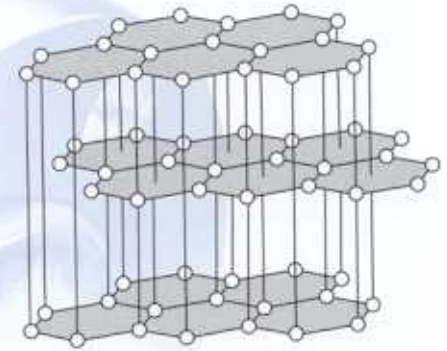


## What is GRAFOIL® Flexible Graphite?

GRAFOIL flexible graphite is a distinctive sheet material with the high temperature and chemical resistance characteristics of graphite and the additional characteristics of flexibility, compactability, conformability, and resilience. These characteristics differentiate GRAFOIL flexible graphite from other forms of carbon and graphite and make it a superior high-performance packing and gasketing material. Because of its unique properties, GRAFOIL flexible graphite gaskets and packings are particularly well suited for high temperature and corrosive fluid sealing applications. GRAFOIL flexible graphite is widely used as a replacement for asbestos based packing and gasketing materials. GRAFOIL flexible graphite has long been considered one of the safest materials for nearly all fluid sealing applications. GRAFOIL gaskets and packings have been proven fire-safe in the presence of highly volatile fluids and extremely high temperatures.



Graphite Crystal Structure

Graftech Inc. developed GRAFOIL flexible graphite over 30 years ago. GRAFOIL flexible graphite is manufactured in our plant in Cleveland, Ohio employing a process that introduces no organic or inorganic binders, fillers, or other potentially fugitive ingredients. The process starts with a high quality particulate graphite flake that is chemically treated, usually with a mixture of mineral acids, to form a compound with and between the layers of carbon atoms. This intercalation or "between the layer" compound is then rapidly heated to decomposition resulting in an over 200 fold expansion in length compared with the thickness of the starting flake raw material.



Expanded Graphite

The expansion or exfoliation process, produces a wormlike or vermiform structure with highly active, dendritic-like, rough surfaces that makes them readily formable into sheet by either a molding or calendaring operation. Since the forming involves only the mechanical interlocking of the wormlike expanded flakes, the resulting sheet product is essentially pure graphite, typically well over 98% elemental carbon by weight, with a highly aligned structure.



GRAFOIL Gaskets

This proprietary manufacturing process imparts into the GRAFOIL flexible graphite sheet the characteristics essential to a gasketing material...flexibility, conformability, compressibility, resilience, low creep relaxation under load, fire-safe, and excellent sealability. GRAFOIL flexible graphite can be used alone as a gasketing or packing material or reinforced with various materials such as stainless steel or fiberglass to improve handleability.

Property	Typical Value
Carbon content	98.0%
Mineral content	2.0%
Sulfur content	550 ppm
Leachable chloride	50 ppm
Temperature range	-200 to 3000° C
Compressibility	40%
Recovery	15%
Creep relaxation	<5%
pH range	0-14

GRAFOIL® (U.S. Patent No. 3,404,061), GH and GT are trademarks of Graftech Inc.

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