

Product Information Sheet

'E' Glass Needle Mat (Felt)



This product uses **E type fiberglass** roving as our raw materials while each strand is chopped into a 2~3 inch fraction via the fiber cutting machine and further decomposed into extreme tiny blanket shape through the cotton carding engine. Subsequently, our needled fabrics are ceaselessly sewn by thousands of needles.

This Needle Mat offers uniform thickness and density, high temperature performance up to 650 deg,C.

The product adopts inorganic E type fiberglass along with the main components of silicone Al_2O_3 and CaO . Also, it is characterized by heat-resistance, tensile strength, tenacity fireproofing, anti-erosion, and good electrical insulation. The adoption of extreme tiny E type fiberglass followed by particular needling leads to numerous thin holes with the fiberglass blanket so as to provide heat insulation and sound absorbency.

Applications:

Needle Mat is used in the construction of removable insulation covers, stress relieving blankets, exhaust muffler packing & insulation, and many other applications where high temperature protection and flexibility are required.



The Main Elements of E-type Fiber Glass :

SiO ₂	52-56 (weight)
Al ₂ O ₃	12-16
CaO	16-25
MgO	0-6
B ₂ O ₃	8-13
Na ₂ O, K ₂ O	0-0.8
TiO ₂	0-0.4
Fe ₂ O ₃	0.05-0.4

THE PROPERTIES OF FIBER GLASS:

THERMAL OPTICAL PROPERTIES: Fiber Glass is an inorganic fiber completely incombustible.

Coefficient of linear thermal expansion: $4.8 \times 10^{-6} \text{cm/cm}^\circ\text{C}$

Specific heat: $0.19 \text{cal/g}^\circ\text{C}$

Thermal conductive (Bulk glass): $0.86 \text{Kcal/m.h}^\circ\text{C}$

Temperature: up to 650°C

Refractive index 25°C : 1.55

MECHANICAL PROPERTIES: Fiber Glass has a high tensile strength in relation to weight and dimensional stability. It does not stretch or shrink.

Tensile strength: 350kg/mm^2

Modules of elasticity: 7300kg/mm^2

Elongation at 25°C : 4.8%

ELECTRICAL INSULATION PROPERTIES

Dielectric constant: $10^2 \text{Hz}-6.43, 10^4 \text{Hz}-6.32, 10^{10} \text{Hz}-6.11$

Loss tangent: $10^2 \text{Hz}-0.0042, 10^{10} \text{Hz}-0.006$

Volume resistivity: 10^{10}Ocm

CORROSION: Fiber Glass does not absorb water, rot, mildew, deteriorate or decay.

COST: Fiber Glass is an excellent reinforcement material which offers strength to the product at a low cost .

SPECIFIC GRAVITY : 2.53-2.60

Heat Insulation Effect (density 200 kg/m³)

Temperature (oC)	Thermal Conducting Coefficient (kcal/mhr °C)
25 o	0.030
100 °	0.037
200 °	0.048
300 °	0.058
400 °	0.076
500 °	0.094
600 °	0.112
700 °	0.16

Noise Isolation Effect:

Needle Managing Fiber Glass possesses an excellent noise isolation capacity that can absorb noise and vibration to make a peaceful environment.

Frequency (Hz)	Noise Isolation Coefficient
125	0.32
250	0.76
500	0.94
1000	0.96
2000	0.95
4000	0.98

STANDARD

Width: 1500mm

Density: 144 kg/m³ & 180 kg/m³

Heat Resisting Number: below 650°C

Thickness: 12.5mm & 25mm

Fiber Diameter: 9 Micron.

Packaged: In Cardboard Boxes

The physical and chemical data supplied on this data sheet represent typical values determined using industry standard test methods. The data is subject to normal manufacturing and testing variances and is subject to change without notice.

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