CLAIMS

1. Nanoparticles of flame retardant magnesium hydroxide having hexagonal plate-like structure, a specific surface area determined by the BET method of up to 20 m^2/g, an average diameter of the secondary particles determined by laser diffraction method of up to 2 μm, optionally surface processed, characterized in that the diameter of 10 % of the secondary particles does not exceed 0.8 μm, the diameter of 90% of the secondary particles does not exceed 5 μm, wherein the primary particles of said magnesium hydroxide have a shape of hexagonal plates with a longitudinal size of from 150 to 900 nm, and a thickness of from 15 to 150 nm.

2. The nanoparticles of flame retardant magnesium hydroxide according to claim 1, characterized in that they have an average size of the secondary particles determined by laser diffraction method of from 0.7 to 1.7 μm.

3. The nanoparticles of flame retardant magnesium hydroxide according to claim 1, characterized in that they have a specific surface area determined by the BET method of from 2 to 15 m^2/g.

4. The nanoparticles of flame retardant magnesium hydroxide according to claim 1, characterized in that they have a longitudinal size of the primary particles of from 200 to 600 nm and a thickness of from 40 to 100 nm.

5. The nanoparticles of flame retardant magnesium hydroxide according to claim 1, characterized in that they have an oil carrying capacity of up to 50 g of linseed oil per 100 g of magnesium hydroxide.

6. The nanoparticles of flame retardant magnesium hydroxide according to claim 1, characterized in that they have a pore volume of up to 10,5 x 10^{-3} cm^3/g.

7. The nanoparticles of flame retardant magnesium hydroxide according to claim 1, characterized in that they have an iron content with respect to iron trioxide ~~chloride~~ of up to 0.01 %.

8. The nanoparticles of flame retardant magnesium hydroxide according to claim 1, characterized in that the particles are surface-processed with one or more silane binding agents and/or with one or more surface processing agents in an amount of 0.1 - 5.0 % with respect to magnesium hydroxide.

9. The nanoparticles of flame retardant magnesium hydroxide according to claim 1 or 8, characterized in that the silane binding agent is selected from the group of organofunctional trialkoxysilanes comprising alkyltriethoxysilanes, alkyltrimethoxysilanes, alkenyltriethoxysilanes, alkenyltrimethoxysilanes.

10. The nanoparticles of flame retardant magnesium hydroxide according to claim 1 or 8, characterized in that the surface processing agent is selected from the group of saturated