

Grease is a lubricating oil of medium to high viscosity.

The composition consists of a base oil and a thickening agent to increase viscosity.

As the base oil, PAO, silicon oil, perfluoropolyether oil, etc. are mainly used.

Inorganic particulate matter, PTFE powder, etc. are used as the thickening agent.

the base oil of grease does not originally have a very high viscosity , it often happens that only the base oil oozes out of the grease and spreads.

the base oil diffuses, the lubricating performance gradually deteriorates . To prevent this, a fluorinated base oil diffusion inhibitor is added.

By adding a small amount of the fluorine-based base oil diffusion inhibitor to the grease, the outflow of the grease base oil can be prevented.

Therefore, in order to maintain long-term lubricity of grease, it is necessary to add a fluorine-based compound.

This function is obtained by the effective action of the fluorine-based oil repellency.

Silicon compounds and the like are conceivable as substitutes, but these substances do not have oil repellency, so satisfactory results cannot be obtained in terms of performance.

compound name	oil repellency (hexadecane contact angle)
The fluorine compound	69°
silicon compound	15°
Urethane compound	Not measurable (contact angle of 10 degrees or less)
acrylic compound	Not measurable (contact angle of 10 degrees or less)
epoxy compound	Not measurable (contact angle of 10 degrees or less)
polyethylene	Not measurable (contact angle of 10 degrees or less)
polypropylene	Not measurable (contact angle of 10

	degrees or less)
ABS	Not measurable (contact angle of 10 degrees or less)
Nylon 66	Not measurable (contact angle of 10 degrees or less)
Polyimide	Not measurable (contact angle of 10 degrees or less)
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Please also refer to the following patents for these functions.

(Reference Japanese Patents 7072864, 7082811, 7212359)