

RESOLTECH 2080 M40

Hardener 2084M

Structural Epoxy Foaming System

- Density 400 kg/m³
- Slow hardener for larger volumes to be foamed
- Room temperature curing



RESOLTECH 2080 M40 / 2084M is a liquid foaming epoxy casting system formulated to produce low density, closed cell, structural cores.

RESOLTECH 2080 M40 / 2084M has a free **expansion coefficient of 3**, enabling the production of **400 kg/m³** epoxy foam. The slow, controlled foaming reaction makes unnecessary the use of mixing machines like with PU foams – the **low pressure of the foaming** will enable direct casting in the final parts with **no conforming moulds** without alteration of the dimensions of the composite. This system is available in neutral (white) colour or may be pigmented with any RESOLTECH RAL colour pigment paste.

The main advantages of this epoxy foaming system over existing systems are :

- No brittle stage after the foaming making it unnecessary to cure before releasing from mould or to post cure depending on the mechanical characteristics needed.
- Perfect compatibility with prepreps and epoxy resins even during their polymerization. Excellent resistance to water.
- Major improvement of thermal and mechanical resistances compared to existing epoxy foams. No VOC emission.

The 2084M hardener is less reactive than the standard 2085M hardener and enables larger volumes to be foamed. Maximum thicknesses are to be determined with tests depending on the room temperature and if the foam will be casted in a heat conductive material or not.

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MIXING RATIO

System	2080 M40 / 2084M
Mixing ratio by weight	100 / 35

The mixing ratio must be respected neither excess nor default. The mixture should be homogeneous and intimate before use.

APPLICATION

The resin 2080 M40 has to be re-homogenize before each use in order to ensure uniform cells sizes. It is recommended to cast the mixed resin and hardener at a temperature around 18 to 25°C in order to ease the mixing and casting process. Lower temperature will increase the viscosity of the mix while higher temperature will reduce the viscosity and the pot life. Allow 10% margin for losses during casting. **The foaming starts 2 minutes after mixing, it is recommended to cast the mixed resin + hardener within these 2 minutes .**

PHYSICAL CHARACTERISTICS

Visual aspect

2080 M40 : White thixotropic liquid
 2084M : Transparent to slightly yellow liquid
 Mix : White flowable liquid

Density (ISO 1675, ± 0.05)

Average free expansion ratio : x3

	2080 M40	2084M	Mix prior to foaming	Mix after foaming
Density at 23°C	1.17	1.12	1.16	0.40

Viscosity (ISO 2555, $\pm 15\%$)

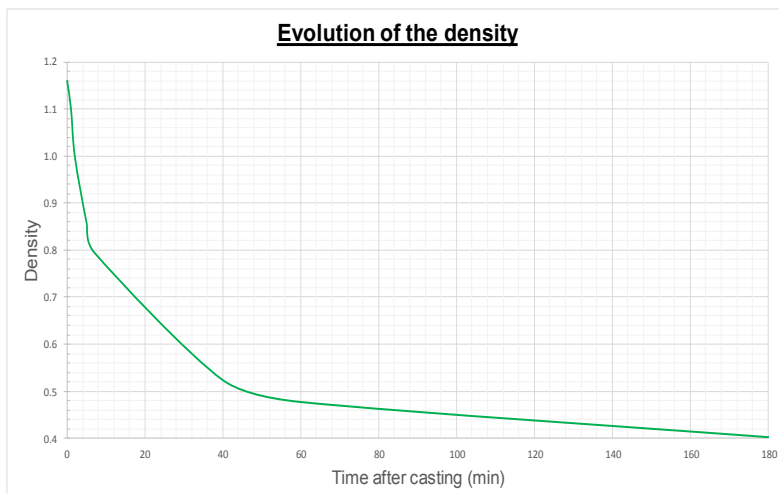
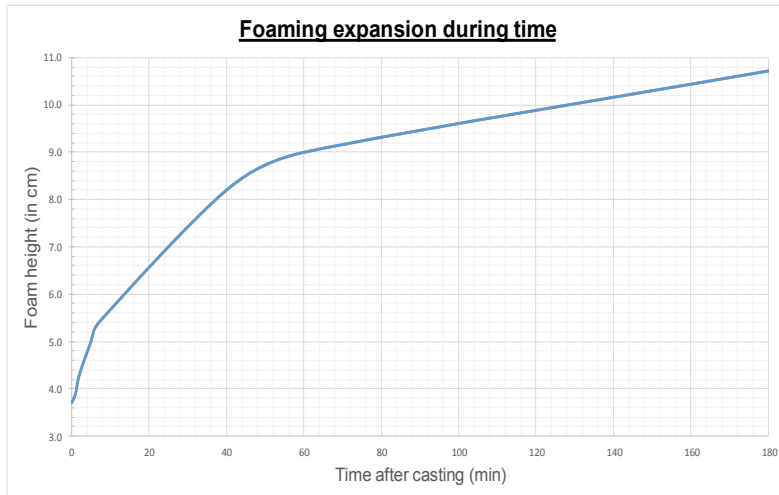
	2080 M40	2084M
Viscosity at 23°C (mPa.s)	14 000	84

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FOAMING

Example : 300g mix of 2080 M40 / 2084M system cast at 23°C & pour in a 1L plastic pot



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REACTIVITY

System	2080 M40 / 2084M
Parameters	300g mix at 23°C
Time before foaming	2min
End of foaming	3h
Dry touch / overcoatable	10h
Hard & Releasable	24h

Due to its low reactivity, 2084M hardener will take several hours to reach full expansion. Polymerization process is independent from foaming. Depending on temperature & volume to be cast, the hardening time can vary significantly. Tests have shown good adhesion between layers of foams casted onto each other without surface preparation.

CURING & POST CURING

The foam obtained may be sanded or released from the mould after 24h at 23°C. Nevertheless, if higher thermo- mechanical properties are required, a post-cure cycle can be performed 16h at 60°C.

Like all epoxies, the reticulation process of the 2080 M40 / 2084M is exothermic. It is recommended to proceed to preliminary tests for very large applications. It is recommended to cast the system at temperature inferior to 40°C in order to minimize risks of internal tensions happening during the cross-linking.

System	2080 M40 / 2084M
T_G after 14 days at 23°C	48°C
T_G after 24h at 23°C + 16h à 60°C	74°C

T_G measurements made with Kinetech® (DMA type, under mechanical solicitation)

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PACKAGING

Kits of 2080 M40 / 2084M available :

- 1.35kg : (1+0,35)kg
- 6.75kg : (5+1,75)kg
- 33.75kg : (25+8.75)kg
- 270kg : (200+3x23.33)kg
- 1350kg : (1000+2x175)kg

TRANSPORT & STORAGE

Keep containers sealed and away from heat and cold preferably between 10°C and 30°C in a well ventilated area. Shelf life is one year in sealed containers as provided.

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 or hardener 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.

Nota : The data provided in this document are provided good-faith and are based on the test in laboratory and our practical experience and is believed to be accurate. Considering the application of our products gets away from our control, 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.