



# SYNPOL PRODUCTS PRIVATE LTD.

Regd Office & Factory: 77, G.V.M.S. AUDYOGIC VASAHAT LTD.,  
ODHAV, AHMEDABAD – 382 415, INDIA

PRODUCT CODE: HARDENER / 04.01

## Hardener 111

TYPE : Aliphatic polyamine hardener.

DESCRIPTION : Polyamine hardener based on Tri ethylene tetra amine for curing of epoxy resins..

### SPECIFICATIONS :

1) Appearance	Colorless light yellow clear liquid with ammonical odor.
2) Specific gravity @ 25 <sup>0</sup> C.	0.97 - 0.99
3) Viscosity @ 25 <sup>0</sup> C., cps.	35 - 45
4) Colour	Light greenish yellow.
5) Amine value by HClO <sub>4</sub> method, mg. KOH/gm	1410 - 1480
6) Amine equivalent weight aprx.	25
7) Mixing ratio with 100 parts of Synpol 200	10 - 14
100 parts of Synpol 450 XX	5 - 7
8) Cure schedule @ 25 <sup>0</sup> C., hrs.	16 - 24
9) Pot life @ 25 <sup>0</sup> C., of 100 g mix with Synpol 200, mts.	10 - 15
10) Peak exotherm temperature in <sup>0</sup> C of 100 g mix with Synpol 200.	200 - 220

### COMPATIBILITY :

Hardener 111 is compatible with modified and unmodified liquid epoxy resins, reactive diluents, plastisizers, other hardeners based on polyamine epoxy adducts and reactive polyamide resins.

### APPLICATIONS :

Hardener 111 is used as room temperature curing with liquid epoxy resins for electrical potting, encapsulation, casting, hand lay up lamination and tooling. It is also useful for flooring, adhesive and coal tar modified epoxy coatings.

Hardener 111 being highly reactive and due to its exothermic properties and short pot life, large quantities of epoxy resin and hardener should not be mixed, but small quantities below 1 kg. should be mixed and consumed before its pot life period.

Hardener 111 is also used to make hardeners based on epoxy adducts with polyamines so as to have higher mixing ratio of hardener with epoxy and added advantage of long pot life and lower exotherm properties.

### SUGGESTIVE FORMULATION :

#### *Machinable casting compound.*

	kgs
Synpol 210	100
Powdered aluminium	200
Hardener 111	<u>10</u>
Total	310

Pot life @ 25 <sup>0</sup> C., minutes	10 - 20
Cure @ 25 <sup>0</sup> C., hrs.	24 - 36

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DISCLAIMER: Above Specifications are subject to change without prior notice and company reserves the right to modify the same at any time

**MATERIAL SAFETY DATA :**

Product name	Hardener 111
Flash point ° C. (Abel closed cup)	118
Flammability	Combustible
Toxicity	Moderately toxic. Irritant to skin and causes inflammation. Avoid contact with skin.
Handling	Keep away from sources of ignition, provide all electric connections of flame-proof design. Wear safety glasses, rubber gloves and protective clothings.
Emergency treatment and measures	
1 Hygienic precautions	Adequate ventilations.
2 Hygienic treatments (First Aid)	Flush eyes thoroughly with water. Apply ophthalmic cortisone for conjunctivitis and keratities. Wash out contaminated skin with soap and water. Gastric lavage (stomach wash), if swallowed, followed by saline catharsis.
3 Fire precautions (in case of outbreaks)	Use dry chemical or carbon dioxide. Water spray may help to keep containers cool, to dilute leaked resins and to diffuse vapours.
Spills and leakage	Absorb liquid materials in sand and collect solid material and burn under hood in incinerator.
Disposal and waste treatment	Spray into furnace under controlled conditions.

**STORAGE:**

Hardener 111 should be stored in cool place under shade. The properties are so adjusted to have storage stability of minimum 6 months.

**PACKING :**

25 kgs. M.S. drums, 50 kgs. Plastic carboys and 200 kgs. M.S. barrels.

**DISCLAIMER :**

Information in this literature is to the best of our knowledge true and accurate. However, since conditions under which our products may be used are beyond our control, recommendations are made without warranty or guarantee.

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