



Introduction

espol™ 39.00 is an epoxy novolac-based vinyl ester resin, designed to provide exceptional mechanical and chemical resistance properties at high operating temperatures. Its Novolac based backbone imparts it with excellent resistance to aggressive chemicals and oxidizing environments. It brings in enhanced durability showing excellent long-term retention of strength and toughness at elevated temperatures.

Applications

espol™ 39.00 is designed for hand laminating & casting applications but can also be used in RTM and filament winding processes. It can be used with all types of E-glass fibres such as CSM, woven roving and multiaxial. Typical applications in an industrial environment for espol™ 39.00 include Scrubber and Storage of chlorination/caustic plants, Industrial waste treatment/extraction plant, Hydrochloric Acid storage, transportation tanker & lining and petrol storage.

Formulation

espol™ 39.00 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™ 39.00 requires the addition of accelerators and catalyst to start the curing reaction.

The recommended accelerators are Cobalt (1% solution in styrene) which should be added to the resin at 2 - 3% and DMA (100%) which should be added separately into the resin at 0.05%. Both accelerators should be added separately 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™ 39.00 when tested to IS 6746-1994 (Reaffirmed 2005).

Property	Unit	Liquid
Appearance	-	Clear Amber/Umber
Specific gravity	-	1.04 – 1.08
Viscosity at 25°C*	cP	350 - 450
Acid Value	mg-KOH/gm	4 – 10
Volatile Content	%	34 – 40
Geltime at 25°C**	Minutes	15 - 25
Peak Exotherm Temp**	°C	160 - 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 + 2.4ml Co (1%) accelerator + 0.4ml DMT (100%) 1.5ml MEKP (50%) Catalyst.

Physical data - cured

Property	Unit	Fully cured*
Barcol hardness		35 – 45
Deflection temperature under load* (1.80MPa)	°C	120 - 140
Tensile strength*	MPa	60 – 70
Tensile modulus*	MPa	3500 – 4500
Elongation at break*	%	2.0 – 2.5
Flexural strength*	MPa	110 – 150
Flexural modulus*	MPa	3000 - 4000

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

Post Curing

Satisfactory laminates for many applications can be made from espol™ 39.00 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™ 39.00 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™ 39.00 is available in 35kg, 220kg and bulk containers.

Health and Safety

Please see separate Material Safety Data Sheet.

© 2022 Scott Bader Company Limited, October 2022, Issue No. 1, GTC ES3900

All information on this data sheet is based on laboratory testing and is not intended for design purposes. Scott Bader makes no representations or warranties of any kind concerning this data. Due to variance of storage, handling and application of these materials, Scott Bader cannot accept liability for results obtained. The manufacture of materials is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication.