

CASTING RESIN SYSTEM

CK516/HK06

CK 516 is a specially formulated prefilled medium viscosity epoxy casting system. It is recommended for casting, potting or encapsulation of small low voltage electrical and electronic components at room temperature.

CK 516 is usually employed in combination with Hardener **HK 06**, a low viscosity polyamine. This hardener is fairly reactive and hence produces a strong exothermic reaction. CK 516 when fully cured, gives resilient castings possessing electrical insulation properties and high mechanical strength. Moreover, it adheres very well to metal inserts as it provides a leak-proof barrier to humidity, offering good protection to sensitive components which it encapsulates.

APPLICATIONS

Capacitors , Electronic Modules ,Miniature transformers , Circuit and connector elements, Low voltage cable joints, Gas seals in telephone cables , Coils, Electromagnets, Current & Potential Transformers.

PRODUCT DATA

Epoxy Resin CK 516 (unfilled)

Low viscosity, liquid modified Bisphenol - A epoxy resin

Viscosity at 25° C (Hoeppler)	mPa.s	1300-1900
Epoxy value	equiv/kg	3.57 - 4.5
Flash point	°C	190-210
Specific gravity at 25° C	g/cm ³	1.12-1.17
Chlorine Content	%	<0.6
Colour	-----	Clear, Pale Yellow

HARDENER HK-06 is a very low viscosity liquid having a strong ammoniacal odour based on aliphatic polyamine.

Colour	---	Pale Yellow
Viscosity at 25°C(Hoeppler)	mPa.s	10 - 20
Flash Point	°C	110 -120
Specific gravity at 25° C	g/cm ³	0.97-0.99
Vapour pressure at 25°C	mbar	2.10 ⁻²
at 60° C	mbar	4.10 ⁻¹
Refractive Index		1.495-1.500

CASTING RESIN SYSTEM

CK516/HK06

PROCESSING

CK 516 will have an initial viscosity of around 15000 cps at 25°C, however the viscosity drops on heating & will be around 6000 cps at 40°C & around 4000 cps at 60°C. Hence for easier handling it is recommended to heat CK 516 to around 40°C before hardener is incorporated. However as mentioned below the pot life of the system shortens on increase in temperature.

The system incorporates powdered inorganic silica flour as filler, however other fillers such as chalk powder, talc or alumina trihydrate could also be incorporated on specific requirements. Silica flour imparts the best mechanical properties but make the casting more difficult to machine. Chalk flour imparts the best dielectric properties. Fillers have no effect on cure times, although gel times are prolonged due to damping of exothermic temperature rise.

When producing large castings, it is a good practice to allow them to gel at room temperature before curing at elevated temperatures. In the case of small castings, the heat generated is rapidly dissipated and consequently, cure is delayed and the surfaces of casting may remain tacky. This is quite common especially during the monsoon period. In such cases the casting is required to be heated with the help of an infrared heater or an oven to effect full cure.

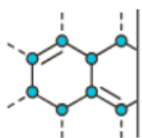
Molds are normally made of steel, iron, non-ferrous metals, lead, lead alloys, thermoplastic resins (e.g. pvc) as well as plaster, wood, vulcanized rubber etc. A good release agent must be applied thinly on the surface and rubbed well to ensure a uniform layer. In order to avoid the entrapment of air, the components required to be potted or encapsulated may be heated to around 60°C. The resin /hardener mix which is at room temperature is poured over the object in the mold. The viscosity falls on contact with the heated object and flows more easily into small gaps.

MIXING RATIO

CASTING MIX	PARTS BY WEIGHT
RESIN CK 516	100
HARDENER HK-06	3.5 – 4.5

POT LIFE

CASTING MIX	PARTS BY WEIGHT
RESIN CK-516	100
HARDENER HK-06	3.5 – 4.5
POT LIFE AT 25°C (MINUTES)	60-90
POT LIFE AT 40°C (MINUTES)	30-45



CASTING RESIN SYSTEM

CK516/HK06

CURING

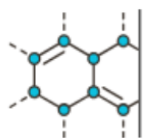
CURING TEMP.	CURING TIME (HOURS)
25°C	24
40°C	5-7
60°C	2-3

STORAGE AND HANDLING

Prefilled liquid products always show small filler sedimentation on storage. Before partial use it is recommended that contents of the container be stirred to get a homogenous mix or alternatively use each container as a complete unit. Partially used containers should be tightly closed immediately after use. Minimum shelf life of filled resins will be 4 weeks when stored in their original containers & not exposed to undue heat & humidity. Shelf life of hardener will be 1 year under similar storage conditions.

As far as possible, direct contact of resin and hardener with the skin should be avoided as they might cause irritation of sensitive skins. It is advisable to wash off the resin and hardener immediately if it is exposed to the skin. Special barrier creams and cleansing creams are available commercially as additional safeguards.





CASTING RESIN SYSTEM

CK516/HK06

MECHANICAL, PHYSICAL AND ELECTRICAL PROPERTIES OF FILLED SYSTEM

RESIN CK-516 HARDENER HK-06 CURE SCHEDULE	pbw pbw	100 3.5-4.5 40°C/5-7H
Density	kg/mm ³	1.6-1.7
Tensile Strength	kg/mm ²	3.5-5.0
Flexural Strength	kg/mm ²	5-6
Compressive Strength	kg/mm ²	10-11
Impact Strength	kgcm/cm ²	2.5-4
Modulus of Elasticity	kg/mm ²	750-780
Martens Heat distortion Temp.	°C	55-60
Decomposition Temp.	°C	290-295
Coefficient of linear thermal expansion	10 ⁻⁶ /°C	60-65
Thermal Conductivity	kcal/mh° C	0.544
Relative Dielectric Constant 25°C 60°C		4.4 5.5
Dielectric Loss Factor Tan at 25°C at 60°C		0.038 0.078
Volume resistivity at 25°C 60°C	10 ¹⁵ cm 10 ¹⁵ cm	1.1 0.0005
Tracking Resistance	grade	KA3c
Minimum dielectric strength 50c/s,25°C	kV/cm	175-190
Arc Resistance	grade	L4