

What is Magnetic fluid?

Constituent

Magnetic elementary particle

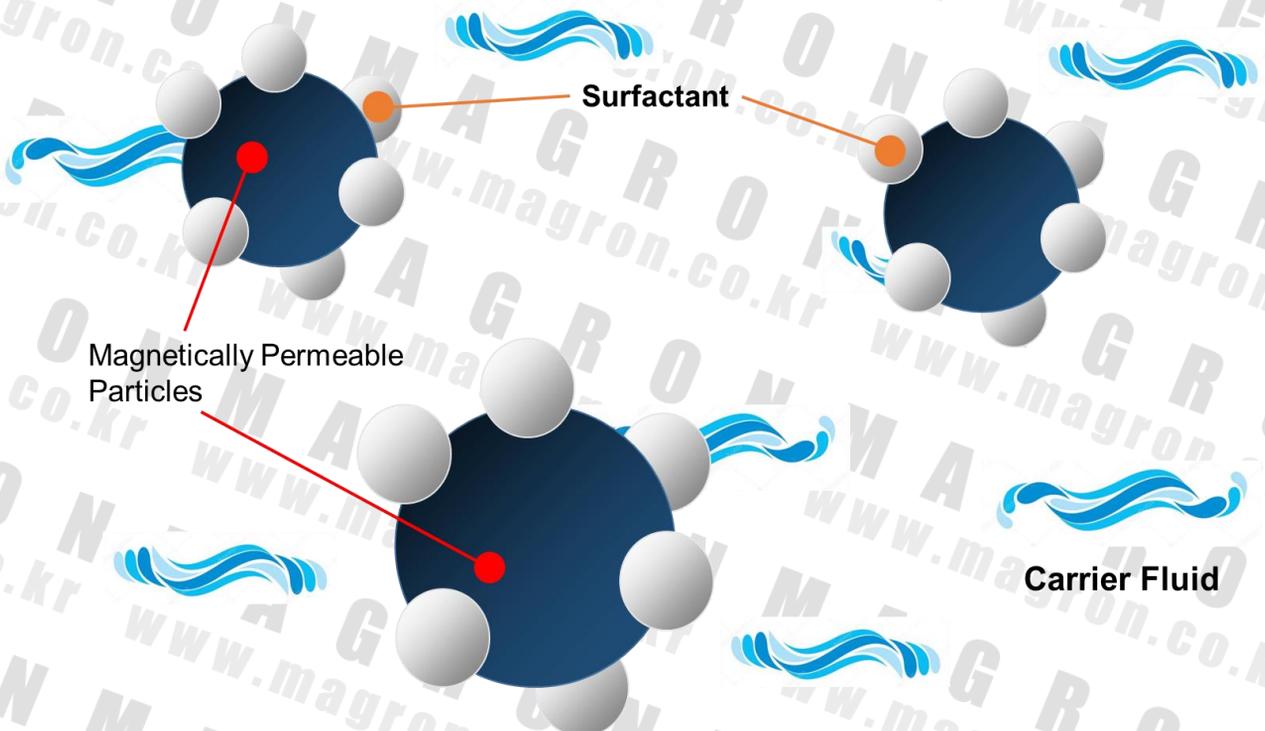
A magnetic ultrafine particle diameter of about 10.0 nanometers (100 Å) is used.

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.



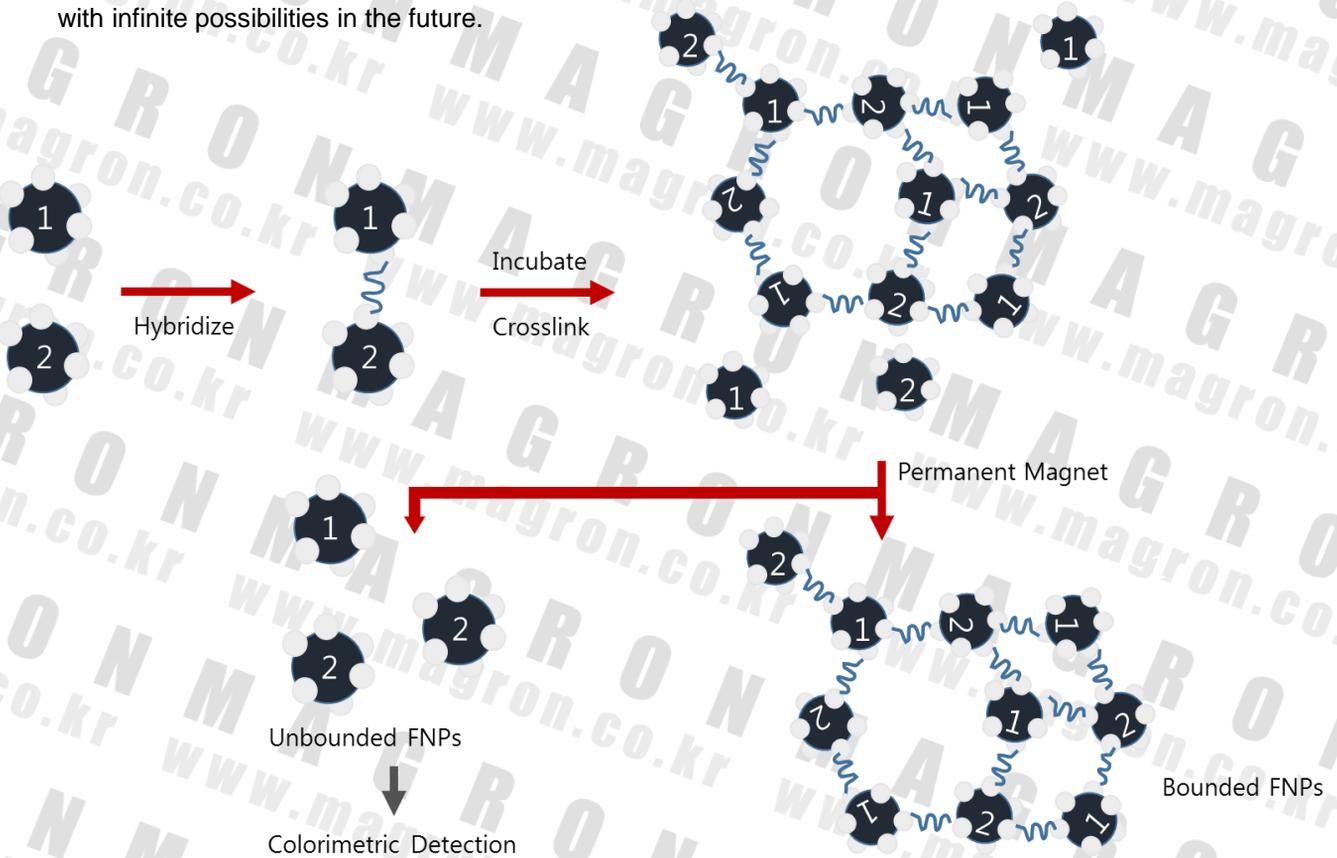
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● Principle

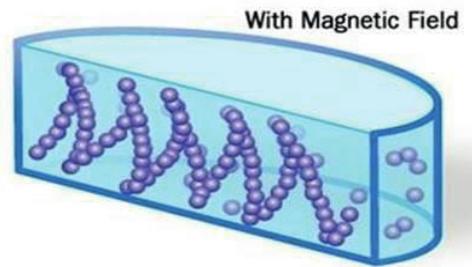
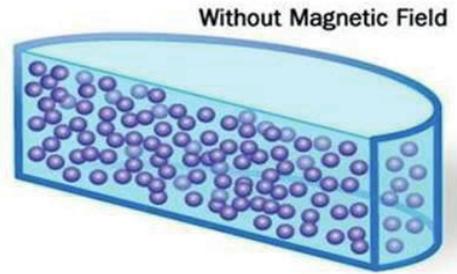
Magnetic fluid is a magnetic liquid that water or oil mixed with magnetite. When the magnet is brought close to the black liquid, it is dragged to it. The liquid has a metal properties because it mixes magnetic materials such as magnetite and iron oxide into the liquid.

When mixed with liquids, the surfactant is coated so that the powder does not bind together, with the brown movement of the molecules, it forces them together, causing them to spread evenly and look like a liquid. This stability does not break even in zero gravity or strong magnetic fields.

Magnetic fluid is an important part of research in applications of high technology, and is a promising material with infinite possibilities in the future.



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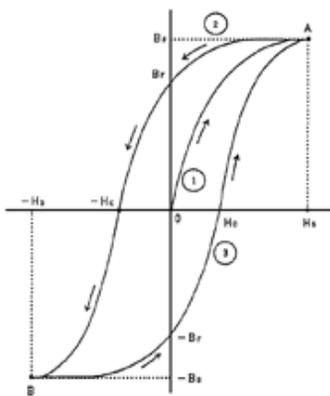
Magnetic properties of a magnetic fluid

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.

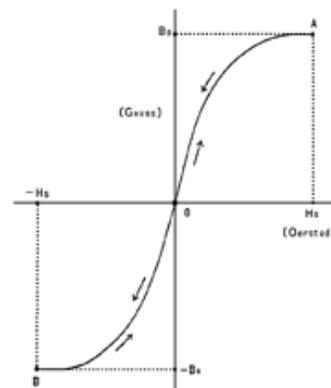
However, when the magnet is removed (to remove magnetic field), the magnetic fluid is decayed again.

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.



A normal magnetization curve



Magnetization Curve of Magnetic Fluid

What is **Magnetic fluid**?



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