



### Introduction

espol™ 12.51 is a non-accelerated orthophthalic polyester resin which rapidly wets out reinforcements. It has been specifically formulated for non-critical and general-purpose applications where high reactivity is desirable. It is designed for laminates that need very fast cure.

### Applications

espol™ 12.51 is designed for hand lamination, spray up & casting applications. It can be used with all types of E-glass such as chopped strand mat, woven roving and multi axial fibres. It brings in excellent mechanical strength & rigidity along with long term durability.

### Formulation

espol™ 12.51 should be allowed to attain workshop temperature (25°C - 30°C) before use. Stir well by hand, or with a low shear mixer to avoid aeration, and then allow to stand to regain thixotropy. espol™ 12.51 requires the addition of accelerator and catalyst to start the curing reaction.

The recommended accelerator is Cobalt (1% solution in styrene) which should be added to the resin at 1 - 2% and thoroughly incorporated into the resin, using a low shear mechanical stirrer where possible.

The recommended catalyst is MEKP (50%) which should be added to the resin at 1 - 2% and thoroughly incorporated into the resin, using a low shear mechanical stirrer where possible.

(Please consult our Technical Support Department if other catalysts are to be used).

**N.B.** Catalyst and accelerator must not be mixed directly together since they can react with explosive violence.

### Physical data - uncured

The following tables give typical properties of espol™ 12.51 when tested to IS 6746-1994 (Reaffirmed 2005).

| Property   | Unit      | Value                            |
|--|-----------|----------------------------------|
| Appearance   | -         | Light pale yellow viscous liquid |
| Specific gravity   | -         | 1.10 - 1.14                      |
| Viscosity at 25°C*   | cP        | 350 - 450                        |
| Acid Value   | mg-KOH/gm | 22 - 28                          |
| Volatile Content   | %         | 33 - 39                          |
| Geltime at 25°C**  | Minutes   | 6 - 12                           |
| Peak Exotherm Temp**   | °C        | 170 - 190                        |
| Stability from date of manufacture when stored in accordance with storage recommendations. | months    | 3                                |

\*Viscosity measured using Brookfield (RVT Model) Viscosity SPL 1 / SPD 10

\*\*100g resin + 1 ml Cobalt 2% + 1.5ml MEKP (50%) Catalyst.

## Physical data - cured

| Property  | Unit | Fully cured* |
|---|------|--------------|
| Barcol hardness                                 |      | 40           |
| Deflection temperature under load*<br>(1.80MPa) | °C   | 70           |
| Tensile strength*                               | MPa  | 45 -55       |
| Tensile modulus*                                | MPa  | 3000 - 3100  |
| Elongation at break*                            | %    | 1.5 - 2.5    |
| Flexural strength*                              | MPa  | 87 - 90      |
| Flexural modulus*                               | MPa  | 3000 - 3200  |

\*Curing Schedule - 24 hours at 20°C, 6 hours at 80°C.

## Post Curing

Satisfactory laminates for many applications can be made from espol™ 12.51 by curing at workshop temperature (25°C). For optimum properties, however, laminates should be post-cured before being put into service. The laminate should be allowed to cure for 24 hours at 25°C, and then be oven cured for a minimum of 6 hours 80°C.

## Storage

espol™ 12.51 should be stored between 5°C and 25°C in the original, unopened container in a dry, well ventilated place. Protect from freezing and direct sunlight. Avoid contact with oxidising agents. If stored outside of these recommendations, shelf life will be significantly reduced.

## Packaging

espol™ 12.51 is available in 35kg, 220kg and bulk containers.

## Health and Safety

Please see separate Material Safety Data Sheet.

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