



Rayon Carbon & Graphite Felt

What is Rayon Felt?

Rayon carbon and graphite felt are premium refractory insulation materials designed and manufactured for high-temperature vacuum and inert gas furnaces, among other applications. Material is rated for temperatures up to 5432°F (3000°C) in vacuum or inert atmospheres.

Material Grades

Our rayon felt is available in different grades depending on application. Our rayon carbon grade is pre-fired at 3452°F (1900°C), whereas our rayon graphite grade is pre-fired at 4532°F (2500°C). Pre-firing or heat-treating the material after production promotes consistent insulation performance, higher purity, and reduced ash content. Felt grades can be purified to less than 20 ppm.

Material Benefits

- Soft, flexible material that is easy to cut & install
- Minimize energy consumption and cost
- Maximize furnace performance and longevity
- High purity and high thermal resistance
- Low ash & sulphur content
- 100% rayon-based fiber precursor
- Carbon Content ≥ 99%
- Low density, shrinkage, & thermal mass
- Low gas evolution & higher gas oxidation resistance

Applications

- Furnace insulation & parts
- Heat shields & sinks
- Backing strips for soldering & welding
- Cathode in flow battery applications
- Reaction surface for other electro-chemical processes
- Glass blower, plumber pads & wicks in ultralight stoves
- Thermal insulators and automotive exhaust linings

Standard Sizing

Materials are stocked in the following sizes. If you need a custom size, please contact our office for a custom quote.



Properties	Unit	Rayon Carbon	Rayon Graphite
Density	g/cc	0.09	0.08
Linear Shrinkage ¹	%	1	Negligible
Water Absorption	%	1	Negligible
Carbon Content	%	≥ 99	≥ 99.9
Ash Content	%	≤ 0.25	≤ 0.02
Sulphur Content	%	≤ 0.07	≤ 0.035
Friability (Dusting)	%	≤ 1.5	≤ 2.5
Emissivity		0.99	0.99
Sublimation Temp	°F °C	6512 3600	6512 3600
Surface Area (Nitrogen)	m ² /g	0.6	0.7
Tensile Strength	MPa	0.13	0.10
Thermal Conductivity			
2102°F 1150°C	W/mk	0.11	0.14
Vapor Pressure			
4118°F 2270°C	microns	1	1
4424°F 2440°C		10	10
4748°F 2620°C		100	100
Temperature Rating ²	°F °C	5432 3000	5432 3000
Pre-fire Temp	°F °C	3452 1900	4532 2500
Notes:		¹ Measured after heating to 5432°F 3000°C	
		² Temp Rating in Vacuum or Inert Atmosphere	

Stock Sizing	Rayon Carbon	Rayon Graphite
1/8" x 42" x 150'	✓	✓
1/4" x 48" x 100'	✓	✓
1/2" x 48" x 54'	✓	✓
1" x 42" x 24'	✓	✓