CLAIMS

1. A composite material comprising a monolithic inorganic aerogel reinforced by a preformed open-cell melamine foam, said material having a thermal conductivity λ between 5 and 20 mW/m-K, measured according to the method of the guarded hot plate of the NF EN 12667 at 20°C and atmospheric pressure, and having a macroporosity of less than 5%, wherein macropores are defined as pores with a diameter greater than 10 μm, and comprising between 90% and 98%, preferably from 92% to 98% by weight aerogel based on the total weight of the composite.

2. Material according to claim 1, produced by a process comprising the following successive steps: a) casting an inorganic sol in a reactor in which was previously placed a preformed open-cell melamine foam, b) gelation of the sol into a lyogel, c) drying the lyogel.

3. Material according to claim 2, characterized in that said sol used in step a) comprises more than 5% by weight, preferably between 6 and 15% by weight, of inorganic material based on the total weight of the inorganic sol.

4. Material according to any one of claims 1 to 3, characterized in that macropores whose diameter is between 50 and 250 microns comprises more than 80% of total macropores of said material.

5. Material according to any one of claims 1 to 4, characterized in that the material has a thickness of between 2 and 50 mm.

6. Material according to any one of claims 1 to 5, characterized in that the material has a density between 70 kg/m^3 and 150 kg/m^3.

7. Material according to any one of claims 1 to 6, characterized in that the melamine foam is a melamine-formaldehyde foam having a thickness of between 2 and 50 mm, a porosity of between 95% and 99.5%, a density between 8.5 and 11.5 kg/m^3, and a thermal conductivity of between 35

and 40 mW/m-K measured by means of guarded hot plate of NF EN 12667 at 20°C and atmospheric pressure.

8. Material according to any one of claims 1 to 7, characterized in that the inorganic aerogel is selected from silica aerogels, titanium oxide, manganese oxide, calcium oxide, carbonate calcium, zirconium oxide, or mixtures thereof.

9. Material according to any one of claims 1 to 8, characterized in that the material does not contain any binder.

10. Material according to any one of claims 1 to 9, characterized in that the material does not comprise a fibrous reinforcing material.

11. Material according to any one of claims 1 to 10, characterized in that the material has a quantity of residual solvent by weight of the composite material of less than or equal to 3% according to EN/ISO 3251.

12. Material according to any one of claims 1 to 11, characterized in that the aerogel further comprises an opacifier.

13. A sandwich panel comprising at least one layer consisting essentially of a monolithic composite material according to any one of claims 1 to 12.

14. Use of a composite material according to any one of claims 1 to 12 or of a multilayer panel according to claim 13 as thermal insulation.

15. Use of a composite material according to any of claims 1 to 12 or of a multilayer panel according to claim 13 as acoustic insulation.