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WATER-SOLUBLE THERMOCHROMIC FILM-FORMING COMPOSITIONS FOR CONSTRUCTION STRUCTURES AND THEIR OBTAINING PROCESS

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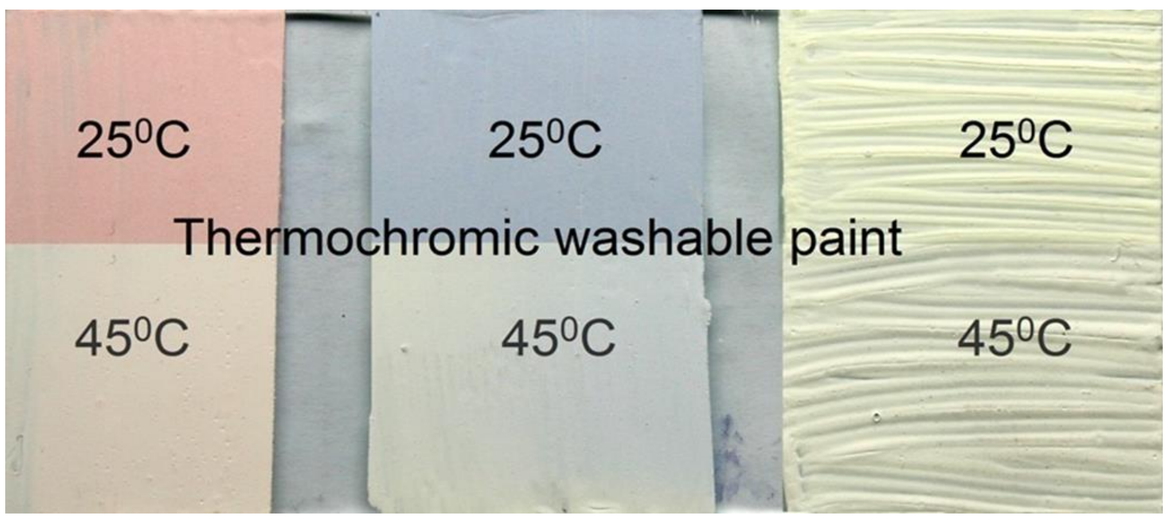
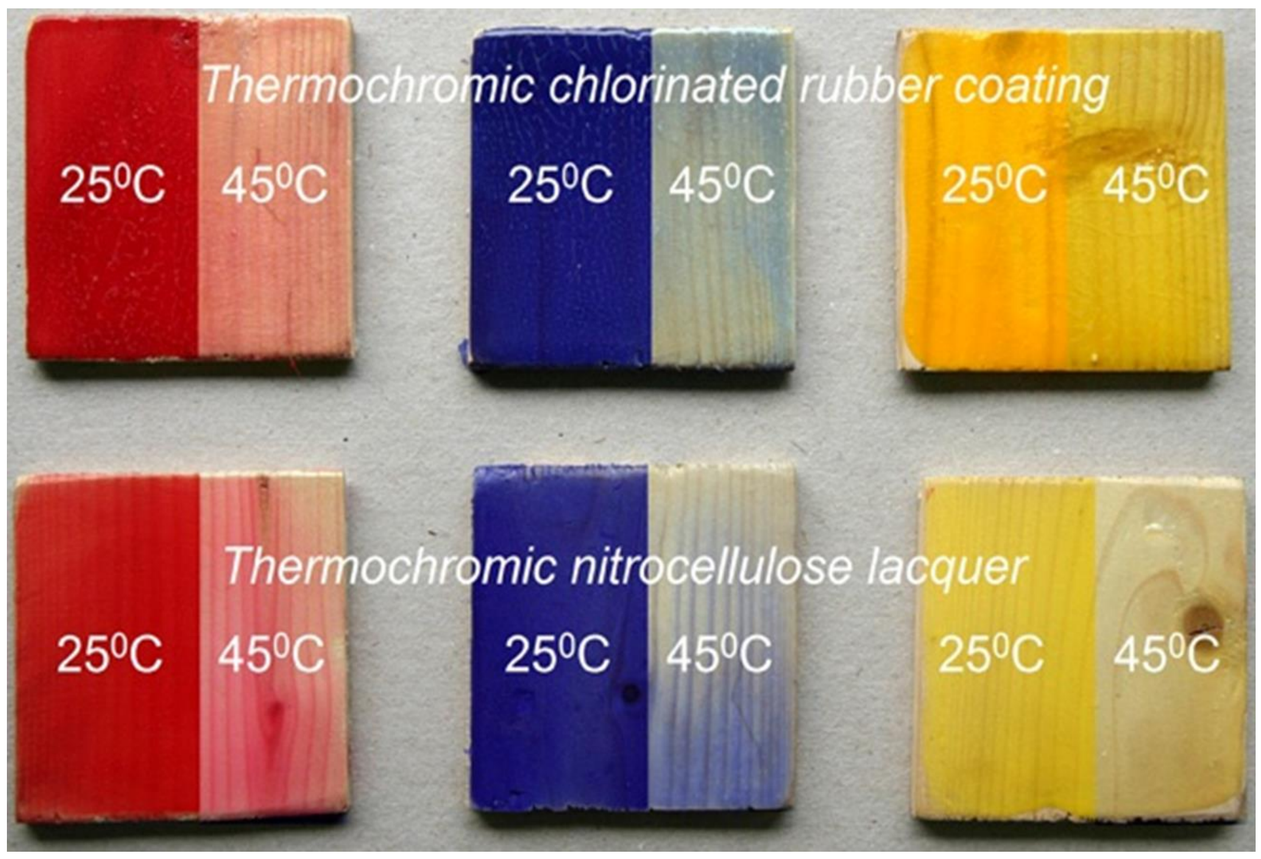
Background

The invention relates to a film-formed thermochromic composition intended for use in covering the surface of exterior elements of buildings and to a process for their preparation. According to the invention, the composition consists of 1 ... 20% microencapsulated thermochromic materials, 1 ... 10% pigment, 10 ... 50% filler, 5 ... 30% emulsified resin, 0.5 ... 15% rheological additive, 0.1 ... 5% antifoam additive and respectively dispersing agent, 0.1 ... 2% antimould additive, 0.1 ... 10% coalescing agent, 10 ... 30% demineralized water, with a pH value of 6.5 ... 9.5, the percentage being expressed by mass. The process, according to the invention, consists in preparing the mixture of dispersing and coalescing agents with antimould and anti-foaming additives, emulsified resin and water, followed by kneading the pigment and filler, stabilizing the dispersion, adjusting the viscosity, after which the thermochromic materials encapsulated are dispersed in the film-like composition thus formed.

The verification of the functionality of the newly created film-forming systems at increasing temperature demonstrated the preservation of the thermochromic transition capacity when embedding the thermochromic microcapsules in the selected matrices and the preliminary establishment of the applicability area for each type of film-forming material.





The invention presents the following advantages:

- microencapsulated thermochromic compositions have a high coloring power, with an effect on increasing the economy of the coloring process;

- a wide range of colors can be obtained for both forms of the thermochromic transition due to the presence in the thermochromic compositions of tinting agents such as solvent dyes;

- due to the obtained resistance characteristics, microencapsulated thermochromic materials can be incorporated into the most diverse application environments.

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