

resoltech 7080 CSI

Hardener 7081
High Abrasion Resistance Epoxy Gelcoat



- High chemical & abrasion resistance
- High modulus & mechanical properties
- Tg up to 105°C

INTRODUCTION

RESOLCOAT 7080CSI epoxy gelcoat was specially formulated for the production of structural composites parts & tools where specific abrasion resistance properties are deemed necessary.

It should be applied by brush and is formulated to grant low toxicity working conditions to the users.

The recommended application thickness ranges from 500 µm to 900 µm at 25°C, which it is possible to achieve in one coat on a vertical surface without sag.

Laminates can be released from the plug or moulds after room temperature curing. The minimum time before demoulding will depend on the cure schedule of the associated laminate.

Final thermo-mechanical properties will be obtained after a post curing cycle defined according later in this technical data sheet.

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	7080 CSI / 7081
Mixing ratio by weight	100/11

APPLICATION

The standard procedure of working with epoxy gelcoats applies this system, keeping in mind that sanding it will be made difficult due to the nature of the silicium carbide and other hard materials used in its formulation.

The 7080 CSI system should be applied by brush and has been formulated for application from 500 to to 900 µm without sag on vertical surfaces in one only coat.

Coverage: 0,75 kg/m² for a 500 µm thickness dry film to 1,35 kg/m² to obtain a 900 µm film.

Overcoating:

As an indication, it is possible to overcoat the gelcoat with a laminating resin within the hour of it's application as long as the surface still has tack (timing to be defined by workshop temperature).

If the surface has cured and formed its film (tack-free surface) It is recommended to sand and degrease before laminating onto the gelcoat

Other application methods such as using Resoltech ALU 250 TV aluminum powder as intermediate layer to ensure mechanical adhesion or delaying the gel by applying a layer of ultra slow resin on the gelcoat maybe used. In all cases testing in production conditions should be conducted in order to validate the method before industrial size applications.

It is recommended to have workshop temperature conditions between **18–25°C** in order to facilitate the mixing and the application, even though this system has very little sensitivity to humidity. 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.

PHYSICAL CHARACTERISTICS

1 Visual aspect

7080 CSI:

Grey filled gel

7081:

Transparent slightly yellow liquid

Mix:

Grey filled gel

2 Density

References	7080 CSI	7081
Density at 23°C	1.92	0.95
Mix density at 23°C	-	1.76

ISO 1675, ± 0.05 tolerance

3 Viscosity

References	7080 CSI	7081
Viscosity at 23°C (mPa.s)	19 000	65
Mix viscosity at 23°C (mPa.s)	-	15600

rheometer, shear rate 20s⁻¹, 2min, ± 15% tolerance

REACTIVITIES

System	7080 CSI / 7081
Gel time on 70mL at 23°C* (4cm high)	5h
Time at exothermic peak on 70mL at 23°C	3h11min
Temperature at exothermic peak on 70mL at 23°C	28°C
Gel time on 1mm film at 23°C**	6h

* Gel time measurements realized with Rheotech*

** Gel time on film measurement realized on rheometer

RETICULATION & POST-CURING

In order to obtain the maximum thermo-mechanical properties, it is necessary to respect the recommended curing cycle. The table below shows the glass transition temperatures (DSC) according to different curing cycles.

System		7080 CSI / 7081
3h à 50°C + 3h à 90°C + 3h120°C	T _g	105°C
	Shore D Hardness	91

T_g measured by DSC, 20°C/min, inflexion point
Shore D hardness measured at 23°C according to ISO 868

Post-curing cycles previously presented were chosen in order to reach the maximum potential of each systems. Depending on parts size, oven performance and hardener used, shorter post-curing cycles could lead to fully cured parts.

Please contact our laboratory service for any help on post-curing cycles.

MECHANICAL PROPERTIES

System		7080 CSI / 7081
3h à 50°C + 3h à 90°C + 3h120°C	FLEXION Modulus Maximum strength Elongation at break	7.66 GPa 96.3 MPa 1.53%

Flexion properties on pure resin according to ISO 178

PACKAGING

- Metal box kit of 1kg + 0.11kg
- Metal bucket kit of 5kg + 0.55kg
- Metal bucket kit of 20kg + 2.2kg

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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