Technical Information

Coatings Raw Materials

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Luwipal® 066

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Hexamethoxymethylmelamine resin for acid-curing and baking finishes

Dispersions

BASF

Nature Hexamethoxymethylmelamine resin

Properties

Product specification

Non-volatile matter (ISO 3251/DIN V 53216) (2 g sample; 2 h at 125 °C)	%	93 – 96
Viscosity at 23 °C (ISO 3219, DIN 53019) shear rate D = 41.3 s^{-1}	Pa·s	2.0 – 6.0
Platinum-cobalt colour (ISO 6271)		< 100
Acid value (ISO 3682/DIN 53402)	mg KOH/g	< 1

Other properties

Density at 20 °C (ISO 2811/DIN 53217)	g/cm^3	1.18
Flashpoint (ISO 3679/DIN EN 456)	°C	94
Turbidity titration (n-heptane/toluene 10:2)		1: < 0.5

Diluent tolerance

Methanol	◐	Xylene	●
Ethanol	●	Ethoxyethanol	●
Butanol	●	Butoxyethanol	●
Ethyl acetate	●	Mineral spirit	◐
Butyl acetate	●	Water after addition of acid	◐
Toluene	●		

● = soluble ◐ = partially soluble ○ = insoluble

Miscibility

In the proportions that are of technical interest, Luwipal 066 forms homogeneous mixtures with most short-oil to medium-oil, nondrying alkyd resins, thermosetting acrylic resins, cellulose nitrate, polyvinyl alcohol, and brittle urea and melamine resins.

Application

Since Luwipal 066 cures to produce brittle coatings, the formulations must include some form of plasticizer. The following properties of Luwipal 066 are exploited in the production of acid-curing and baking finishes:

– In the presence of small amounts of lower alcohols, it is suitable for water-thinnable paints. The diluent tolerance for water can be further improved by adding small quantities of acids.

– Because of its low viscosity, Luwipal 066 is especially suitable for high-solids paints. For instance, the solids content of a clear finish formulated with Luwipal 066 and low-viscosity alkyd or acrylic resins may be as much as 15 % higher than that of a finish of the same viscosity formulated with conventional butanol-etherified melamine resins.

Solvent-type, acid-curing paints can be formulated from Luwipal 066 blended in ratios of up to 1:1 with short-oil to medium-oil alkyd resins modified by nondrying or slightly drying oils. A suitable catalyst is p-toluenesulfonic acid added in proportions of 10 – 15 %, expressed in terms of the Luwipal 066. The coatings have better resistance to chemicals than those obtained from urea-formaldehyde resins.

Luwipal 066 has low reactivity in baking finishes and has to be cured at temperatures higher than 150 °C. The temperature can be lowered by adding p-toluenesulfonic acid in proportions of 1 – 2 %, expressed in terms of the Luwipal 066, but this measure shortens the shelf life. Luwipal 066 can be included in coil-coating and can coatings, particularly as a cross-linking component.

The properties of the finished product are affected by many factors (eg, choice of resin and processing conditions). The formulator must therefore carry out careful preproduction trials.

Safety

General

Attention must be paid to the normal precautions for handling chemicals and to the measures prescribed in the local health regulations. The workplace must be well ventilated, skin care measures should be adopted and safety goggles should be worn.

Safety Data Sheet

The Safety Data Sheet for Luwipal 066 provides information on all the known safety data.

Foodstuffs legislation

Luwipal 066 conforms to FDA 21 CFR 175.300 “Resinous and polymeric coatings” and 21 CFR 176.170 “Components of paper and paperboard in contact with aqueous and fatty foods”.

Storage

If Luwipal 066 is kept in tightly closed drums or in storage tanks in a cool place but protected from frost, its shelf life is 12 months.

Note

The information submitted in this publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processors of the responsibility of carrying out their own tests and experiments; neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.

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