

Lubricant diffusion prevention coating agent

Fluorine-based compound coating agents exhibit oil repellency. By coating the rotating shaft of a motor or the like with a coating film of a fluorine-based compound, it is possible to prevent the lubricating oil used in the bearing from diffusing along the rotating shaft.

In a hard disk that rotates at high speed, lubricating oil diffuses from the rotating shaft, contaminating the surface of the disk and causing failure. This failure can be prevented by applying a fluorine-based coating to the rotating shaft. Within the industry, this oil repellent coating agent is also called an oil barrier agent.

Since the function of repelling the lubricating oil for bearings is necessary, compounds other than fluorine-based compounds cannot exhibit the function of preventing diffusion. (See table below)

In addition to spindle motors for hard disks, this coating agent is also used for miniature motors such as vibrator motors for smartphones and rotating shafts of high-end mechanical wristwatches.

In addition, there is no alternative substance for reasons common to all lubricating oil splash prevention applications, not just rotary shafts.

compound name	Diffusion prevention of lubricating oil
The fluorine compound	○
silicon compound	×
Urethane compound	×
acrylic compound	×
epoxy compound	×
polyethylene	×
polypropylene	×
ABS	×
Nylon 66	×
Polyimide	×
polyamide	×

The coating agent assumed to be an alternative substance requires a hydrocarbon-based organic solvent as a solvent for the resin. There is a risk of sparks or electrostatic ignition, and

accidents may occur.

Non-flammable, low-toxicity, low-odor fluorine-based solvents (e.g. HFE, HFC, etc.) can be used as solvents for fluorine-based resin coating agents, making the working environment safe and protecting workers.