Title (en)

Electroviscous fluid.

Title (de)

Elektroviskose Flüssigkeit.

Title (fr)

Fluide électrovisqueux.

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Application

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Priority

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Abstract (en)

The electroviscous fluid is a suspension composed of a finely divided dielectric solid dispersed in an electrically nonconductive oil. The viscosity of the fluid increases swiftly and reversibly under an influence of electric field applied thereto and the fluid turns to a state of plastic or solid when the influence is sufficiently strong. The electroviscous fluid of the present invention comprises (A) 1-60% by weight of a dispersed phase composed of crystalline zeolite having the following properties (1), (2), (3) and (4). (1) a general formula M(x/n) [(AlO2)x(SiO2)y].wH2O, wherein, M is a hydrogen ion, a metallic cation or a mixture of metallic cations having an average electron value n; x and y are integers; w is a mole number of crystallization water, (2) Si/Al atomic ratio (y/x) of 10-200, (3) a water content of 0.05-10% by weight and (4) an average particle size of 0.01-20 micrometer, and (B) 99-40% by weight of a liquid phase of an electric insulating oil having a viscosity of 0.65-500 centistokes at room temperature. The electroviscous fluid exhibits an excellent electroviscous effect with a low electric power consumption together with a quick response at the application and cancellation of an electric potential difference.

IPC 1-7

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Citation (search report)

- [X] FR 2612910 A1 19880930 - MIZUSAWA INDUSTRIAL CHEM [JP]
- [Y] EP 0170939 A1 19860212 - BAYER AG [DE]
- [YD] US 3047507 A 19620731 - WINSLOW WILLIS M

Cited by

GB2562309A; EP4134151A1; US5480573A; EP0589637A1; EP0424840A1; US5130042A; US11565212B2; US11571656B2; EP0374525B1

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