ABSTRACT

There is disclosed a process for preparing a metal oxide CMP slurry suitable for semiconductor devices, wherein a mixture comprising 1 to 50 weight % of a metal oxide and 50 to 99 weight % of water is mixed in a pre-mixing tank, transferred to a dispersion chamber with the aid of a transfer pump, allowed to have a flow rate of not less than 100 m/sec by pressurization with a high pressure pump, and subjected to counter collision for dispersion through two orifices in the dispersion chamber. The slurry has particles which are narrow in particle size distribution, showing an ultrafine size ranging from 30 to 500 nm. Also, the slurry is not polluted at all during its preparation and shows no tailing phenomena, so that it is preventive of μ -scratching. Therefore, it can be used in the planarization for shallow trench isolation, interlayer dielectrics and inter metal dielectrics through a CMP process.

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