CLAIMS

1. A powdery calcium-magnesium compound comprising at least a calcium-magnesium hydroxide content greater or equal to 80 weight %, with respect to the total weight of the powdery calcium-magnesium compound characterized in that the powdery calcium-magnesium compound presents a resistivity at 300°C lower than 1E11 Ohms·cm and higher than 1E7 Ohms·cm and in that the said powdery calcium magnesium compound is doped with calcium nitrate at an amount greater than or equal to 0.05 weight% and lower or equal to 5 weight % with respect to the total weight of the powdery calcium magnesium compound.

2. A powdery calcium-magnesium compound according to claim 1, presenting a maximum resistivity R_{max} lower than 1E11 Ohms·cm.

3. A powdery calcium-magnesium compound, according to claim 1 or claim 2, further comprising a sodium based additive in an amount up to 3.5 weight % with respect to the total weight of the powdery calcium-magnesium compound, expressed as sodium equivalent.

4. A powdery calcium-magnesium compound according to anyone of the claims 1 to 3, presenting a BET specific surface area by nitrogen adsorption of at least 20 m^2/g, preferably of at least 25 m^2/g, preferably of at least 30 m^2/g, more preferably of at least 35 m^2/g.

5. A powdery calcium-magnesium compound according to anyone of the claims 1 to 4, presenting a BJH pore volume for pores having a diameter lower or equal to 1000 Å by nitrogen desorption of at least 0.1 cm^3/g.

6. A sorbent composition for flue gas treatment installation including an electrostatic precipitator comprising said powdery calcium-magnesium compound according to anyone of the claims 1 to 5.

7. A sorbent composition according to claim 6 further comprising an additive selected from the group consisting of activated charcoal, lignite coke, halloysite, sepiolite, clays, bentonite, kaolin, vermiculite,

fire clay, aerated cement dust, perlite, expanded clay, lime sandstone dust, trass dust, Yali rock dust, trass lime, fuller's earth, cement, calcium aluminate, sodium aluminate, calcium sulphide, organic sulphide, calcium sulfate, open-hearth coke, lignite dust, fly ash, and water glass.

8. A sorbent composition according to claim 6 or claim 7, comprising a sodium based additive in an amount up to 3.5 weight % with respect to the total weight of the powdery sorbent composition and expressed as sodium equivalent.

~~9. A sorbent composition according to anyone of the claims 6 to 8, wherein said calcium nitrate is present at an amount greater than or equal to 0.05 weight % and lower or equal to 5 weight % with respect to the total weight of the dry sorbent composition.~~

~~10.~~9. A sorbent composition according to anyone of the claims 6 to ~~9~~8, wherein said calcium-magnesium compound is hydrated lime.

~~11.~~10. A process for manufacturing a sorbent composition ~~comprising 0.1 weight % and 5 weight % of calcium nitrate~~ for a flue gas treatment installation including an electrostatic precipitator, the process comprising the steps of

a) providing a calcium-magnesium compound comprising a calcium-magnesium hydroxide content greater or equal to 80 weight %, with respect to the total weight of the dry calcium-magnesium compound to a reactor;

b) adding a compound selected from the group consisting of calcium nitrate and nitric acid and combinations thereof in an amount calculated to obtain between 0.1 weight % and 5 weight % of calcium nitrate with respect to the total weight of the dry sorbent composition, and to obtain a powdery calcium-magnesium compound presenting a resistivity at 300°C lower than 1E11 Ohms·cm and higher than 1E7 Ohms·cm.

~~12. A process according to claim 11, wherein said calcium-magnesium compound comprises a calcium-magnesium hydroxide content greater or equal to 80 weight %, with respect to the total weight of the dry calcium-magnesium compound.~~

~~13.~~11. A process according to claim 10~~11 or 12~~, wherein said step of providing a calcium-magnesium compound to a reactor comprises a step of providing a quicklime to said reactor, slaking said quicklime with a predetermined amount of water to obtain said calcium-magnesium compound comprising at least a calcium hydroxide content greater or equal to 80 weight %, with respect to the total weight of the dry calcium-magnesium compound with an predetermined amount of moisture.

~~14.~~12. A process for manufacturing a sorbent composition according to ~~any one of the~~ claim ~~11 to 13~~10 or 11, characterized in that it comprises a step of adding a sodium based additive expressed as sodium equivalent in an amount calculated to obtain up to 3.5% of sodium equivalent in weight of the dry sorbent composition.

~~15.~~13. A process for manufacturing a sorbent composition according to any one of the claims ~~11~~10 to ~~14~~12, characterized in that said step of slaking is performed in conditions such as to obtain hydrated lime with a BET specific surface area measured by nitrogen adsorption of at least 20 m^2/g.

~~16.~~14. A process for manufacturing a sorbent composition according to any one of the claims ~~11~~10 to ~~15~~13, characterized in that said step of slaking is performed in conditions such as to obtain hydrated lime with a BJH pore volume for pores having a diameter lower or equal to 1000 Å measured by nitrogen desorption of at least 0.1 cm^3/g.

~~17.~~15. A process for manufacturing a sorbent composition according to any one of the claims ~~11~~10 to ~~16~~14, characterized in that it further comprises a step of adding an additional additive selected from the group consisting of activated charcoal, lignite coke, halloysite, sepiolite, clays, bentonite, kaolin, vermiculite, fire clay, aerated cement dust, perlite, expanded clay, lime sandstone dust, trass dust, Yali rock dust, trass lime, fuller's

earth, cement, calcium aluminate, sodium aluminate, calcium sulphide, an organic sulphide, calcium sulfate, open-hearth coke, lignite dust, fly ash, and water glass.

~~18.~~16. A flue gas treatment process using an installation comprising an injection zone arranged upstream of an electrostatic precipitator, characterized in that it comprises a step of injecting in said injection zone a sorbent composition according to anyone of the claims 6 to ~~10~~9.

~~19.~~17. A flue gas treatment process according to claim ~~18~~16, ~~wherein the sorbent composition comprises a calcium magnesium compound, and~~ wherein said sorbent composition is injected in said injection zone wherein said flue gas has a temperature greater than or equal to 180°C .

~~20.~~18. A flue gas treatment process according to claim ~~18~~16 or ~~19~~17 wherein said sorbent composition is injected as a dry powder in a dry sorbent injection system or injected as an atomized slurry in a spray dryer absorber system.

~~21.~~19. A flue gas treatment device comprising an electrostatic precipitator downstream of an air preheater, said air preheater being connected to said electrostatic precipitator by a duct, characterized in that said flue gas treatment device further comprises an injection zone for injecting a sorbent composition according to any one of the claims 6 to ~~10~~9 arranged upstream of said air preheater.