DuPont Packaging & Industrial Polymers

DuPont™ Fusabond® E370BKP50

Fusabond® resins Product Data Sheet

Description

Product Description	DuPont™ Fusabond® E370BKP35 and Fusabond® E370BKP50 materials are reactive polyethylenes offered in a black powder form with two particle size ranges, 35 or 50 mesh . 35 mesh Primarily for rotational molding. 50 mesh Primarily for electrostatic spry gun, Fluidized bed and hot flocking applications.

Restrictions

Material Status	• Commercial: Active

Typical Characteristics

Uses	• Coatings Protective
Applications	Fusabond® E370BKP35 and Fusabond® E370BKP50 are formulated with anhydride modified PE to provide excellent adhesion to ferrous metals and aluminum. They are ideal for use as coatings for metallic substrates to provide corrosion protection. The coatings have excellent impact, chemical, thermal and abrasion resistance. The Fusabond powder may be applied in conjunction with an epoxy primer on a clean, pretreated metal surface to provide an even more superior coating. Typical service temperature of the coating is from -40 to 85 ℃ (- 40 to 185℉).

Typical Properties

Physical	Nominal Values	Test Method(s)	
Density ()	0.927 g/cm³	ASTM D792	ISO 1183
Melt Flow Rate (190℃/2.16kg)	14 g/10 min	ASTM D1238	ISO 1133

Thermal	Nominal Values	Test Method(s)	
Melting Point (DSC)	125℃ (257℉)	ASTM D3418	ISO 3146
Freezing Point (DSC)	113℃ (235℉)	ASTM D3418	
Vicat Softening Point ()	87℃ (189℉)	ASTM D1525	ISO 306

Processing Information

General

Maximum Processing Temperature	290℃ (554℉)
General Processing Information	GENERAL PROCESS INFORMATION For optimum adhesion between the Fusabond® and the metal primer (for example,

epoxy or zinc rich primers), the Fusabond® needs to be applied prior to complete cure or cross-linking of the primer, such that a chemical bond can be formed between the Fusabond® functional groups and the primer functional groups. Preferably, the Fusabond® needs to see a final temperature over 200℃ or 392℉ for optimum adhesion reactions. In all cases, extensive test should be run to confirm the process conditions and parameters for your application and metal part.

METAL PRETREATMENT

Parts to be coated should be designed for the type of coating and application method where possible. For example, sharp corners, edges and ridges should be rounded off. Weld seams should be without pores and as smooth as possible. The surfaces to be coated must be free of rust, grease, scale, and other contaminants (see Swedish standard SA 2.5). Depending on the application and requirement, after degreasing, mechanical and/or chemical pretreatment may be employed. For mechanical treatment, grit blasting is best, as it introduces sharp anchor profiles. A profile of 1 to 3 mils with a white metal finish look is most suitable. Blast media suppliers should be consulted for your particular need. Blast media should be tested to confirm suitability.

Chemical pretreatment may be used to enhance coating performance. Phosphate and chromate treatments are the most commonly used. Your chemical supplier should be consulted and extensive tests should be done to confirm the process and feasibility of the methods employed. Also check with authorities to ensure local health and disposal regulations are met.

Electrostatic Spray Process

All air supplied to the hopper or fluidized bed must be dry, clean from grease and oils and protected by an in-line filter to ensure no contaminants get into the powder bed.

In electrostatic spraying, preheating may not be required depending on the thickness of coating required. Preheating will increase coating thickness and diminish/eliminate post-heating requirement. The oven temperatures should be adjusted until suitable thickness and good quality coating is obtained. As the Fusabond® is a thermoplastic, no curing is needed. The coated parts may be removed from the post-heating oven as soon as a smooth surface is formed. Overheating could result in oxidation of the coatings.

The spray guns should be positioned strategically in the coating chamber to give optimum coating efficiency and uniform powder distribution. Proper voltage needs to be applied for each part and thickness. A voltage of 30 to 80kv is recommended.

Extensive testing should be done to verify the feasibility and robustness of the process and performance of the resultant coatings.

Fluidized Bed Process

In fluidized bed or dip coating, preheating is generally required. The preheat temperature of the part has a strong impact on the coating thickness. . Preheating can be done using convection ovens with proper air circulation or IR ovens. The ' holding' point of the part should be selected so that it can easily be coated later or remain uncoated in the finished part. Since thick walled parts hold more heat, thin-walled metal components need to be heated longer and to higher temperatures. Typical metal preheat temperatures could be from 200 to 300℃ (392 to 572℉). However, at over 350℃, auto-ignit ion of the polymer and severe decomposition will occur. Depending on time and temperatures, fumes that evolve from normal process conditions, may contain degradation products of low molecular weight hydrocarbons and oxidation products. Please consult MSDS.

Optimum preheat time and temperature must be determined for each metal component part to be coated. Preheating time should be prolonged if signs of degassing are noticed. Phosphate coated parts should be heated for the shortest times possible.

For optimum adhesion between the Fusabond® and the metal primer (for example, epoxy zinc rich primer), the Fusabond® needs to be applied prior to complete cure or cross-linking of the primer, such that a chemical bond can be formed between the Fusabond® functional groups and the primer functional groups. Depending on

the preheat temperature and the heat capacity of the metal substrate, post heating may or may not be required. Post-heating conditions are generally fitted to provide a nice coating finish and related with the energy already delivered by the preheat oven. Yellowness indicates surface oxidation due to excessive temperature. Preferably, the Fusabond® needs to see a final temperature over 200℃ or 392℉ for optimum adhesion reactions.

In all cases, tests should be performed to confirm the suitability of the coating and the process conditions for your specific application.

Safety & Handling

As with any hot material, care should be taken to protect the hands and other exposed parts of the body when working with molten polymer.

At temperatures above 290℃ (554℉), these resins can evolve low concent rations of fumes. When resins are overheated, more extensive decomposition may occur. Because fumes produced during exposure to high temperatures may be combustible, exposure of overheated resin to atmospheric oxygen should be avoided if possible. Adequate local ventilation should be provided to remove the fumes from the work area.

Disposal of scrap material presents no special problems, and may be accomplished by landfill or by incineration by a properly operated incinerator. Disposal should comply with local, state, and federal regulations. Resin pellets can be a slipping hazard. Loose pellets should be swept up promptly to prevent falls.

For more detailed information on the safe handling and disposal of these resins, a Product Safety Bulletin and OSHA Material Safety Data Sheets can be obtained from the Regional Office serving you.

Read and Understand the Material Safety Data Sheet (MSDS) before using this product

Regional Centres

DuPont operates in more than 70 countries. For help finding a local representative, please contact one of the following regional customer contact centers:

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