



HYBTONITE® G4LV

CNT modified epoxies and CNT modified pastes for all epoxy systems

The systems are low viscosity solvent free 100 % reactive CNT modified epoxy systems tailor-made for the composites industry. It is suitable for RTM, filament winding, laminating, pultrusion, infusion and many other applications.

The systems are made with patented HYBTONITE® technology. These systems can be tailor-made with different curing agents and accelerators to meet required cure rate, pot life and properties.

These systems will give increased impact resistance, elongation to break and fatigue compared to any traditional epoxies.



TABLE 1: Process data

Before mixing	Mixing and processing	Curing
Clear the surface from dust, grease and moisture.	Mix the resin with curing agent properly for minimum 1–2 min.	The product cured even at + 5 °C but higher temperatures give better properties.
The higher the temperature of the object, the better flow and wetting are achieved.	Let the air come out and settle for minimum 2–5 min (even vacuum if possible).	Heat cure range is from 6 hours at 60 °C to 5 minutes at 200 °C.
If possible preheat the HYBTONITE® resin component to 40 °C before use or use vacuum for air release.	For the best results, consult with Amroy Europe Oy.	

Vertical surfaces in hand laminating:

The system can be thickened with 2 % HDK / Aerosil for laminating vertical surfaces. This helps especially against sagging/drainage. Also available in all RAL colours.

The system does not crystallize and has a long storage stability of at least 3 years when properly stored in closed containers.

HYBTONITE® G4LV

TABLE 2: Technical data cycloaliphatic CNT modified vacuum infusion / RTM epoxy system

HYBTONITE® G4LV, 25 °C	Amroy CA35	Amroy CA40	Mix 50/50
Mix ratio (by weight)	100:27	100:19	100:135
Mix Viscosity 25 °C , mPa•S	500	800	600
Mix Viscosity 40 °C, mPa•S	250	500	300
Density, kg/l	1,06	1,06	1,06
Colour	clear when cured / blackgreen in liquid		
Gel Time 25 °C (150 g)	6 hours	15 minutes	1 hour
Gel time 60 °C	60 minutes	5 minutes	20 minutes
Min Cure Temperature, °C	30 °C	5 °C	15 °C
Heat Cure recommended	6 hours at 80 °C	not needed	6 hours at 80 °C
Max Tg, °C	100 °C	100 °C	100 °C
Flexural / Compressive Modulus, GPa	3,6	3,4	3,5
Elongation at Break, %	10	5	8
On request also high Tg systems available up to + 200 °C.			

TABLE 3: Viscosity temperature profiles at different injection temperatures for HYBTONITE® G4LV

Viscosity/temperature profile	25 °C	40 °C	60 °C
HYBTONITE® G4LV	20000 mPa•S	2000 mPa•S	500 mPa•S
G4LV + 50 % Amroy CA 35/40 mix	600 mPa•S	300 mPa•S	110 mPa•S
G4LV + Amroy CA35	500 mPa•S	250 mPa•S	100 mPa•S

TABLE 4: Reference list of mechanical result improvements with 50–70 % glass/carbon fiber

Customer	Application	improvement with HYBTONITE®
Warrior Sports / Montreal Ice Hockey	RTM	+ 38 % impact
Peltonen Ski	Glue	+ 200 % Fatigue
Baltic Yachts	Laminating	+ 20 % max break
Kajak Sports	VARTM / infusion	+ 60 % max impact
EXEL Composites	Filament winding	+ 30 % flexural strength
CompoTech	Pultrusion	+ 30 % bending, 20 % Modulus
Easton USA	Pultrusion / Pre-Preg	+ 15 % Stiffness, max strength

Storage Data

The products can be stored at temperatures between 0–60 °C in closed containers in dry place protected from direct sunlight. Storage time is at least 3 years.

TABLE 5: Sales Packages

Product/package	IBC	Drum	Can
HYBTONITE® G4LV	1100 kgs	225 kgs	20 kgs
Amroy CA35 / CA40	900 kgs	180 kgs	18 kgs

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