POLYETHYLENE PAINTING. AN APPLICATION OF SPRAY PIGMENTATION PROCESS FOR COATING PLASTIC ARTICLES

PATENTED TECHNOLOGY

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ABSTRACT

The University of Alicante jointly with the Queen's University at Belfast has developed a process to pigment coating plastic articles by mean of spring polymer and pigment powder. The process is tested at laboratory scale and is based on the melting "in situ" of polymer powder in combination with the pigment onto the surface of the part already formed. The technology overcomes traditional problems when coating plastic articles and is very appropriated to polyethylene painting. Partners for acquiring the patent rights are sought.

ADVANTAGES AND INNOVATIVE ASPECTS

INNOVATIVE ASPECTS

- The developed technology overcomes traditional problems when coating plastic articles: extra steps in plastic production, multicolouring, irreversibility, pigment amount, cost, etc.

- The quality of the finishing can be significantly improved since the glossy of this painting can better than that obtained in the conventional process.

- It can be applied to polyethylene painting, a very spread out material.

MAIN ADVANTAGES

- Some of the benefits of the system include:

- The pigment consumption is remarkably reduced since the part is pigmented only on the surface.

- The properties of the polymer constituting the body of the part are unaltered.

- The parts can be decorated in different colours in a very simple way.

- The compatibility of the painting with the polymer is complete, since the painting is mainly the same polymer.

MARKET APPLICATIONS

This process can be used to paint any suitable surface to provide a temporary or permanent coating. Such surfaces include plastic, metal, glass, ceramic, etc. Many suitable polymers are useable such as polyethylene, polypropylene, nylon, foamed EVA, etc.

One application is to coat metal such as the inside of a metal shell or mould, pre-moulding, to provide a coating attachable to the moulding material, e. g. as a colour scheme, to thicken an area of the moulding or to add any protective-like coating.

In coating plastics, the plastic material could be a thermoplastic material. Preferably, the powdered plastic of the paint precursor is the same polymer as the plastic material to be coated. Optionally, the powdered plastic of the paint precursor is a polymer which is compatible with the plastic material to be coated.

In some applications, the coating is useable as an adhesive between the surface to which it is applied, and a second surface, e. g. two plastic parts or plates. Sometimes, the paint precursor includes one or more additives or filler materials such as a UV-adsorber, microwave, etc., glass microspheres, antibacterial agent, etc. Such substances are known in the art, and enhance the properties of the coating.

COLLABORATION SOUGHT

The University of Alicante is looking for partners interested in:

- Developing the technology for commercial use
- Establishing patent license agreements to acquire the rights to use or commercialising the technology