

Coating agents that use fluororesin have acid resistance that other resins do not have . Therefore, it is widely used as an acid-resistant coating agent for metals.

As an alternative substance, a coating agent obtained by dissolving a silicone resin, an acrylic resin, a urethane resin, an olefin resin, or the like in a hydrocarbon-based organic solvent can be considered. However, these alternative materials are not highly acid resistant and cannot protect metals such as silver and copper when exposed to volcanic gases and acidic substances such as nitric and sulfuric acids . Therefore, it cannot be used as a substitute for fluorine-based coating agents . (See table below)

Coating compound name	component	Protection from nitric acid * copper wiring pattern	Hydrogen sulfide [10ppm] Silver tarnish prevention
Fluorine compound		○	○
Silicon compound		×	×
Urethane compound		×	×
acrylic compound		×	×
epoxy compound		×	×
Olefin compound		×	×

* Disconnection of 0.5mm wide copper pattern after immersion in 5% nitric acid solution for 24 hours

2. Substitute coating agents require hydrocarbon-based organic solvents as solvents for resins. There is a risk of ignition due to sparks or static electricity, which may lead to an accident.

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