

## Technical data sheet

# Resin

## DOLPHON C(a)-1114

- Two parts epoxy potting resin,
- Excellent resistance to thermal cycles,
- Good electrical properties,
- Low shrinkage when curing,
- Good water resistance,
- Self-extinguishing: UL94V0 approved 4mm (file E317428),
- Suitable for application up to class H,
- Included in UL Insulating System 155°C: E317429, DV-155 table IX,
- Good heat dissipation,
- EN 45545-2 certified: HL1, HL2 for R22 and HL1, HL2, HL3 for R23.

### Description

DOLPHON C(a)-1114 is a two component, filled, halogen-free, self-extinguishing epoxy resin. It has good mechanical and thermal features, as well as a good penetrating behavior. It's widely used to pot and impregnate windings, transformers, capacitors and electrical components, and it is available on request in different colors and reactivities.

### Application

Potting, casting resin for stators, electrical magnets, transformers, electrical brakes, coils, capacitors.

### Processing guidelines

Preparation of units:

1. Potting in a container: clean the container in order to reach a good adhesion
2. Potting with removable mold: clean the mold and spray or spread with a release agent.
3. Pre-heat the unit at 110/120°C for 3 h, to remove humidity and cure eventual thermo-setting tapes.
4. Cool down the unit to 40-50°C.
5. Pour slowly the compound in a corner of the mold so that the resin can rise gradually from the bottom to the top, avoiding trapping air in the potting.



#### Mixing:

In case of slight sedimentation, stir the resin to homogenize it. In case of non-automatic mixing, add the appropriate amount of hardener, slowly stirring the resin with the hardener for some minutes, taking care not to incorporate air, also scraping the walls and the bottom of the vessel to disperse uniformly the two components

Mix ratio Resin/hardener:

Hardener	Weight	Volume	Pot life @ 25°C (100g)
C(a)-1114-B	100/13	100/22	80-110
CF-1114-B	100/13	100/22	55-70
CS, CL-1114-B	100/13	100/22	200-300

Color code table:

Resin, base A	Colour	Hardener, base B	Colour
CY-1114-A	Yellow	CX-1114-B	Blue
CB-1114-A	Black	CC-1114-B	Transparent
CX-1114-A	Blue	CF-1114-B	Blue
CR-1114-A	Red	CS-1114-B	Blue
CN-1114-A	Neutral	CL-1114-B	Transparent

For other colors, please contact us.

#### Curing:

The system cures at room temperature.

With hardener C(a)-1114-B, initial hardening (100g): 3-4 hours @ 25°C, and full hardening: 24hours @ 25°C

The system polymerizes in a wide range of temperatures (15-80°C) and its final properties are reached in variable time, depending on the chosen temperature.

It is possible to reach quickly all the final properties, by jellify the product at room temperature and then curing at 70°C for 3 hours.

#### Health and safety

Our products are intended for industrial use only. For any further information, please refer to the Safety Data Sheet.

#### Storage conditions

Resins and hardeners: 12 months in original sealed packaging, at maximum 30°C, protected from direct sunlight and heating sources. Like all epoxy resins, the A base could show some crystallization; if any, it is needed to slightly heat the product to 40°C and homogenize it, to recover initial properties.



Physical Properties Resin	Test norm	Unit	Value
Colour			Refer to colour code table
Specific gravity @ 25°C		g/l	1600-1660
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	6000-10000

Physical Properties Hardener C(a)-1114-B	Test norm	Unit	Value
Specific gravity @ 25°C			970-1030
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	40-100

Physical Properties Mix	Test norm	Unit	Value
Specific gravity @ 25°C			1500-1560
Viscosity Brookfield @ 25°C	ISO 2555	mPa.s	1000-3000
Exothermic peak, 500g, @25°C		°C	71

After curing: Physical Properties	Test norm	Unit	Value
Hardness Shore D @ 25°C	ISO 868		80-90
Shrinkage		%	0.3

Thermal Properties	Test norm	Unit	Value
Thermal Conductivity	ASTM D7984	W/m.K	0.8
Thermal class (20.000h)	ASTM D-2307	°C	180
Thermal cycles resistance	Oliphant test	°C	10 cycles -60 / +180
Glass Transition Temperature Tg	ASTM E1356	°C	40-55
Glow-wire ignition temperature, GWIT	IEC 60695-2-13	°C	900 (3mm)
Glow-wire flammability index, GWFI	IEC 60695-2-12	°C	960 (3mm)
Coefficient of Thermal Expansion	ASTM D-3386	µm/m/°C	40-70



Mechanical Properties	Test norm	Unit	Value
Tensile strength @ 25°C	ASTM D-638	MPa	42-52
Flexural strength @ 25°C	ASTM D-790	MPa	63-73

Chemical Properties	Test norm	Unit	Value
Water absorption @ 25°C	ASTM D-570	%	0.2-0.3

Electrical Properties	Test norm	Unit	Value
Dielectric strength @ 25°C	IEC 60243	KV/mm	20-23
Surface Resistivity @ 25°C	ASTM D-257	$\Omega$	$8.1 \cdot 10^{13}$
Volume Resistivity @ 25°C	ASTM D-257	$\Omega \cdot \text{cm}$	$9 \cdot 10^{14}$
Comparative Tracking Index CTI	IEC 60112	V	600

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