

HIRI™ II Casting Resin

Product Bulletin



Last Revised April 20, 2004

Introduction:

HIRI II liquid casting resin produces a hard, lightweight optical plastic with a medium refractive index. As an alternative to **CR-39™** monomer, it offers a higher refractive index, is lighter in weight, and can be machined, surfaced-tinted and coated with essentially the same procedures.

Health and Safety:

Always read the HIRI II casting resin MSDS, (product ID #0155) and product label. Follow all instructions when handling this product.

Storage and Handling:

To safeguard the quality of **HIRI II** casting resin, keep the product stored in its original, unopened container out of direct sunlight.

Since the material is mildly hygroscopic, containers should be kept closed until time of use. Opening prior to use can cause the drums to rust.

The initial freeze point for **HIRI II** casting resin is approximately 25°F, once freezing occurs; it can recur at higher temperatures. Freezing for short periods does not affect the properties of polymer cast from re-thawed resin. However, care must be exercised in thawing frozen resin. It is recommended that drums of frozen resin be placed in a warm area (90-120°F) and thawed slowly. Band heaters around the drum are not recommended due to the flashpoint of the resin. Material must be completely thawed before use to assure a homogeneous composition.

Shelf Life:

HIRI II casting resin should be used within 12 months from the date of production at PPG as printed on the barcode label.

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Processing:

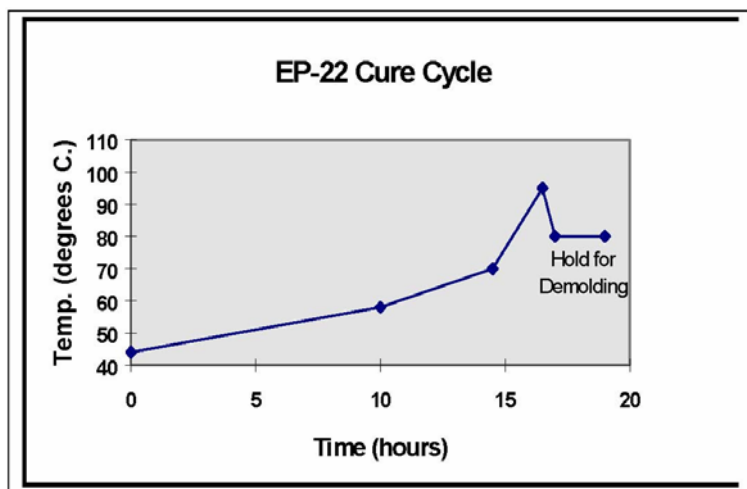
Process Compatibility - HIRI II casting resin is cured to a hard polymer in essentially the same manner as CR-39 monomer, using a chemical initiator such as IPP (diisopropyl peroxydicarbonate).

Initiator Levels:

Like CR-39 monomer, HIRI II casting resin can be cured to a hard polymer with no gas evolution, using a chemical initiator such as IPP. IPP goes into solution quickly by stirring at room temperature, and is used at a concentration of 2.5-3.0 parts of IPP per hundred parts of resin (by weight).

HIRI II casting resin has a flash point of 93°F. If heating is used, stirring should be continued while cooling the solution to room temperature, after the initiator is dissolved.

Cure Cycle:



Time (hrs)	Temp (deg. C.)
0.0	44
10.0	58
14.5	70
16.5	95
17.0	80
19.0	80

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Typical Monomer Properties for HIRI II casting resin:

Appearance	Clear liquid
Yellowness Index (5cm path length)	1.7
Odor	Slight Organic
Transmission % (5cm path length)	93.1
Refractive Index n_D^{20} at 20°C	1.5302
Viscosity at 25°C, cPs	
Density g/ml at 25°C	1.1339
Specific Gravity, 25°C/25°C	1.137
Pounds per gallon at 20°C	9.5
Seta Flash Point (closed up), °F	93

Typical Polymer Properties for HIRI II:

Visible Light Transmittance %	92 - 93
Yellowness Index	1.1
Haze %	0.4
Barcol 934 (15sec)	38
Refractive Index n_D^{20} at 20°C	1.5563
Abbe Number	37.7
Bayer Abrasion (X uncoated Plexiglass)	1 - 2
Density g/cc at 77°F	1.216
Dyability (5, 10 min), Transmittance %	42, 32
Heat Distortion °F (at 10 mils deflection)	168
Polymerization Shrinkage, Volume %	6.75

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Samples and Services

For additional information, please contact a PPG customer service representative at:

- Phone: **1-800-323-2487**
- Fax: **724-325-5042**

or: **send E-Mail**

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