

Laromer[®] PR 9000

General	Low-viscous isocyanate-functional unsaturated acrylic ester resin, based on allophanated hexamethylene diisocyanate, for dual-cure coatings resistant to light and weathering.
Key features & benefits	dual cure mechanism (UV-reactive plus isocyanate functionality) solvent free, 100% solids system excellent adhesion even on oily surfaces (tropical wood) improved through cure via reaction of NCO with OH
Chemical nature	isocyanate functional aliphatic urethane acrylate

Properties

Appearance	low viscous liquid	
Typical characteristics <i>(should not be interpreted as specifications)</i>	viscosity at 23°C	1000~2000 mPa·s
	NCO content by weight	14.5%~15.5%
	color, Platin-Cobalt scale (Hazen/APHA)	≤ 150
	density at 50°C	1.133 g/mL

Application

solubility, diluent tolerance, compatibility

Laromer[®] PR 9000 can be thinned with the solvents common to the coatings industry (except for aliphatic hydrocarbons) and reactive thinners such as low-viscous acrylic esters and vinyl ethers (e.g., DVE-3, BDDE, HDDA, EHA). Note a possible increase in viscosity caused by components reacting with isocyanate, e. g., water and alcohols.

Laromer[®] PR 9000 can be thinned with esters (e.g., butyl acetate), ketones (e. g., methylethyl ketone), glycol ether acetates (e.g., meth-oxypropyl acetate) and aromatic hydrocarbons (e. g., Solvesso[®] 100, xylene).

fields of application

Laromer[®] PR 9000 is an isocyanate-functional aliphatic acrylic ester and its reactivity recommends it as both isocyanate and acrylic ester component for dual-cure applications. It is thus commonly used in combination with resins containing hydroxylic groups or with other radiation-curable resins, mostly in two-pack formulations.

Laromer[®] PR 9000, a low-viscous resin, may also be used as a sole binder. After exposure to UV radiation, the isocyanate groups react with both ambient and the substrate's inherent moistures to a blister-free coat. Most notably, this one-pack application is suitable for both porous substrates and those with poor adhesion properties.

The stoichiometrical reaction of the polyisocyanate component and the polyol is computed based on the NCO content (NCO: OH = 1:1):

$$\text{Laromer® PR 9000} = \frac{0.075 \times [\text{OH value}] \times [\text{non-volatile fraction of polyol}]}{[\text{NCO}]}$$

or

$$\text{Laromer® PR 9000} = \frac{0.075 \times [\text{OH \%}] \times [\text{non-volatile fraction of polyol}]}{17 \times [\text{NCO}]}$$

Laromer® PR 9000 can be diluted further for processing. Suitable are low-volatile monomers such as mono-functional, di-functional or tri-functional acrylic esters. The monomers are incorporated into the film and thus influence its properties. Monofunctional monomers increase the flexibility; difunctional monomers have little effect on hardness and flexibility while trifunctional monomers increase hardness of the cured film. Inert solvents can be used if an adequate flash-off zone is available. However, these solvents have to be removed completely from the film prior to exposure to radiation.

A suitable photoinitiator must be used to photocure Laromer® PR 9000. The photoinitiator types include, for example, α -hydroxy ketone, benzophenone, acyl phosphine oxide, and blends thereof, for typical coating applications. The amount of photoinitiator varies between 2%~5% based on Laromer® PR 9000 as delivered. Acyl phosphine oxide types (MAPO, MAPO-Liquid and BAPO) of photoinitiators are recommended for film thicknesses of 50 g/cm² to ensure through curing.

Laromer® PR 9000 is used in combination with hydroxy-functional resins, e. g., hydroxy acrylic resins, hydroxy polyesters, hydroxy polyethers, aliphatic polyols or hydroxy-functional unsaturated acrylic resins.

Storage

Product ought to be kept within sealed unopened containers. Containers should be stored below 35 °C and away from sunlight.

For further detailed application information please contact our Technical Support Department.

Safety

When handling this product, please comply with the advice and information given in the safety data sheet and observe protective and workplace hygiene measures adequate for handling chemicals.

Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. The agreed contractual quality of the product results exclusively from the statements made in the product specification. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed.

® = registered trademark, ™ = trademark of the BASF Group, unless otherwise noted

BASF East Asia Regional Headquarters Ltd.

45th Floor, Jardine House, No. 1 Connaught Place, Central, Hong Kong