



WHAT IS SILICA?

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silicon	

WHAT IS SILICA?

Silica, also known as silicon dioxide, is a naturally occurring mineral composed of silicon and oxygen atoms. It is most commonly found in the form of quartz, but can also be found in various other forms such as sand, clay, and glass. Silica is used in a wide variety of industrial and commercial applications, including construction materials, electronic devices, and water filtration.

WHAT IS THE HISTORY OF SILICA?

Silica, or silicon dioxide, has been known since ancient times and has been used for a variety of purposes throughout history. The ancient Egyptians and Phoenicians used silica-rich sand to make glass as early as 2500 BC, and the process of glassmaking was later improved by the Romans and other civilizations. Silica sand was also used as a source of silicon for the production of silicon carbide and other silicon compounds, which have been used for abrasives, refractories, and other industrial purposes. In the 19th century, the discovery of the silicon-carbon bond led to the development of the silicon semiconductor industry, which has revolutionized the electronics industry.

SILICA

Silica is also used in other industrial applications such as in water filtration, construction materials, and ceramics. The discovery of new properties of silica and new ways to process it has led to new applications in the modern era.

In recent years, due to the growth of the semiconductor industry, the use of silica has increased exponentially. It is also used in many modern technologies such as fiber optic cables and solar cells.

WHY IS SILICA AN IMPORTANT COMMODITY?

Silica, or silicon dioxide, is an important commodity for several reasons:

1. **Construction Materials:** Silica sand is a key ingredient in the production of concrete and asphalt for construction of roads, bridges, buildings and other infrastructure.
2. **Glassmaking:** Silica is the main component in the production of glass, which is used in a wide range of products including windows, mirrors, bottles, and other containers.
3. **Semiconductors:** Silica is a key material in the production of semiconductors, which are used in electronic devices such as smartphones, computers, and televisions.
4. **Solar Cells:** Silica is also used in the production of solar cells, which convert sunlight into electricity.
5. **Abrasives:** Silica is used in the production of abrasives, which are used in sandblasting, polishing, and other industrial processes.
6. **Water Filtration:** Silica is used in water filtration systems to remove impurities and improve water quality.
7. **Biomedical applications:** Silica is used in biomedical applications such as drug delivery, wound healing and as a scaffold for tissue engineering.

Overall, silica is important commodity due to its versatile properties and wide range of applications in various industries.





SILICA

DID YOU KNOW?

Silicon is found in the Earth's crust. In fact, 28 percent of it is Silicon. This element is also found in silicate minerals, which comprises a whopping 90 percent of Earth's crust.

HOW IS SILICA MINED?

Silica, or silicon dioxide, is typically mined using one of two methods: underground mining or surface mining.

1. **Underground mining:** In underground mining, tunnels are drilled into the ground to reach the silica deposit. The silica is then extracted using drilling and blasting techniques, and transported to the surface for processing.

2. **Surface mining:** In surface mining, the topsoil and overburden are removed to access the silica deposit. This can be done using a variety of methods, such as strip mining, open-pit mining, or mountaintop removal mining. Once the silica deposit is exposed, it is extracted using earth-moving equipment such as front-end loaders and dump trucks.

The mined silica is then transported to a processing plant, where it is crushed, washed, and screened to remove impurities. The resulting product, which is often referred to as frac sand, is then transported to the end user for use in various industrial and commercial applications.

It's worth noting that the mining and processing of silica can have a significant environmental impact, including the destruction of habitats, air and water pollution, and the displacement of local communities. Therefore, it's important to ensure that silica mining is done in an environmentally responsible manner and with a social license.



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DID YOU KNOW?

A Silicon disk was left on the moon by the Apollo 11 crew in 1969?

Inscribed on this silver dollar-sized disk are 73 microscopic messages from different countries, all wishing good luck to the astronauts.

WHAT EVERYDAY PRODUCTS CONTAIN SILICA?

Silica, or silicon dioxide, is used in a wide variety of everyday products. Some examples include:

1. **Glass:** Silica is the main component in the production of glass, which is used in a wide range of products including windows, mirrors, bottles, and other containers.
2. **Electronics:** Silica is a key material in the production of semiconductors, which are used in electronic devices such as smartphones, computers, and televisions.
3. **Cosmetics:** Silica is used as an absorbent in cosmetics, it helps to keep oils and liquids from separating.
4. **Food and beverages:** Silica is used as a desiccant to absorb moisture, it is often found in packets in food and beverage packaging.
5. **Medications:** Silica is used in some medications as a flow agent and to improve the stability of the medication.
6. **Toothpaste:** Silica is used as a polishing agent and mild abrasive in toothpaste.
7. **Construction materials:** Silica is the main ingredient in making of concrete and asphalt for construction of roads, bridges, buildings and other infrastructure.
8. **Solar cells:** Silica is also used in the production of solar cells, which convert sunlight into electricity.

Silica is a versatile material and can be found in many everyday products. Its properties as a desiccant, abrasive, and flow agent make it a useful ingredient in many products.

