

Friction

The power of brakes

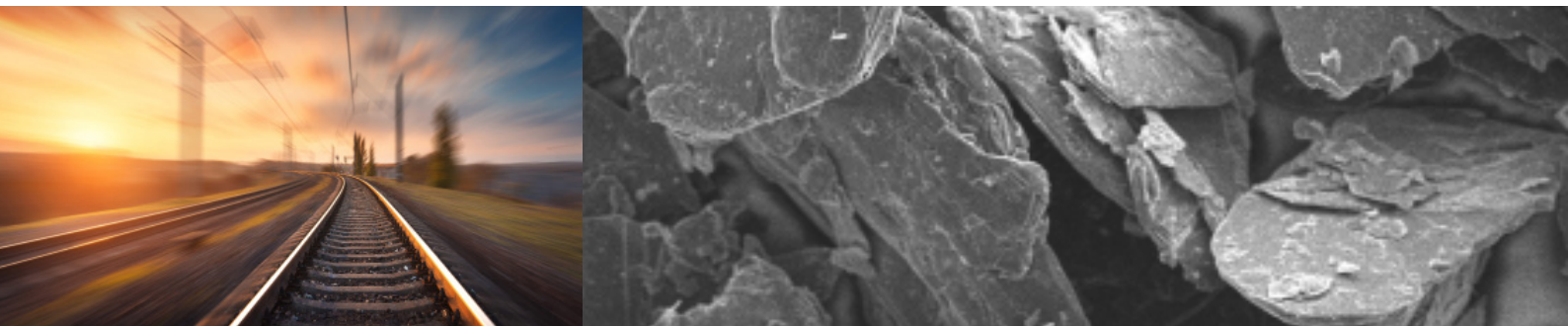
PURITY.
PERFORMANCE.
PASSION.

Graphite in friction

Graphite is used as a lubricant in the friction industry, particularly for brake and clutch linings. It aids heat dissipation and improves driving comfort and reduces noise.

It plays a vital role in this industry, particularly in the production of brake and clutch linings. Its lubricating properties modulate the braking effect of friction linings, contributing to a more comfortable driving experience with less noise.

The main reason for using graphite is its ability to aid heat dissipation after kinetic energy has been converted into heat energy. During friction, a graphite film forms on the surface that can be removed by rough petroleum coke to improve braking performance.



Outstanding graphite properties

Here are some important points about graphite and friction:

Lubricant

Graphite acts as a lubricant, reducing friction between surfaces.

Driving comfort

The lubricating properties of graphite contribute to a more comfortable driving experience.

Heat dissipation

Graphite aids heat dissipation after kinetic energy is converted into heat energy.

Noise reduction

Graphite helps reduce noise caused by friction.

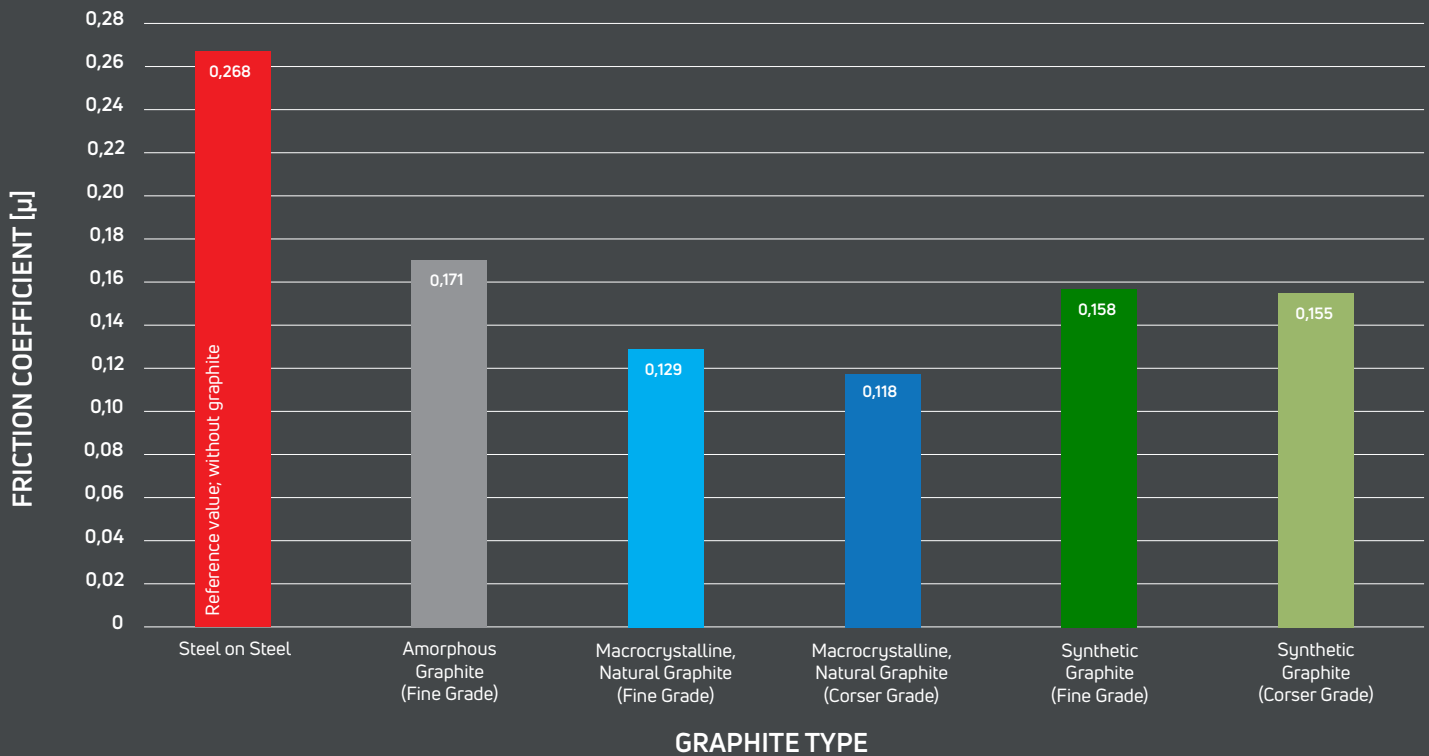
Friction linings

Graphite is an important component of friction linings in brakes and clutches.

Coefficient of friction

The coefficient of friction of graphite can change with temperature. It is low at low temperatures but increases at higher temperatures.

Coefficient of friction



Source: Graphite in Schmiermitteln zur Heimetallumformung (graphites in lubricants for hot metal forming)
Bachelor thesis by Maximilian Hofmeister | Fakultät Maschinenbau, Hochschule Regensburg

Specifications

- Friction coefficient
- Thermal conductivity
- Lubricating properties
- Plastic formability

The main objective of using graphite is to sustain the heat dissipation after kinetic energy is transformed into thermal energy. The different compositions in the respective brake lining must be mixed homogeneously. The graphite film, applied by the friction, will be removed by the rough petroleum coke. This interaction then leads to the appropriate braking effect.

Parameters for good performance

PURITY

PARTICLE SIZE

CRYSTALLINITY

ORIGIN

Fields of application

Graphite is used in the field of friction in various applications due to its unique properties. Here are some of the main uses:



Lubricants

Graphite is often used as a dry lubricant because it reduces friction between moving parts. It is particularly useful in applications where liquid lubricants cannot be used, such as in high temperature or vacuum applications.



Brake pads

In the automotive industry, graphite is used in brake pads to improve friction properties and help dissipate heat. It helps to extend brake pad life and reduce noise.



Plain bearings

Graphite is used in plain bearings to minimize friction between moving parts. These bearings are found in many machines and devices where low-friction movement is required.



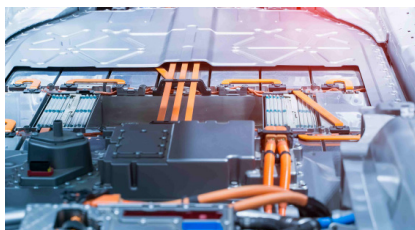
Gaskets

Graphite is used in gaskets, especially in high-temperature and high-pressure applications, to reduce friction and improve tightness.



Friction materials

Graphite is used in various friction materials to improve performance and durability. This includes applications in the aerospace, mechanical engineering and automotive industries.



Electrodes

In some applications, such as electrolysis or fuel cells, graphite is used for its electrical conductivity and frictional properties.

Overall, graphite helps to improve the efficiency and service life of components that operate in high-friction environments.

Key Material Properties of Friction Graphite

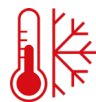
Lubrication

- Graphite's layered structure allows layers to slide over each other easily, reducing friction.
- This reduces wear and tear on friction surfaces and contributes to smoother braking or clutching action.
- It's a solid lubricant, meaning it doesn't easily leak, evaporate, or burn up under stress like some oils.



Heat Dissipation

- Graphite is a good conductor of heat.
- When friction materials generate heat during braking, graphite helps to dissipate this heat, preventing overheating and potential performance issues.



Applications in Friction Materials

Expanded Graphite acts as a strong barrier against electromagnetic interference (EMI). By absorbing and blocking EMI, it protects sensitive components and ensures signal integrity



• Lightweight with a large specific surface area

Its low density and high surface area make Expanded Graphite ideal for energy storage, filtration, and composite applications — wherever surface interaction matters.



• Environmentally friendly and sustainable

Expanded Graphite is a green material, produced in an environmentally responsible way. It is non-toxic, free from heavy metals and halogens and fully aligned with modern sustainability standards, contributing to eco-conscious innovation.



Expanded Graphite is also chemically inert, corrosion-resistant, flexible and oxidation-resistant — making it a reliable and safe solution for a wide range of uses.



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