



## Pan Carbon & Graphite Felt

### What is Pan Felt?

Pan (Polyacrylonitrile) carbon and graphite felt are 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.

### Pan vs. Rayon Insulation Felt?

Pan is manufactured with larger diameter course fibers resulting in lower surface area and better oxidation resistance. The flexible material is stiffer and less soft to the touch but offers great performance at a reduced price. For heat treat applications, our office highly recommends pan carbon felt due to the materials handling ease, performance, and reduced price. If you are operating at temperatures  $\geq 3272^\circ\text{F}$  (1800°C), please use Rayon as the thermal conductivity is lower than pan.

### Material Grades

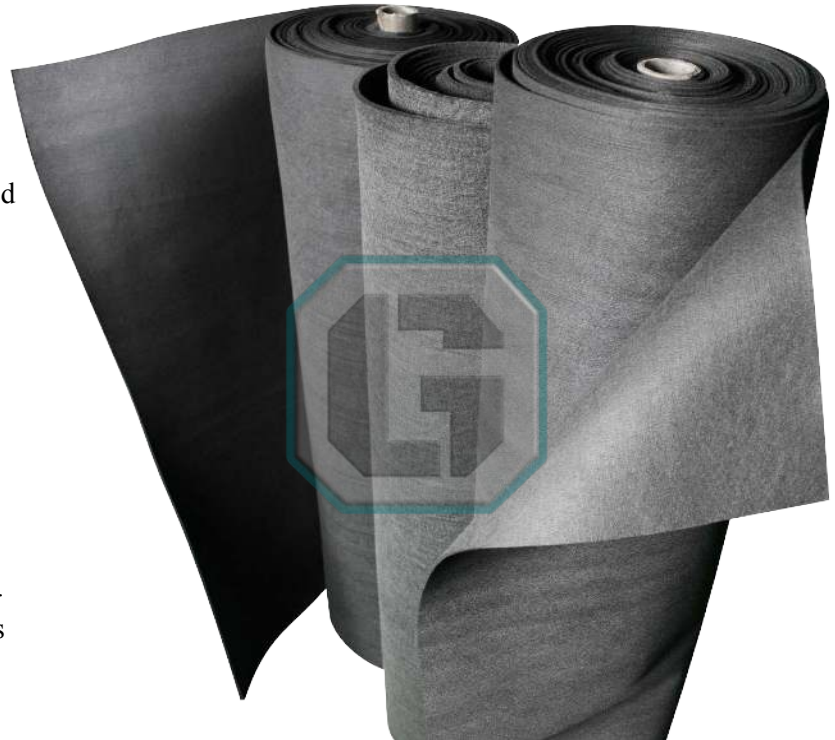
Our pan felt is available in different grades depending on application. Our pan carbon grade is pre-fired at 2192°F (1200°C), whereas our pan graphite grade is pre-fired at 3992°F (2200°C). Pre-firing or heat-treating the material after production promotes consistent insulation performance, higher purity, and reduced ash content. Felt grades can be purified to less than 10 ppm.

### Material Benefits

- Soft, flexible material that is easy to cut & install
- Lower surface area and better oxidation resistance
- Minimize energy consumption and cost
- Maximize furnace performance and longevity
- High purity and high thermal resistance
- Low ash and sulphur content
- Low density, shrinkage, & thermal mass

### 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.

Stock Sizing	Pan Carbon	Pan Graphite
1/8" x 48" x 80'	✓	✓
1/4" x 48" x 80'	✓	✓
1/2" x 48" x 43'	✓	✓

Properties	Unit	Pan Carbon	Pan Graphite
Density	g/cc	0.14	0.13
Carbon Content	%	$\geq 97$	$\geq 99.9$
Ash Content	%	$\leq 0.75$	$\leq 0.05$
Tensile Strength	MPa	0.18	0.12
Thermal Conductivity 2102°F   1150°C	W/mk	0.12	0.16
Temperature Rating <sup>1</sup>	°F   °C	5432   3000	5432   3000
Pre-fire Temp	°F   °C	2192   1200	3992   2200

Notes: <sup>1</sup> Temp Rating in Vacuum or Inert Atmosphere