Bayhydur® ultra 2655

Characterization

Hydrophilic aliphatic polyisocyanate based on hexamethylene diisocyanate (HDI).
Hardener for waterborne two-component polyurethane systems.

Specification

Property	Value	Unit of measurement	Method
Viscosity at 23 °C	3,500 ± 1,000	mPa·s	M014-ISO 3219/A.3
NCO content	20.3 - 21.3	%	M105-ISO 11909
Hazen color value	< 60		M017-EN 1557
Monomeric HDI	< 0.10	%	M106-ISO 10283

Other data*

Property	Value	Unit of measurement	Method
Flash point	approx. 192	°C	DIN EN ISO 2719
Density at 20 °C	approx. 1.16	g/cm^3	DIN EN 2811

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

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Solubility / thinnability

The product is generally compatible with organic solvents such as esters or ethers. However, solubility and compatibility should be tested in each case.
Regarding the influence of the solvent (cosolvent) on the emulsibility of the polyisocyanate, please refer to the information in the section "Properties/applications". Only PU grade solvents should be used (< 0.05 % water).

Properties / Applications

Bayhydur® ultra 2655 is a crosslinking agent for waterborne systems from which reliable incorporation and high chemical resistances are required. Despite its relatively low hydrophilia, this hardener can be easily dispersed in the aqueous phase, even at low shear forces such as are typically found in trade applications. Coatings formulated with the product yield films with high gloss and very low haze. The increase in viscosity during mixing that is typical for hydrophilized hardeners, in particular with ionically hydrophilized polyol dispersions, can be controlled by prethinning with water or slight amounts of organic cosolvent.
The dispersibility of the product in water is influenced by organic cosolvents, but in different ways. The use of highly hydrophobic or highly hydrophilic cosolvents such as butyl acetate, xylene, butyl glycol acetate, dimethyl formamide or N-methylpyrrolidone generally leads to a coarser dispersion, which may cause turbidity in the coating film depending on the entire system. On the other hand, the use of, for example, methyl ethyl ketone, methoxypropyl acetate, dipropylene glycol dimethyl ether, propylene glycol diacetate or dicarboxylic acid diester mixtures leads to fine-particle dispersions.
Because of the balance between moderate hydrophilization and high functionality, waterborne two-component polyurethane coatings formulated with Bayhydur® ultra 2655 exhibit fast drying, rapid hardening with high ultimate hardness and excellent chemical resistance of the resultant films. Bayhydur® ultra 2655 can also be used as the crosslinking partner for waterborne polyol binders (Bayhydrol®) and as a crosslinker for largely pH-neutral waterborne polymer dispersions such as polyurethane, polyvinyl acetate, polyacrylate and synthetic rubber dispersions.

After addition of Bayhydur® ultra 2655, the ready-to-use two-component formulation must be used within the pot life. This is not only governed by the polymer content but also by its other constituents (resin, thickener, plasticizer, etc.). With many dispersions, the end of this pot life – usually several hours – is not marked by gelling.

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Storage

- Storage in original sealed Covestro container.

- Recommended storage temperature: 0 - 30 °C.

- Protect from moisture, heat and foreign material.

General information: Hydrophilic isocyanates are very moisture-sensitive and react with water to form carbon dioxide and insoluble ureas. The containers must always be kept tightly closed. The access of water in all forms (moist air, solvents, moist containers) must be prevented, because the generation of carbon dioxide can lead to dangerous increases in pressure. Storage at higher temperatures will result in increase of color and viscosity.

Storage time

Covestro represents that, for a period of nine 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 nine 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 nine 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 nine 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**.
Further information	The product is used mainly as a hardener in coating materials or adhesives. The handling of coating materials or adhesives containing reactive polyisocyanates and residual **monomeric HDI** requires appropriate protective measures referred to in the safety data sheet. These products may therefore be used only in industrial or trade applications. **They are not suitable for use in homeworker (DIY) applications.**

Edition: January, 2018

Editor: Coatings, Adhesives & Specialties
Covestro Deutschland AG
Kaiser-Wilhelm-Allee 60
51373 Leverkusen,Germany
www.covestro.com

Contact:
CAS Single Point of Contact EMEA
e-mail: cas_spoc_emea@covestro.com