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Development of New Spectrally selective Coatings with Organic Pigments for Solar Collector Absorbers

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Abstract

This paper describes the work done for new spectrally selective coatings production, obtained with organic pigments inclusion, for thermal solar collector absorbers. Using photothermal sensible organic pigments over conductive substrates it wants to develop new products with high photothermal conversion rate, low cost, good stability within the high medium temperature range (120-150°C), and high durability. To get this objective are used two different ways: (1) preparation of a spectrally selective paint to be applied over conductive substrates (Al, Cu, stainless steel), incorporating a basis of epoxy silicone, rheological additives, and organic pigments or a mix of organic and inorganic pigments; (2) titanium oxide thin films prepared by reactive DC magnetron sputtering onto glass slices.

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