



Bayhydrol[®] UV 2720/1

Characterization

Anionic, UV-curable polyurethane dispersion.

Bayhydrol[®] UV 2720/1 is used for the formulation of waterborne UV coatings for industrial coating of plastics and wood and other substrates, particularly suitable for pigmented systems. As a thermoformable product it is an ideal solution for postformable coatings.

Form supplied

Approx. 40 % in water

Specification

Property	Value	Unit of measurement	Method
Non-volatile content (1g / 1h / 125 °C, convection oven)	39 - 41	% by weight	DIN EN ISO 3251
Viscosity at 23 °C	≤ 200	mPa·s	DIN 53019
pH	7.0 - 9.0		

Other data*

Property	Value	Unit of measurement	Method
Average particle size	50 - 100	nm	
Pendulum hardness	approx. 40	s	before UV-curing DIN 53157 (König)
Pendulum hardness	approx. 160	s	after UV-curing DIN 53157 (König)
Density at 20 °C	approx. 1.06	g/cm ³	DIN ISO 2811

*These values provide general information and are not part of the product specification.





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Solubility / thinnability

The product is soluble in water.

Compatibility

The dispersion can only be formulated and applied at pHs > 6.7.

The product exhibits very good compatibility to many others dispersions, including UV-curing dispersions. However, compatibility must be tested in each case after setting pH to a value > 6.7.

Additions of solvent, which may be necessary as an additive, are generally unproblematic.

Properties / Applications

Bayhydrol[®] UV 2720/1 is used for the formulation of waterborne UV coatings, in particular for applications that require good blocking resistance after water evaporation and before UV cure (wood, plastic, pigmented systems). The addition of 1.0 to 2.5 wt. photoinitiator relative to binder has proven effective for initiation. Good results are achieved with Irgacure[®] 500 (Ciba), Esacure[®] KIP 100F (Fratelli Lamberti). Viscosity is adjusted by the addition of polyurethane thickeners. As the dispersion has a relatively high surface tension, the formulation should always contain a wetting agent, such as BYK[®] 348 (BYK). Matting agents and additives can be dispersed directly into the formulation using a dissolver. Bayhydrol[®] UV 2720/1 can be easily matted using common matting agents. Coalescing agents can only become necessary when film formation is to be achieved below room temperature.

After evaporation of the water, coatings formulated in this way can be cured at a speed of up to 10 m/min per 80 W/cm lamp. The water-free coating films are dry and quite blocking resistant but not particularly resistant to chemical or mechanical stress. UV curing yields surfaces with very good mechanical strength and chemical resistance.

Many combinations are possible with other dispersions, but these must be checked on a case-by-case basis. Combinations with other waterborne UV systems are also possible. Resistance properties can be improved by post-curing with hydrophilic polyisocyanates ("dual cure ") e.g. Bayhydur[®] 305 or Bayhydur[®] XP 2655. The mixing ratio of waterborne UV formulation to hardener is generally 10 : 1.





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Storage

- Storage in original sealed Covestro container.
- Recommended storage temperature: 5 - 30 °C.
- Protect from frost, intense radiation (light, UV), heat and foreign material.

General information: The product is sensitive to frost. Freezing will damage the product irreversibly. Prolonged storage at higher temperatures may result in an increase of average particle size, risk of sedimentation, risk of pH-drift and ultimately coagulation. Even though the product is stabilized by a biocide, contamination with certain bacteria, fungi or algae may render the product unusable.

Storage time

Covestro represents that, for a period of six months following the day of shipment as stated in the respective transport documents, the product will meet the specifications or values set forth in section "specifications or characteristic data" above, what ever is applicable, provided that the product is stored in full compliance with the storage conditions set forth in and referenced under section "storage" above and is otherwise handled appropriately.

The lapse of the six months period does not necessarily mean that the product no longer meets specifications or the set values. However, prior to using said product, Covestro recommends to test such a product if it still meets the specifications or the set values. Covestro does not make any representation regarding the product after the lapse of the six months period and Covestro shall not be responsible or liable in any way for the product failing to meet specifications or the set values after the lapse of the six months period.





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Labeling and statutory requirements This product data sheet is only valid in conjunction with the latest edition of the corresponding Safety Data Sheet. Any updating of safety-relevant information – in accordance with statutory requirements – will only be reflected in the Safety Data Sheet, copies of which will be revised and distributed. Information relating to the current classification and labeling, applications and processing methods and further data relevant to safety can be found in the currently **valid Safety Data Sheet**.

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information and recommendations to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Covestro. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

This product is not designated for the manufacture of a medical device or of intermediate products for medical devices¹⁾. [This product is also not designated for other specifically regulated applications (e.g. including cosmetics, plant protection, fertilisers, plant strengtheners, food processing, food contact and others). If the intended use of the product is for the manufacture of a medical device or of intermediate products for medical devices or for other specifically regulated applications Covestro must be contacted in advance to provide its agreement to sell such product for such purpose.] Nonetheless, any determination as to whether a product is appropriate for use in a medical device or intermediate products for medical devices, for Food Contact products or cosmetic applications must be made solely by the purchaser of the product without relying upon any representations by Covestro.

1) Please see the "Guidance on Use of Covestro Products in a Medical Application" document.

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