



# SYNPOL PRODUCTS PRIVATE LTD.

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

PRODUCT CODE : Hardener / 04.13

## Hardener 444

TYPE : Aliphatic amine epoxy adduct solution.

DESCRIPTION : Epoxy hardener based on aliphatic amine adduct with epoxy resin for solvent based ambient cure chemical resistant coatings.

### SPECIFICATIONS :

1) Appearance	Pale yellow clear viscous liquid with ammonical odour.
2) Density @ 25 <sup>0</sup> C.	0.95 - 0.96
3) % Solids @ 120 <sup>0</sup> C. for 1 hr.	38 - 42
4) Solvent mixture by weight	Xylene : n-Butanol :: 1 : 1
5) Viscosity @ 25 <sup>0</sup> C., poises	2 - 6
6) Colour gardner	2 max.
7) Amine value of resin solids, mg KOH / gm by HClO4 method	280 - 330
8) Mixing ratio with 100 parts of Synpol 450 XX	70 - 75
9) Pot life @ 25 <sup>0</sup> C with Synpol 450 XX at 50 % solids, hrs.	6 - 8
10) Gel time @ 25 <sup>0</sup> C with Synpol 450 XX at 50 % solids, hrs	24 min.

SOLUBILITY : Hardener 444 is soluble in equal mixture by weight of Butanol-Xylene, & ketones.

COMPATIBILITY : Hardener 444 is compatible with all types of epoxy resins generally used for ambient temperature curing chemical resistant coatings. Due to restricted solubility of Hardener 444, it is advised that equal ratio of xylene / butanol should be adjusted in entire formulation including base and hardener to achieve best film properties like gloss, leveling and adhesion. Small quantity of ketones may be added if required.

APPLICATIONS : Hardener 444 in combination with epoxy resin Synpol 450 XX is very useful for chemical resistance coatings with or without coal tar modifications. Hardener 444 has physiological and technological advantage as compared to use of aliphatic polyamine alone. Further it improves ease of application, appearance and other properties, notably freedom from bloom. In addition it provides low toxicity and manageable mixing ratio with epoxy resins. Hardener 444 when properly formulated generally gives good to excellent resistance against water and aqueous media, except organic acids and solvents like ketones and glycol ethers. Recommended cure schedule is 2 - 7 days at room temperature aprx. 25<sup>0</sup> C and for accelerated cure, coating may be forced cure at elevated temperature of 80 - 120<sup>0</sup> C for 30 minutes.

### SUGGESTIVE FORMULATION :

*Epoxy amine adduct coal tar maintenance coating for corrosive industrial atmosphere..*

Part I		kgs	
	Talc	25.0	
	Aerosil 200	1.0	
	Synpol 450 XX	16.2	
	Coal tar pitch	36.6	
	Xylene	8.6	
	Butanol	<u>12.6</u>	100
Part II			
	Hardener 444	12.2	
	Xylene	1.4	
	N-Butyl alcohol	<u>1.4</u>	<u>15</u>
	Total		115

Mixing ratio by weight Part I : Part II :: 100 : 15  
% Non volatiles 80

Continued.....

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 444
Flash point ° C. (Abel closed cup)	30
Flammability	Moderate fire risk.
Toxicity	Mild toxic. Avoid direct 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 444 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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