

FORMULATION OF POWDER GEL COAT WITH ELECTRICALLY CONDUCTIVE PROPERTIES.

DESCRIPTION OF THE INVENTION

The present invention relates to a coating formulation type powder "gel coat", with different types of carbonaceous electrically conductive fillers and stable during conventional compounding process. Thus, the formulation of the present invention allows to obtain a gel coat type coating with electrical conductivity properties, preferably at lower temperatures (110-150) than those used to process conventional powder coating (160-210 ° C). Furthermore, both the powder resin formulation, as the gel coat coating produced from it have a good storage stability at room temperature.

The formulation comprises:

- a powder unsaturated polyester resin, preferably polyester hydroxylated, carboxylated or a combination of both with unsaturation in their chain, where these unsaturated polyesters obtained by reaction with may acids or anhydrides di- or polycarboxylic olefinically unsaturated, such as acid or anhydride maleic;
- a crosslinking agent that omprises at least one carbon-carbon double bond, preferably blocked isocyanates, amine resins, hydroxyalkylamides and aromatic or aliphatic epoxy resins;

APLICATION BUSINESS SECTORS

The formulation developed has application in different sectors, being of particular interest:

- Automotive industry
- Transport
- Aeronautics
- Energy
- Composites

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The advantages of electrically conductive powder gel coat are, among others:

- Reducing VOC emissions due to gel coat application in the workplace
- Up to 25% reduction in production costs
- Near 30% reduction in raw material consumption
- Reduction of gel coat application time in 85% for final finishing of the parts
- Increased production rates through out-of-mould preparation of gel coat skin
- Important reduction on secondary processes when using conductive powder gel coat (removing primer application for electrostatic painting in automotive sector)
- Optimization of stock levels through easier storage and handling of raw materials
- Extension of tool working life through lack of solvents in powder gel coat

- An organic peroxide polymerization initiator; and
- Carbonaceous particles conducting electricity; wherein the formulation is dust and electrically conductive.

The formulation of the present invention can be applied on a previously prepared mold for obtaining a composite material comprising a resin and a gel coat electrically conductive coating.

The process of obtaining thermosetting structures from a powder coating formulation of the present invention can be applied easily using electrostatic powder painting equipment.

In this invention it has been possible to reach a compromise between the minimum temperature gelation coat and storage stability since a lower temperature of formation of the coating, the worse the storage stability of the powder at room temperature...

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STATUS DEVELOPED OF THE TECHNOLOGY

The process has been successfully tested at pilot plant and manually processes. Optimization for automated industrial continuous processes is needed

INTELLECTUAL PROPERTY RIGHTS

This technology is protected by a spanish patent: ES-201630266 Formulaci3n de recubrimiento gel coat en polvo con propiedades de conductividad el3ctrica.

COLLABORATION SOUGHT

Companies interested in the following systems of cooperation:

- Agreement about patent license to implementation and to use of technology.
- Agreement about Research & Development projects (technical cooperation) to apply technology in different sectors.

RELATED IMÁGES



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