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(54) **A METHOD OF PRODUCING A PLATE COMPOSITE WITH THE USE OF CELLULOSE AND CARBON PARTICLES WITH INCREASED FIRE RESISTANCE**

(57) A method of producing a plate composite with the use of cellulose and carbon particles with increased fire resistance is that

1.1. particles rich in elemental carbon, i.e. with a carbon content >90%, selected from expanding graphite (EG) and carbon nanotubes (CNT), are dispersed in water in weight ratios ranging from 0.2:1 to 1:0.2. in an aqueous system, the weight ratio of carbon particles to water is from 1:1 to 100:1.

1.2. a cellulose pulp with a concentration of 1-25% in water is produced

1.3. a dispersed suspension of carbon particles is introduced into the cellulose pulp.

1.4. a composite is formed on a paper machine

1.5. the composite is dried and pressed wherein the EG/CNT dispersion is kept in water for a period of 24 hours, and resulting particle dispersion is

homogenized for 30-45 s by means of a homogenizer with a rotation speed from 400 to 4000 rpm until a homogeneous water dispersion is obtained and the homogeneous the particle dispersion is added to the pulp produced in parallel in an amount of 1-75% by weight based on the total mass of the product and the mixture is further grounded for 10 s in the refiner, and cellulose pulp is produced in such a way that the cellulose in the form of sheets is initially comminuted into particles size 1-4 cm<sup>2</sup>, soaked for 24 hours in deionized water, the weight ratio of cellulose to water is 1:10, and after 24 hours the cellulose is defibrated in a defiberizer and water is added until the total cellulose to water ratio is at the level of 1:50, then the homogeneous pulp is transferred to a sheet forming apparatus and diluted with water to a mass concentration ranging from 2-20%, and cellulose-carbon sheets are formed.

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