resoltech 1450 ALU

Hardener 1453

Aluminium filled epoxy system






New Hardener 1453 CMR free

- Max T_G 130°C
- Excellent thermal conductivity
- Tooling applications
- No sedimentation over time
- Excellent air release properties

INTRODUCTION

1450 ALU is an **aluminium filled epoxy casting system** formulated to produce parts or moulds from a few millimetres to several centimetres thick. It is mainly used **to produce moulds and tooling plugs.**

Resoltech 1450 ALU system combines ease of use, high thermal and mechanical properties as well as virtually no shrinkage. It offers a good chemical resistance and its high T_G makes it an ideal product **for phenolic resins parts production, thermoforming or any other high T_G application were the mould will be subject to thermal shocks.**

It usually used **for casting, but may also be used for laminating** glass reinforcements and powdered mats. Its good thermal conductivity makes the 1450 ALU a choice system for heated moulds & parts.

Once cured at ambient temperature, the parts should be post-cured according to the thermal cycle indicated in this datasheet in order to obtain the maximum mechanical properties of this resin system.

It's T_G of 130°C enables the realisation of high quality and **performance parts as well as tooling for prepreg parts.**

MIXING RATIO

The mixing ratio must be accurately followed. It is not possible to change the ratio, it would result in lower mechanical properties. The mixture should be thoroughly stirred to ensure full homogeneity.

System	1450 ALU / 1453
Mixing ratio by weight	100 / 7

APPLICATION

- It is recommended to have workshop temperature conditions between 18-25°C in order to facilitate the mixing and the application. A lower temperature will increase the viscosity of the mix as well as it's pot life. On the contrary, a higher temperature will reduce the viscosity and the pot life of the mix.
- Thoroughly mix the resin component before pouring in mixing cup.
- It is recommended to mechanically mix the resin+hardener during 5 effective minutes to ensure effective mixing and do a double potting before use to ensure all the resin and hardener have been correctly mixed and that un-mixed resin or hardener left on the sides of the first mixing pot are not used.
- The 1450 ALU25 may be casted or laminated by brush and rollers In case of laminating or casting over a cured surface without peel ply, it is required to deglaze, clean and degrease the support prior to laminating.

PHYSICAL CHARACTERISTICS

1 Visual aspect

1450 ALU:
Viscous grey filled liquid

1453 :
Transparent to yellow liquid

Mix :
Filled grey liquid

2 Density

References	1450 ALU	1453
Density at 23°C	1.74	0.94
Mixed density at 23°C	-	1.67

ISO 1675, ± 0.05 tolerance

3 Viscosity

References	1450 ALU	1453
Viscosity at 23°C (mPa.s)	40 000	8
Mixed viscosity at 23°C (mPa.s)	-	11 000

Measured with rheometer, shear rate 20s-1, 2 min

4 Thermal conductivity

system	1450 ALU / 1453
Bulk conductivity (W/mK)	0.76

ASTM 5470-12, grease mode, uncured mix, no pressure

REACTIVITIES

System	1450 ALU / 1453
Gel time on 1L at 23°C (10cm high mix)	2h24min
Time at exothermic peak on 1L at 23°C	2h44min
Temperature at exothermic peak on 1L at 23°C	104°C
Gel time on 70mL at 23°C (4cm high mix)	2h53min
Time at exothermic peak on 70 mL at 23°C	2h18min
Temperature at exothermic peak on 70mL at 23°C	36°C

Reactivity measurements realized on Trombotech®

CURING AND POST-CURING

The 2060 ALU 25 system will cure at room temperature enabling to release moulds from the plugs/models after 24h of its application, yet further post-cure of **2h at 60°C+ 2h at 90ºC + 2h at 120°C** will enable the resin system to obtain 100% of it´s mechanical characteristics (post curing cycle given for a 2mm thick sample of pure resin)

System	1450 ALU / 1453
$T_{G\ max}$ (DSC)	130°C
Shore D Hardness	90

T_G max : DSC, inflection point
Hardness : ISO 868

PACKAGING

- Box kit of 1kg + 0.07 Kg
- Bucket kit of 5kg + 0.35kg
- Bucket kit of 30kg + 2.1 Kg

TRANSPORT & STORAGE

Keep containers sealed and away from heat and cold preferably between 10°C and 30°C in a well ventilated area. Our products are guaranteed in their original packaging (check expiry date on the label).

HEALTH & SAFETY

Skin contact must be avoided by wearing protective nitrile gloves & overalls or other protective clothing.
Eye protection should be worn to avoid risk of resin, hardener, solvent or dust entering the eyes. If this occurs flush the eye with water for 15 minutes, holding the eyelid open, and seek medical attention.
Ensure adequate ventilation in work areas. Respiratory protection should be worn with ABEKP coded filters.
Resoltech issues full Material Safety Data Sheet for all hazardous products. Please ensure that you have the correct MSDS to hand for the materials you are using before commencing work.

! The data provided in this document is the result of tests and is believed to be accurate. We do not accept any responsibility over the mishandling of these products and our liability is limited strictly to the value of the products we manufacture and supply.

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