

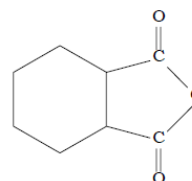
# HHPA

## Hexahydrophthalic Anhydride

### Description

HHPA is a solid anhydride hardener for epoxy resins, manufactured by Polynt SpA. Due to its high resistance to discoloration, HHPA is preferred over other alicyclic anhydrides in casting and coating applications. In addition, HHPA's low melt viscosity, as well as its high mix ratio with epoxy, makes it particularly suitable for applications where high filler loadings are required. HHPA is also used as an intermediate for alkyds, plasticizers, insect repellents and rust inhibitors.

Chemical Name: Hexahydrophthalic Anhydride  
 Molecular Formula:  $C_8H_{10}O_3$   
 Molecular Weight: 154.17  
 CAS Number: 85-42-7



### Typical Applications for HHPA Cured Epoxy Resins

- Durable, high gloss, weather resistant coatings
- Potting compounds
- Pressure gelation moldings for outdoor electrical applications

### Specifications

Appearance	White Fused Solid or Clear Liquid
Color in molten state ( Hazen)	20 Max.
Viscosity @40°C	47 cps
Clearness Point*	60°C Max.
Solidification Point °C	37.5 Min.
Melting Point °C	37
Flash Point (O.C)	152
% Free Acid	0.5% Max.
% Purity	99.0% Min.
% Maleic Anhydride Content	0.01 – 0.05
Acid Number (mg KOH/gm)	710-740

\*Upon melting, the temperature at which HHPA becomes clear



**Properties**

(at cure schedule 100°C / 2 hours, 130°C / 5 hours)

Heat Deflection Temperature, °C	120
Hardness (Barcol)	40
Tensile Strength, psi	11,000
Flexural Strength, psi	17,500
Compressive Strength, psi	17,300
Elongation, %	4
Dielectric Constant, 25°C – 60 cy	3.3
Dielectric Constant, 25°C – 10 <sup>6</sup> cy	3.1

<b>Specific Gravity</b>	<b>g/ml</b>
@40 °C	1.19
@60 °C	1.17
@80 °C	1.16

<b>Vapor Pressure</b>	<b>mm/Hg</b>
@100 °C	1.1
@120 °C	3.7
@140 °C	9.3
@160 °C	15.7
@180 °C	27.5

<b>Viscosity</b>	<b>mPa.s</b>
@40 °C	41.3
@60 °C	17.3
@80 °C	9.0
@110 °C	5.0

<b>Boiling Point</b>	<b>°C</b>
760 mmHg	296
100 mmHg	208
5 mmHg	136

**Typical Formulation**

Parts by Weight

Epoxy Resin (Epoxy Equivalent 175-210)	100
HHPA	80
AC 8	1

Gel at 100°C for 1-2 hours. Post cure at 130°-150°C for 3-8 hours.

**DIELECTRIC CONSTANT & DISSIPATION FACTOR FOR HHPA / EPON Resin 828/ BV7**

Temperature °C	60 Hz		1kHz		1MHz	
	K	DF	K	DF	K	DF
23	3.3	.005	3.3	.007	3.2	.013
100	3.3	.003	3.4	.004	3.4	.015
153		.003	4.0	.07	3.6	.02

Temperature °C	Volume Resistivity
25	>2 x 10 <sup>14</sup>
100	---
150	1 x 10 <sup>10</sup>
175	3 x 10 <sup>8</sup>
200	5 x 10 <sup>7</sup>

**Packaging and Storage:**

HHPA is available in 220 Kg galvanized steel drums, 5 gallon pails of 45 lbs, or in bulk. It must be stored away from open flames or other potential ignition sources and should be protected from moisture.

**Shelf Life:** 6 months from production date.

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