

Title (en)  
ELECTROVISCOUS FLUID

Publication  
**EP 0372366 B1 19920902 (EN)**

Application  
**EP 89122000 A 19891129**

Priority  
JP 30222788 A 19881201

Abstract (en)  
[origin: EP0372366A1] 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  $M(x/n)[(AlO_2)_x(SiO_2)_y] \cdot wH_2O$ , 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  
**C10M 125/26**; **C10M 171/00**; **C10N 40/00**; **C10N 40/14**; **C10N 60/00**

IPC 8 full level  
**C10M 169/04** (2006.01); **C10M 125/26** (2006.01); **C10M 171/00** (2006.01); **C10N 10/06** (2006.01); **C10N 20/02** (2006.01); **C10N 20/06** (2006.01); **C10N 30/02** (2006.01); **C10N 40/06** (2006.01); **C10N 40/14** (2006.01)

CPC (source: EP)  
**C10M 107/50** (2013.01); **C10M 125/26** (2013.01); **C10M 169/04** (2013.01); **C10M 171/001** (2013.01); **C10M 2201/087** (2013.01); **C10M 2201/10** (2013.01); **C10M 2201/102** (2013.01); **C10M 2201/103** (2013.01); **C10M 2201/105** (2013.01); **C10M 2203/02** (2013.01); **C10M 2203/022** (2013.01); **C10M 2203/024** (2013.01); **C10M 2203/04** (2013.01); **C10M 2207/28** (2013.01); **C10M 2211/06** (2013.01); **C10M 2213/00** (2013.01); **C10M 2213/02** (2013.01); **C10M 2213/04** (2013.01); **C10M 2213/06** (2013.01); **C10M 2213/062** (2013.01); **C10M 2223/02** (2013.01); **C10M 2223/049** (2013.01); **C10M 2229/025** (2013.01); **C10M 2229/0405** (2013.01); **C10M 2229/041** (2013.01); **C10M 2229/0415** (2013.01); **C10M 2229/042** (2013.01); **C10M 2229/0425** (2013.01); **C10M 2229/0435** (2013.01); **C10M 2229/0445** (2013.01); **C10M 2229/0455** (2013.01); **C10M 2229/0465** (2013.01); **C10M 2229/0475** (2013.01); **C10M 2229/0485** (2013.01); **C10M 2229/0505** (2013.01); **C10M 2229/051** (2013.01); **C10M 2229/0515** (2013.01); **C10M 2229/0525** (2013.01); **C10M 2229/0535** (2013.01); **C10M 2229/0545** (2013.01); **C10N 2020/01** (2020.05); **C10N 2040/16** (2013.01); **C10N 2040/17** (2020.05)

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

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**EP 0372366 A1 19900613**; **EP 0372366 B1 19920902**; DE 68902734 D1 19921008; DE 68902734 T2 19930114; JP H02150494 A 19900608

DOCDB simple family (application)  
**EP 89122000 A 19891129**; DE 68902734 T 19891129; JP 30222788 A 19881201