TECHNICAL DATA

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WARNING

THIS CHEMICAL IS FORMULATED FOR INDUSTRIAL USE ONLY

Contact with skin or clothing or other improper handling or use of this product may result in bodily harm or other damage. Before using or mixing the contents with other substances, all labels applied to container, the applicable Technical Data Sheet and Material Safety Data Sheet should be read and specific instructions and precautions followed to assure correct use and personal safety.

DURAVIN ES POWDERS

APPLICATION PROCEDURES

DURAVIN ES compounds can be sprayed using both corona and tribo charged systems. Wire goods spray well with corona system and the highly polar vinyl particle charges equally in both positive and negative modes. The frictionally charged tribo system performs excellently with DURAVIN ES on complicated substrates because of the larger particle size which aids particle projection. Faraday cage effect is evident in both thermoset and vinyl spray, but the effect may be easier to overcome with the free flowing vinyl. Due to polarity and particle size, DURAVIN ES requires somewhat stricter controls than most thermosets in order to maintain consistently smooth and easy application. The basic guidelines for electrostatically coating with DURAVIN ES are as follows.

Corona Charging

Charging:

DURAVIN ES requires a lower charge (40-70Kv) than most thermosets for the best performance. At higher charges (typical for thermosets) the highly polar and large vinyl particles have a tendency to adhere to one another, not just to the substrate. This creates a mottling effect or technically, back ionization. Cross contamination with other powders such as thermosets should be avoided by thorough cleaning between any powder changes.

Atomization:

For smoothest finishes and proper powder/air mixtures, DURAVIN ES sprays best at low atomization, 25-40 PSIG. Higher pressures can result in a dusting of powder which will deliver light and spotty coatings. Pressure settings may vary and are unique to each manufacturer's equipment.

Ejection:

Also due to its relatively large particle size DURAVIN ES may impinge itself at high ejection rates. The optimal range is 50-70 PSIG, although higher pressures may aid in reaching deep recessed areas and corners.

Hopper:

The rule of thumb for fluidized bed coatings also applies to bed pressures for the hopper. A gentle rolling boil is best. It may be necessary to screen the compound to insure an unrestricted flow and clear powder lines.

Tribo Charging

Powder Flow:
DURAVIN ES requires a powder flow of 15 to 30 PSIG for optimal results. Cross contamination with other powders such as thermosets should be avoided by thorough cleaning between any powder changes. Pressure settings may vary and are unique to each manufacturer's equipment.

Air Flow:
For the smoothest finishes DURAVIN ES sprays best in the range of 20-40 PSIG. Higher pressures can aid in reaching recessed areas and corners, but due to the powder's large particle size, impingement may occur, resulting in an uneven and pock-marked surface.

Hopper:
The rule of thumb for fluidized bed coating also applies to bed pressures for the tribo hopper. A gentle rolling boil is best. It may be necessary to re-screen the compound to insure an unrestricted flow and clear powder lines.

Cleaning and Oven Parameters

Cleaning:
Standard electrostatic coating substrate preparation practices should be followed.

Priming:
Thermoclad presently produces both solvent and volatile free water based primers to insure proper coating adhesion. Primers can be dipped, sprayed, or flow coat applied. The entire part must be wetted by the primer and pre-heated to insure cross-linking and a chemical bond to the vinyl coating.

Preheat:
The main function of the preheat is to crosslink the vinyl primer. A minimum substrate temperature of 350 degrees F (176C) is required. Warmer substrates will improve the conductivity and help apply thicker coatings, but heating is not necessary and the powder will spray satisfactorily on cool substrates as well.

Postheat:
Vinyl begins to melt at 390-400 degrees F (200-205 deg C), but higher temperatures must be used to attain a practical production cycle. Finer and less massive substrates are most efficiently processed at higher temperatures, 430-450 deg F (221-232 deg C) and relatively short cycles, 2-5 minutes, whereas more massive substrates such as a 1/8" steel panel will require a much lower temperature/fusion cycle to prevent the coating's degradation and sag, 410-420 deg F (210-215 deg C) for 10-15 minutes. Complex substrates of different gauge materials should use the lower temperature cycles. Vinyl, being a thermoplastic, does not require a cure. When the material is fused and appears smooth, it is finished.

Cooling:
After the fusion process is complete, the part may be air cooled or water quenched by immersion or spray.

The above suggestions offer a brief application guide. Since every piece of equipment is slightly different, it is best to evaluate various equipment settings and conditions to establish the operating latitude and the optimal coating results. AUSTRALIAN CHEMICALS AND COATINGS technical staff will be pleased to review any idiosyncrasies of your coating line. If necessary, compounds can be modified to suit particular requirements.