CLAIMS

1. A composition for reducing heavy metals and dioxins in flue gases comprising a solid sorption material which is a mineral compound, preferably non-functionalized, characterized in that said mineral compound is selected from the group of phyllosilicates from the subgroup of sepiolite according to the Dana classification ~~phyllosilicates of the "palygorskite-sepiolite" group according to the Dana classification, said mineral compound being~~and is doped with a halide salt ~~and~~ while retaining ~~the~~ an initial crystalline structure, said halide salt being present in an amount on a dry basis ranging from 0.5 % to 20% by weight on the basis of the weight of the composition.

~~2. The composition according to claim 1, wherein said mineral compound is selected from the group of phyllosilicates from the subgroup of sepiolite according to the Dana classification.~~

~~3.~~2. The composition according to claim 1 ~~or claim 2~~, wherein said halide salt is an alkaline halide, an earth alkaline halide or the like, preferably selected from the group consisting of NaCl, NaBr, Nal, KCl, KBr, Kl, $CaCl_2$, CaBr2, Cal_2, $MgCl_2$, $MgBr_2$, Mgl_2, NH_4Cl, NH_4Br or NH_4I or mixtures thereof.

~~4.~~3. The composition according to ~~any of the preceding claims~~claim 1 or claim 2, wherein said halide salt is present in an amount on a dry basis ranging from 1% to 15% by weight and in particular from 1.5% to 10% by weight of halide salt on the basis of the weight of the composition.

~~5.~~4. The composition according to any of the preceding claims, wherein the mineral compound doped by said halide salt has a BET specific surface area comprised between 70 and 170 m^2/g, preferably between 80 and 140 m^2/g and more preferentially between 90 and 130 m^2/g.

~~6.~~5. The composition according to any of the preceding claims, wherein said mineral compound doped by said halide salt has a pore volume comprised between 0.15 and 0.32 cm^3/g, preferably between 0.20 and 0.30 cm^3/g and more preferentially between 0.22 and 0.28 cm^3/g, as measured by the BJH method, applied to the nitrogen desorption isotherm.

~~7.~~6. A method for manufacturing a composition for reducing heavy metals and dioxins according to any one of the claims 1 to ~~6~~5, comprising the steps:

- supplying a solid sorption material which is a mineral compound, preferably non-functionalized, selected from the group of phyllosilicates from the subgroup of sepiolite according to the Dana classification~~phyllosilicates from the "palygorskite-sepiolite" group according to the Dana classification~~,

- supplying a halide salt, and
- putting into contact said mineral compound and said halide salt with formation of a mineral compound doped with the halide salt.

8.7. The method according to claim 76, wherein said contacting of said mineral compound and of said halide salt is achieved with stirring.

9.8. The method according to claim 7 6 or claim 8 7 wherein said supplied mineral compound has a humidity comprised between 0.1 and 100 g/kg, advantageously between 2 and 90 g/kg.

10.9. The method according to any of claims 7 6 to 98, wherein said contacting is carried out at room temperature.

11.10. The method according to any of claims 7 6 to 109, wherein said halide salt is in liquid form, in an aqueous phase.

12.11. The method according to any of claims 7 6 to 1110, wherein said step for putting into contact said mineral compound and said halide salt is spraying of said halide salt on said mineral compound optionally with stirring.

13.12. The method according to claim 1110, wherein said step for putting into contact said mineral compound and said halide salt is soaking of said mineral compound in said halide salt in a liquid phase, optionally with stirring.

14.13. The method according any of claims 11 10 to 13 12 wherein said halide salt in a liquid phase is an aqueous solution, having a halide salt content comprised between 1% and 30%, in particular between 5% and 27%, preferably between 10% and 27% by weight based on the total weight of said solution.

15.14. The method according to one of claims 7 6 to 1413, further comprising one or more steps for drying and/or deagglomerating said mineral compound doped with the halide salt, preferably at a temperature comprised between 60 and 200ºC, in particular between 75 and 170ºC.

16.15. The method according to any of claims 7 6 to 1514, wherein said halide salt is an alkaline halide, an earth alkaline halide or the like, preferably selected from the group consisting of NaCI, NaBr, Nal, KCI, KBr, KI, $CaCl_2$, CaBr2, CaI_2, $MgCl_2$, $MgBr_2$, MgI_2, NH_4CI, NH_4Br or NH_4I or mixtures thereof.

17.16. The use of the composition according to any of claims 1 to 65, for reducing dioxins and heavy metals, preferably in the gas state, in particular mercury and most particularly mercury Hg^0 in flue gases.

18.17. The use according to claim 1716, as a mixture with a basic reagent such as lime.

CLAIMS

1. A composition for reducing heavy metals and dioxins in flue gases comprising a solid sorption material which is a mineral compound, preferably non-functionalized, characterized in that said mineral compound is selected from the group of phyllosilicates from the subgroup of sepiolite according to the Dana classification and is doped with a halide salt while retaining an initial crystalline structure, said halide salt being present in an amount on a dry basis ranging from 0.5 % to 20% by weight on the basis of the weight of the composition.

2. The composition according to claim 1, wherein said halide salt is an alkaline halide, an earth alkaline halide or the like, preferably selected from the group consisting of NaCI, NaBr, Nal, KCI, KBr, Kl, $CaCl_2$, CaBr2, CaI_2, $MgCI_2$, $MgBr_2$, MgI_2, NH_4CI, NH_4Br or NH_4I or mixtures thereof.

3. The composition according to claim 1 or claim 2, wherein said halide salt is present in an amount on a dry basis ranging from 1% to 15% by weight and in particular from 1.5% to 10% by weight of halide salt on the basis of the weight of the composition.

4. The composition according to any of the preceding claims, wherein the mineral compound doped by said halide salt has a BET specific surface area comprised between 70 and 170 m^2/g, preferably between 80 and 140 m^2/g and more preferentially between 90 and 130 m^2/g.

5. The composition according to any of the preceding claims, wherein said mineral compound doped by said halide salt has a pore volume comprised between 0.15 and 0.32 cm^3/g, preferably between 0.20 and 0.30 cm^3/g and more preferentially between 0.22 and 0.28 cm^3/g, as measured by the BJH method, applied to the nitrogen desorption isotherm.

6. A method for manufacturing a composition for reducing heavy metals and dioxins according to any one of the claims 1 to 5, comprising the steps:

- supplying a solid sorption material which is a mineral compound, preferably non-functionalized, selected from the group of phyllosilicates from the subgroup of sepiolite according to the Dana classification,
- supplying a halide salt, and
- putting into contact said mineral compound and said halide salt with formation of a mineral compound doped with the halide salt.

7. The method according to claim 6, wherein said contacting of said mineral compound and of said halide salt is achieved with stirring.

8. The method according to claim 6 or claim 7 wherein said supplied mineral compound has a humidity comprised between 0.1 and 100 g/kg, advantageously between 2 and 90 g/kg.

9. The method according to any of claims 6 to 8, wherein said contacting is carried out at room temperature.

10. The method according to any of claims 6 to 9, wherein said halide salt is in liquid form, in an aqueous phase.

11. The method according to any of claims 6 to 10, wherein said step for putting into contact said mineral compound and said halide salt is spraying of said halide salt on said mineral compound optionally with stirring.

12. The method according to claim 10, wherein said step for putting into contact said mineral compound and said halide salt is soaking of said mineral compound in said halide salt in a liquid phase, optionally with stirring.

13. The method according any of claims 10 to 12 wherein said halide salt in a liquid phase is an aqueous solution, having a halide salt content comprised between 1% and 30%, in particular between 5% and 27%, preferably between 10% and 27% by weight based on the total weight of said solution.

14. The method according to one of claims 6 to 13, further comprising one or more steps for drying and/or deagglomerating said mineral compound doped with the halide salt, preferably at a temperature comprised between 60 and 200ºC, in particular between 75 and 170ºC.

15. The method according to any of claims 6 to 14, wherein said halide salt is an alkaline halide, an earth alkaline halide or the like, preferably selected from the group consisting of NaCI, NaBr, Nal, KCI, KBr, Kl, $CaCl_2$, CaBr2, CaI_2, $MgCl_2$, $MgBr_2$, MgI_2, NH_4CI, NH_4Br or NH_4I or mixtures thereof.

16. The use of the composition according to any of claims 1 to 5, for reducing dioxins and heavy metals, preferably in the gas state, in particular mercury and most particularly mercury Hg^0 in flue gases.

17. The use according to claim 16, as a mixture with a basic reagent such as lime.