

Flat Wire Coating Material Science Solutions Powering Next Generation High-voltage Systems

Flat wire coating material developments by AGC Chemicals are new material science solutions to be used as polymer and enamel layers potentially replacing neat PEEK, PI and PFA in these critical cable constructions. Modifying or coating these neat resins with fluoropolymers provides excellent adhesion, improved flexibility and impact strength, heat resistance, and superior electrical insulation.

Fluon+ Adhesive PFA EA-2000

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- Recommend powder and water-based dispersion
- Processed by dipping/oven-curing

Current Construction

- Insufficient reliability for high voltage
- Pinhole defect

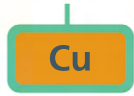
→ Our Solution

- Strong adhesion to Cu/PI
- Better electrical insulation

PI (enamel)



EA-2000



EA-2000



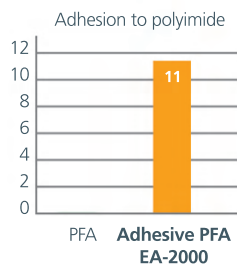
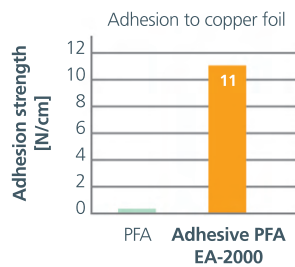
PI (enamel)

EA-2000



PI (enamel)

Adhesion to Copper and Polyimide



Fluon+ EA-2000 provides better adhesion to PI and Cu as compared to neat PFA without sacrificing original performance.

Water-based dispersion



Powder

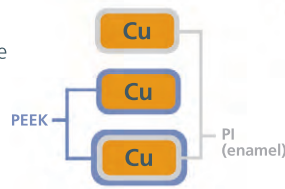


Fluon+ PFA and PEEK-based Compounds

- Customized compounds to your specification in pellet form
- Processed by extrusion coating method

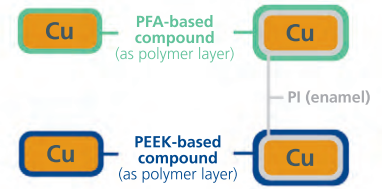
Current Construction

- Insufficient reliability for high voltage
- Pinhole defect
- Poor adhesion (primer needs)
- Cracking when bending
- Poor flexibility



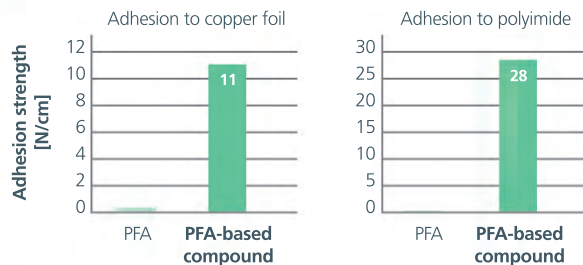
Our Solution

- Strong adhesion to Cu/PI
- No cracking (good flexibility)
- Better electrical insulation

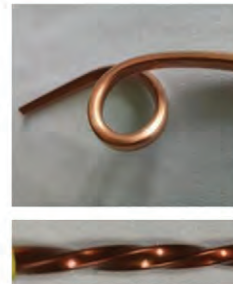


PFA-based compound

Adhesion to Copper and Polyimide



Crack Resistance (Bending Test) - Anti ATF



Immersion condition: 150°C, 500 hr, automatic transmission fluid - 95.5 wt%
 MIT Folding Endurance Tester (ASTM D2176)
 Flex life count:

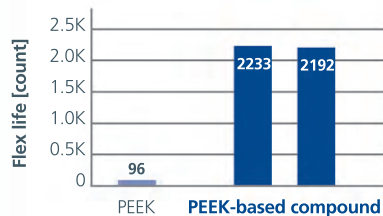
PEEK	PI	PFA	PFA-based compound
10 ² ~10 ³	10 ² ~10 ³	10 ⁴	10 ⁴

Good Flexibility

- No damage
- No cracking
- No wrinkles

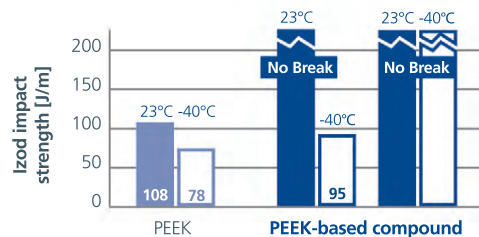
PEEK-based compound

Flexibility - MIT Flex Resistance (ASTM D2176)



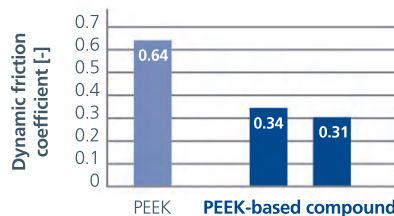
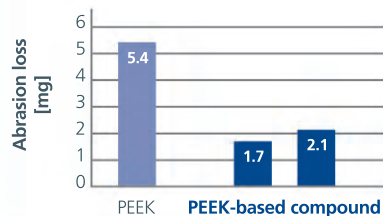
Improved Bending Resistance

Flexibility - Izod Impact Strength (ASTM D256)



Better Impact Strength

Abrasion and Wear Properties (ASTM D3702)



Better Abrasion Loss and Dynamic Function



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