

Graphite is “a contributor behind the scenes” in manufacturing industries. It significantly contributes upon product development/manufacturing in human daily livings. It is carbon material with excellent conductivity, heatproof and lubrication, so that it is used as functional affix in various manufacturing field. Moreover, Graphite is lighter in gravity than the other metal materials, and is characterized by excellent chemical proof against oxide and alkali agent.

4 traits of Graphite

- 1. Conductivity:** Graphite has an excellent conductivity for heat and electricity.
 - 2. Heat proof:** Graphite is flammable at above 500 °C in oxide environment, nevertheless, its fusion point is as high as up to 3,550 °C. Its composition is sustainable in high heat, as well, it has stable resistance against heat impact due to low coefficient of expansion.
 - 3. Lubrication:** crystallized structure of graphite unit has more fragile combination in layers of the third dimension compared to the plane dimension, so even a little impact could slide one layer down to the other layers, which indicate high lubrication trait within graphite. This trait enables graphite to be used as mold-removal accelerator or high-temperature lubricator.
 - 4. Scientific stability:** Graphite is less likely to be resolved with chemical agent, and it is oxide-proof and alkali-proof
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Most common usage of Graphite to be seen is core of pencil. Lubrication function of Graphite is used for the pencil, and break down of crystallized structure layer of Graphite enables writing with pencil.

Another familiar usage of Graphite is battery—it is a product out of Graphite's electricity conductivity.

In industry, Graphite is used for furnace wall of iron mill due to its heat proof as high as 3,550 °C, and it is also used for pulp or pump packing in place of asbestos due to high chemical proof where oxidized liquid or gas runs through

Graphite is used in various other fields, and in the future, it is expected to be developed further onto aerospace engineering field such as space rocket or fuel battery resource.

Actual proportion		2.26
Mose solidity		1~2
Flammable temp	Deoxidized agent	3550 °C
	Oxidized agent	500 °C
		$4 \times 10^{-5} \Omega \text{cm}$

Natural Graphite

Natural Graphite is essentially the minerals of remained ancient creature/plants, as well as petroleum or coal, before decomposition/resolution in the soil generated through many years transformation exposed by the heat of the earth or ground pressure. Most component element is C (Carbon), and other mixed components include SiO₂/Al₂O₃ in extremely small quantities.

Flake Graphite

Flake Graphite is the one in squamation yet large flat up-down proportion, generated from mine mostly in China, United States, India, and Brazil. In general, the more flake proportion, the more heat resistance it can have, so this Flake Graphite is more likely to be used in fire-proof industry. **Available Flake Graphite product at Nishimura Graphite Inc. ltd** ---average particle diameter $8\mu\text{m}$ - $200\mu\text{m}$, 85-99%Carbon component

Amorphous Graphite

Amorphous Graphite is the one in lump soil, generated mostly in China, South Korea, and North Korea. It is more smoothly resolved in liquid compared to flake product, so that it is used in various field such as paint industry. **Available Amorphous Graphite product at Nishimura Graphite Inc. ltd** ---average particle diameter $5\mu\text{m}$ - $20\mu\text{m}$, 80-90% Carbon component

Translation Liaison Academia NPO Aichi Japan / 翻訳：リエゾン・アカデミア