

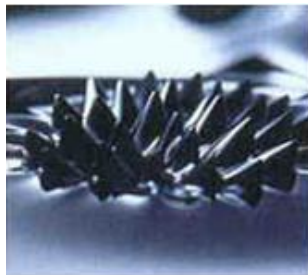
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# What is **Magnetic fluid**?

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

Magnetic fluid 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.

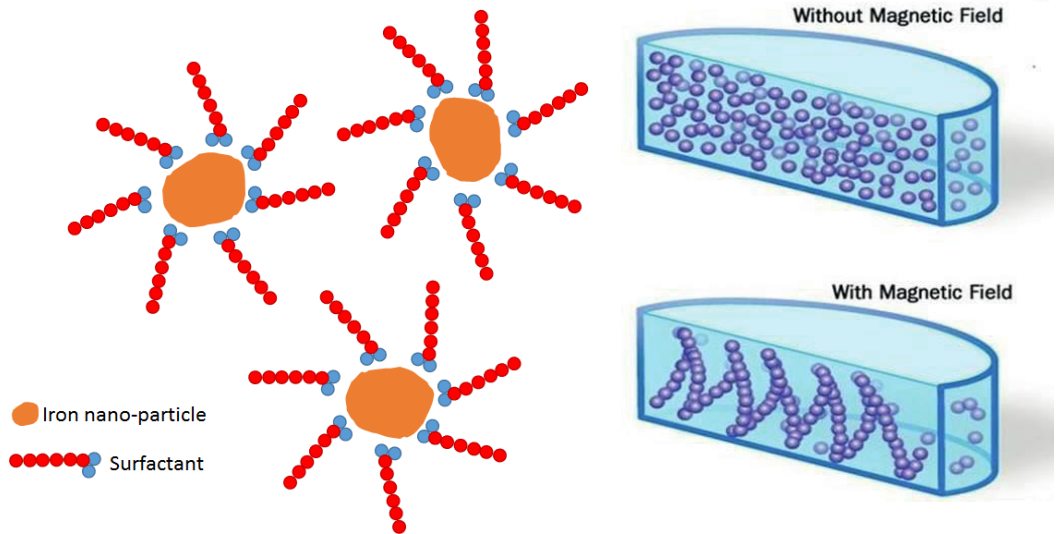
#### **Surfactants**

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

#### **Base liquid**

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

# What is Magnetic fluid?



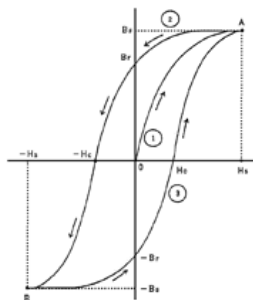
## Magnetic properties of a magnetic fluid

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

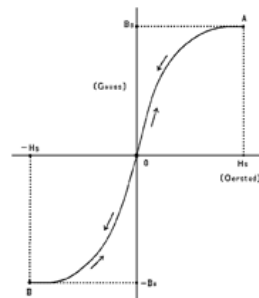
However, when the magnet is removed (to remove magnetic field), the magnetic fluid is decayed again.

This magnetic characteristic is called a 'Superparamagnetic'. Magnetic fluids 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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