Technical Data Sheet
January 2017

EPX21292 Black

A rigid, thermally conductive epoxy resin with excellent heat resistance and dimensional stability

Application

- Power supplies
- Encryption devices
- Security encapsulation
- Deep sea electronics
- High voltage capacitors

Key Properties

- High electrical insulating characteristics
- High dimensional stability
- Low shrinkage
- Approved to UL94 V-0
- Excellent chemical & heat resistance
- Does not contain halogens or heavy metals

Description

- Basic Two-component epoxy system
- Resin EPX21292
- Hardener EPX21292

Physical Data (approx. – values)			
	Resin	**Hardener**	**Mixed**
Colour	Black	Amber	Black
Specific Gravity	2.0	0.96	1.83
Viscosity (mPas) @ 25°C	95000	200	12500

Cure Schedule (150ml sample)				
Temperature	Working Life (minutes)	Gel Time (minutes)	Light Handling (hours)	Full Cure (hours)
RT	40	270	36	168
60°C	20	35	8	16
80°C	10	-	4	8
100°C	-	-	2	4

* RT is defined as 20-25°C
The above are typical values and will vary depending on the cured mass and application. Hotter temperatures may be used for faster cure but will result in higher post cure shrinkage and higher cure exotherm. Experimentation and testing is suggested to avoid side effects. For maximum properties a post cure may be required – Contact our technical service department for advice.

Processing

Mix ratio by weight 8.55: 1
Mix ratio by volume 4.03: 1

Typical Properties		
Test	**Result**	**Unit**
Peak Exotherm (150ml @ RT)	40	°C
Shrinkage (Volume)	0.3	%
Thermal conductivity	1.3	W/mK
Operating temperature range	-60 to +200	°C (application & geometry dependent)
Dielectric strength	20	kV/mm
Volume Resistivity	3.4 x 10^{12}	ohm.cm
Hardness	90	Shore D
Flame retardant	Approved (follow link below)	UL94 V-0
Tensile strength	70	MPa
Deflection Temperature	145	°C
Co-efficient of expansion	30 - 40	ppm/°C
Loss Tangent	0.040	@ 50 Hz
Permittivity	4.8	@ 50 Hz
Compressive strength	105	MPa
Comparative tracking index	>850	V (Method IEC 60112)
Water absorption (30 days @ RT)	0.1	%
Elongation at break	1-3	%
Flexural strength	105	MPa
Glass transition temperature	120 – 145	°C

Approvals	
RoHS compliant	Yes
UL94 V-0	http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=QMFZ2.E76072&ccnshorttitle=Plastics+-+Component&objid=1073830268&cfgid=1073741824&version=versionless&parent_id=1073827222&sequence=1
REACH (SVHC concentration)	0%

Packaging

EPX21292 is available in Bulk, Twinpacks, kits and sets

Availability

Available through distribution and sales@silicone-solutions.co.uk

Twinpacks - Part Numbers	
EPX21292/BK/050	EPX21292/BK/500
EPX21292/BK/100	EPX21292/BK/1000
EPX21292/BK/250	

Twinpacks are pre-weighed resin and hardener components contained in a tough flexible film, separated by a removable clip and rail. Once the clip and rail is removed the resin and hardener is thoroughly mixed within the bag and is immediately ready for use. Mixing will normally take ~ 3 minutes due to the viscosity; but pay special attention to the corners. Twinpacks are ideal for small to medium production runs, prototyping and on-site or field use. The twinpack weight/volume may also be tailored to a specific size on request. Twinpacks will show a separation of ingredients within the resin side. This is perfectly normal and in fact illustrates the advantage of twinpacks, in that the separation which does occur gets remixed back into suspension when the pack is mixed.
Twinpacks stored between 15° and 25°C will have a shelf-life of 12 months.
For further details please visit sales@silicone-solutions.co.uk

Bulk Resin & Hardener Part Numbers	
EPX21292/BK/5KG	EPX21292/NC/200G
EPX21292/BK/10KG	EPX21292/NC/1KG
EPX21292/BK/25KG	EPX21292/NC/2.5KG
	EPX21292/NC/5KG
	EPX21292/NC/20KG

Both resin and hardener are supplied in 5kg, 25kg and 200ltr drums and fully evacuated and ready for use.
Care should be taken to ensure when mixing the resins air is not entrained in the mixture. If this is unavoidable the mixed resin and hardener should be re-evacuated before dispensing. The bulk resin and hardener materials can be dispensed from suitable dispensing machinery, details provided on request.

Kits and Sets - Part Numbers	
EPX21292/BK/500GKIT	EPX21292/BK/2KGSET
EPX21292/BK/5KGKIT	EPX21292/BK/27KGSET
EPX21292/BK/10KGKIT	
EPX21292/BK/20KGKIT	

Kits and Sets are provided in separate containers to the correct ratio.
In Kit form, pour the hardener into the larger resin container and use it as a mixing vessel.
Stir well using an appropriate mixer until homogeneous.
All filled resin products will show filler separating to some degree and this filler must be re-mixed back into suspension prior to removing any material. Failure to do this will upset the ratio of reactive products and can lead to incorrect cure.
With all Resin systems, the cooler the storage the thicker the resin, and this increase in viscosity reduces the separation.
Conversely storage at elevated temperatures above 25°C will exacerbate the sedimentation.
Resin and hardener supplied in Bulk, Kits, or Sets will have a shelf-life of 24 months from date of manufacture

Note: Incomplete mixing will be characterised by erratic or partially incomplete cure even after extended time periods.

Cleaning

All equipment contaminated with mixed material should be cleaned before the material has hardened. Resin remover is a suitable non-flammable cleaning agent, although other solvents may be found suitable. Resin Remover will also remove cured material provided it is allowed to soak for a number of hours.

Health and Safety

Epoxy resin systems may cause sensitisation by skin contact or inhalation may be corrosive, harmful or toxic. It is therefore strongly recommended that skin and eye contact is avoided by the using of appropriate personal protective equipment such as gloves, safety glasses or goggles and overalls. Wash any contamination from the skin immediately and thoroughly and do not eat, smoke or drink in the working vicinity.
Under normal working conditions a good source of ventilation is adequate, however if the material is heated, or where vapour levels are likely to exceed the occupational exposure limits appropriate respiratory protection must be worn. Local exhaust ventilation (LEV) may be required especially for curing ovens or where large volumes of material are curing. The above is given as a guide only; please refer to EPX21292 Health and Safety data or our Technical Service Department for individual/specific advice.

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