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# What is Ferrofluid?

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## The state of the art technology, liquid to react to the magnet.

Ferrofluid is a liquid material developed during the NASA space program as a “method for transporting liquid fuel within a spacecraft in the space-zero gravity state” in the early 1960s. Utilizing the characteristic of 'liquid that reacts to magnetic force', it is used in various industrial uses.



### ● Constituent

#### **Magnetic elementary particle**

A magnetic ultrafine particle diameter of about 10.0 nanometers (100 Å) is used.

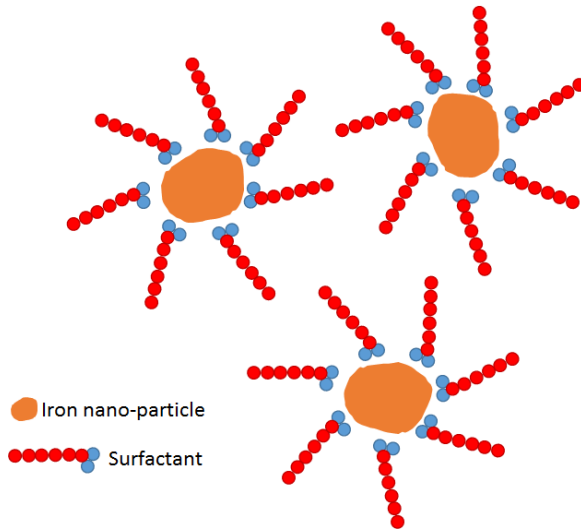
#### **Surfactants**

By adsorption of surfactant onto the surface of the particles, the magnetic particles in the carrier fluid become non-condense and a stable colloidal liquid (ferrofluid)

#### **Carrier fluid**

For the purpose and environment of ferrofluid, hydrocarbons, silicon compounds and non-flammable oils are used.

# What is Ferrofluid?



## Magnetic properties of a ferrofluid

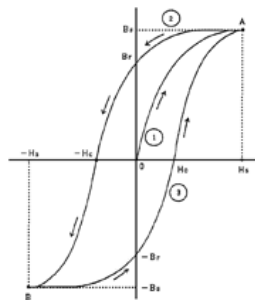
Ferrofluid is a simple non-magnetic liquid if the magnetic field is zero, but it is magnetized when magnetic fields are applied to it.

However, when the magnet is removed (to remove magnetic field), the ferrofluid is decayed again.

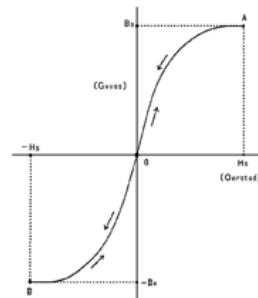
This magnetic characteristic is called a 'Superparamagnetic'.

Ferrofluids have no residual magnetization and Hysteresis properties.

The figure of magnetization saturation, caused by externally imposed magnetic fields is a magnetic saturation value.



The magnetization curve of a general magnetic body



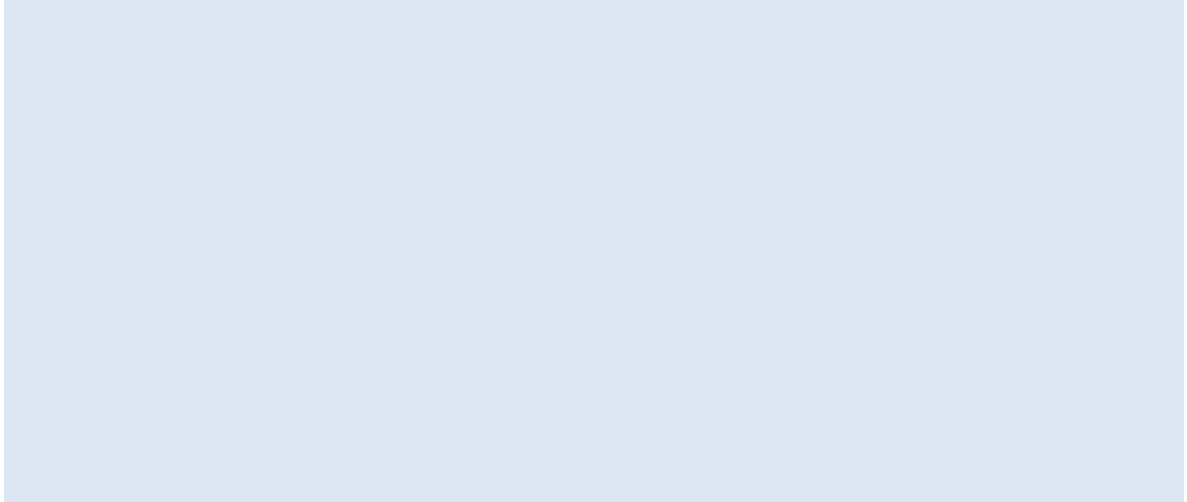
Magnetization curve of magnetic fluid

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# FERROFLUID

- What is Ferrofluid

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### Company information

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