



# Bayhydrol<sup>®</sup> UV XP 2687

## Characterization

Urethane Acrylate Emulsion.

Bayhydrol<sup>®</sup> UV XP 2687 is used in the formulation of waterborne UV curable coatings for wood. It is an emulsion type with high gloss and strong body.

## Form supplied

approx. 49 % solids emulsion in water

## Characteristic data\*

| Property  | Value       | Unit of measurement | Method              |
|---|-------------|---------------------|---------------------|
| Non-volatile content<br>(1g / 1h / 125 °C, convection oven) | 46.0 - 51.0 | % by weight         | DIN EN ISO 3251     |
| Viscosity at 23 °C  | 50 - 500    | mPa·s               | DIN EN ISO 3219/A.3 |
| ph-value  | 6.8 - 8.5   |                     | DIN 53 785          |

\*These values are provisional. Binding supply specifications will not be available until the final product data sheet is published.

## Other data\*\*

| Property   | Value                     | Unit of measurement | Method |
|------------|---------------------------|---------------------|--------|
| Appearance | Milky, slightly colloidal |                     |        |

\*\*These values provide general information.

## Notice

No statistically verified datasets of the characteristic data and other data listed are currently available. Additional adjustments are possible as a result of further process optimization, such as a scale-up trials to larger production units.





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## Solubility / thinnability

Bayhydrol<sup>®</sup> UV XP 2687 can be thinned with water.

## Compatibility

The emulsion should be formulated and applied at pH higher than 6.7. It is recommended that the pH is adjusted with tertiary amines like triethylamine. Many positive combinations are possible with other dispersions, conventionally curing or UV curing, but these should be checked on a case-by-case basis. Combinations with water-compatible UV monomers ("reactive thinners") or oligomers are also possible.

## Properties / Applications

Bayhydrol<sup>®</sup> UV XP 2687 is used for the formulation of waterborne UV coatings, especially for application on wood/wood materials.

The addition of 1.0 to 2.5 ppw photoinitiator calculated on the solid binder, have proved suitable for initiating the curing reaction. We achieved good results with Irgacure<sup>®</sup> 500 (Ciba) and Esacure<sup>®</sup> KIP 100F (Lamberti). As the dispersion has a relatively high surface tension, the formulation should always contain a wetting agent, such as BYK<sup>®</sup> 348 (BYK), Surfinol MD 20 (Airproducts) or EFKA 3024 (BASF). Viscosity is set by the addition of polyurethane thickeners. Matting agents should be added in the form of pastes.

After evaporation of the water in suitable drying systems (convection oven, IR, microwave, jet air, dehumidified air or combination systems) coatings formulated in this way can be cured at a belt speed of up to 10 m/min per 80 W/cm lamp. The paint films are not physically dry after evaporation of the water. They display very good penetration and wetting of wooden substrates. Bayhydrol<sup>®</sup> XP 2687 shows optimum grain accentuation and excellent chemical resistance. The product shows good re-emulsification properties.

Depending on the formulation and the method of application, it is possible to produce finished surfaces that conform to the resistance requirements of DIN 68861, 1B.

Primers for roller coaters can be formulated that greatly improve the results in coin tests of UV-cured finishes e.g. in hardwood flooring coatings.

The product can also be combined with hardeners like Bayhydur<sup>®</sup> polyisocyanates to produce "dual cure" waterborne UV coatings.





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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. 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**.

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## Important

**This is a Trial Product of which we do not yet have extensive experience. No guarantee can therefore be given regarding the behaviour of the product during processing or use.**

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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 devices<sup>1)</sup>. [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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