
	1.30 GPa	189 ksi	Foaming Direction
	1.50 GPa	218 ksi	In Plane Direction
Compressive Strength	2.00 MPa	290 psi	Lower Yield in the Through Plane Direction
	4.00 MPa	580 psi	Upper Yield in the Through Plane Direction
	5.00 MPa	725 psi	In the Foaming Direction
	6.00 MPa	870 psi	In the In Plane Direction
Compressive Modulus	0.500 GPa	72.5 ksi	Loading, In the Through Plane Direction

Mechanical Properties	Metric GPa	English	Comments
	0.850 GPa	123 ksi	Loading, In the In Plane Direction
	1.05 GPa	152 ksi	Unloading, In the Through Plane Direction
	1.20 GPa	174 ksi	Unloading, In the Foaming Direction
	1.30 GPa	189 ksi	Unloading, In the In Plane Direction
Shear Modulus	0.920 GPa	133 ksi	
Shear Strength	2.10 MPa	305 psi	
Impact	0.70	0.70	MJ/m ³ , Volumetric Energy Absorption (compression) at 20% Strain in the Through Plane Direction
	1.0	1.0	MJ/m ³ , Volumetric Energy Absorption (compression) at 20% Strain in the Foaming Direction
	1.1	1.1	MJ/m ³ , Volumetric Energy Absorption (compression) at 20% Strain in the In Plane Direction
	1.8	1.8	kJ/kg, Specific Energy Absorption (compression) at 20% Strain in the Through Plane Direction
	2.5	2.5	kJ/kg, Specific Energy Absorption (compression) at 20% Strain in the Foaming Direction
	2.6	2.6	MJ/m ³ , Volumetric Energy Absorption (compression) at 50% Strain in the Through Plane Direction
	2.8	2.8	kJ/kg, Specific Energy Absorption (compression) at 20% Strain in the In Plane Direction
	2.9	2.9	MJ/m ³ , Volumetric Energy Absorption (compression) at 50% Strain in the Foaming Direction
	3.1	3.1	MJ/m ³ , Volumetric Energy Absorption (compression) at 50% Strain in the In Plane Direction
	6.5	6.5	kJ/kg, Specific Energy Absorption (compression) at 50% Strain in the Through Plane Direction
7.3	7.3	kJ/kg, Specific Energy Absorption (compression) at 50% Strain in the Foaming Direction	
7.8	7.8	kJ/kg, Specific Energy Absorption (compression) at 50% Strain in the In	

Mechanical Properties	Metric	English	Plane Direction Comments
Thermal Properties	Metric	English	Comments
Thermal Conductivity	4.68 W/m-K	32.5 BTU-in/hr-ft ² -°F	
Maximum Service Temperature, Air	300 °C	572 °F	
Minimum Service Temperature, Air	-80.0 °C	-112 °F	

Descriptive Properties	Value	Comments
Densification Strain	68 %	
Shear Failure Strain	0.3 %	

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