Technical Information

Luwipal® 066 ULF

general

Luwipal® 066 ULF is a Hexamethoxymethylmelamine resin (HMMM) with ultra-low content of free formaldehyde for label free acid curing and baking finishes.

- Ultra-low free formaldehyde below 0.1 %
- No CMR labeling
- Good acid reactivity
- High solid content

chemical nature

colorless resin

Properties

physical form

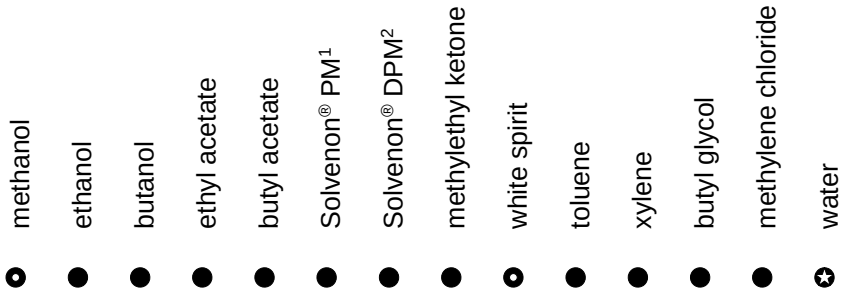
colorless liquid

typical properties (no supply specification)

non-volatile fraction (2h 125 °C)	93–98 %
viscosity at 23 °C (73 °F)	2.0–6.0 Pa·s
shear rate D	41.3 s^{-1}
Hazen color number	≤ 50
acid value	≤ 1 mg KOH/g
density	1.18 g/cm³
free formaldehyde (DIN 11402)	< 0.1 %

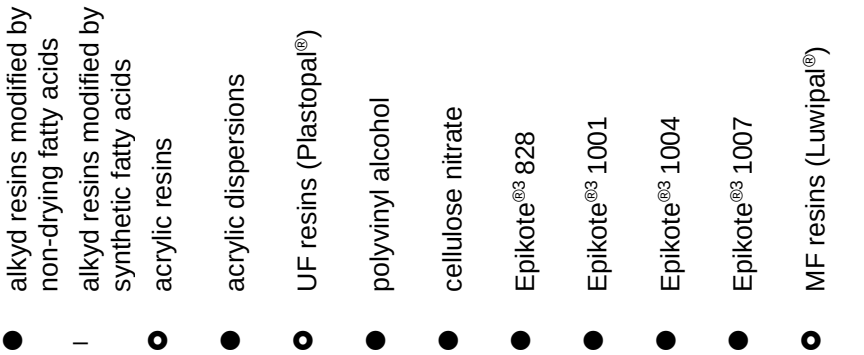
Application

diluent tolerance



●	soluble
⊙	limited solubility
✪	soluble after addition of acid
○	insoluble

compatibility
1:1 mixing ratio, solids on solids



●	compatible
⊙	limited compatibility
–	no information

Luwipal 066 ULF is used in Can and Coil coatings, high temperature 1K baking systems, as well as acid curing 1K amino coatings.

Luwipal 066 ULF is also suitable as crosslinker for 1K high solid topcoats and basecoats.

At less than 150 °C Luwipal 066 ULF performs as a crosslinkable plasticizer.

Luwipal 066 ULF has limited use in waterbased 1K amino crosslinking coatings, due to the high etherification grade.

[1] methoxy-1,2-propanol
[2] methoxypropoxy propanol (mixture of isomers)
[3] registered trademark of Hexion Specialty Chemicals, USA

formulation guidelines

Luwipal 066 ULF can be used to formulate acid-curable finishes as well as baking finishes, with no CMR labeling due to an extremely reduced level of free Formaldehyde of less than 0.1 %.

With small amounts of co-solvent (e.g. alcohols) it is possible to incorporate Luwipal 066 ULF, supported with a slightly lower pH value into waterborne coatings. However the high etherification grade leads to a low water accessibility.

It is possible to formulate high solid coatings with the viscosity range and the high non-volatile content of Luwipal 066 ULF.

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

In baking finishes, HMMM resins have low reactivity and require baking temperatures above 150 °C (302 °F). Adding 1–2 % of acid (e.g. p-toluenesulfonic acid), expressed in terms of Luwipal resin solid, allows to lower the baking temperature. However, the shelf life will be reduced. Suitable blocked catalysts to substitute the free acids are available in the market.

Luwipal 066 ULF is suited as a crosslinking component for coil- and can coatings in combination with blocked acids. Its reactivity could be increase with use of a combination of Luwipal 072, but with aspect of increasing the free formaldehyde content.

To formulate CMR label free solventborne 1k stoving coatings, it is possible to add 1-2 % Larotact 150 to the formulation to increase solvent resistance, surface hardness and chemical resistance, especially acid resistances.

Luwipal 066 ULF contains extremely low free Formaldehyde. However Formaldehyde is a building block of the HMMM structure and could be emitted while formulating and drying. The amount of emissions are also influenced by the amount of crosslinker used, pH value, solvent nature, film thickness, drying conditions and more.

storage and registration

storage
shelf live

According to our experience, Luwipal® 066 ULF can be stored for 12 months after the date of delivery if kept in tightly sealed containers and at temperatures between 4 °C (30 °F) and 30 °C (86 °F).

Safety
When handling these products, 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.

BASF SE
Pigments & Resins Europe
67056 Ludwigshafen, Germany
www.basf.com/resins
service.pigments-and-resins-europe@basf.com