Basonat® HA 3000

General

Basonat® HA 3000 is a low viscous aliphatic polyisocyanate for lightfast and weather-resistant 2K polyurethane coatings.

Key features & benefits

- Solvent free
- Low viscosity
- Combination of isocyanurate and allophanate structures
- High weather resistance
- Good light fastness

Chemical nature

Allophanate-modified polyisocyanate based on isocyanurated Hexamethylenediisocyanate (HDI)

Properties

Appearance

Transparent, low viscous liquid

Typical characteristics
(should not be interpreted as specifications)

NCO content	DIN EN ISO 11909	18.5 – 19.5%
NCO equivalent weight		~ 215
Viscosity 23 °C (73 °F) D=1000s-1	DIN EN ISO 3219	200 - 400 mPa s
Platin cobalt color number (Hazen)	DIN EN ISO 6271	≤ 60
Functionality		~ 2.44
HDI content	DIN EN ISO 10283	< 0.1 %

The NCO equivalent weight indicates the amount of Basonat® polyisocyanate as supplied containing 1 Mol of active NCO.

Application

Basonat® HA 3000 is a solvent free, allophanate modified polyisocyanate.

Basonat® HA polyisocyanates are used to formulate particularly lightfast and weather resistant high solids coatings. They are solvent-free, thus allowing a broad choice of solvents. For instance, when – as in furniture coatings – less volatile solvents would retard drying excessively, highly volatile solvents can be chosen. Also, drying may be catalytically accelerated with, for example, dibutyl tin dilaurate or alternative catalysts.

Basonat® HA polyisocyanates are used to crosslink most hydroxy group containing resins, e.g. acrylate resins like the Joncryl® Polyols and hydroxy polyesters like the hyperbranched Basonol® HPE Polyesters. Sufficient compatibility with polyester resins containing hydroxyl groups is not always given.

The allophanate structure significantly reduces hardener viscosity or improves incorporation of the polyisocyanates in waterbased 2K PU coatings.The higher allphanate content in Basonat® HA 3000 could reduce crosslink density slightly, compared to the higher functional Basonat® HA 1000 or the isocyanurate trimer Basonat® HI 2000. The impact of allophanate structures on properties depends on the composition of the coating formulation. Due to the lower functionality the coatings will be higher elastic on cost of surface hardness and the reduced crosslink density could affect chemical resistances and weather resistances. The impact of allophanate structures on properties depends on the composition of the coating formulation. It is recommended to use high functional binders like Basonol® HPE and to use Basonat® HA 3000 as a co–hardner with higher functional polyisocyanates like Basonat® HI 2000.

Allophanate based polyisocyanates are also used in primers for difficult substrates such as aluminum or various plastic substrates, due to the good level of crosslinking and elasticity.

Formulation guideline

Basonat® HA polyisocyanates can be diluted with esters (e.g. butyl acetate), ketones (e.g. methyl ethyl ketone), glycol ether acetates (e.g. methoxy propyl acetate) or with aromatic hydrocarbons (e.g. Solvesso® 100, xylene).

If Basonat® HA polyisocyanates are diluted to a polyisocyanate fraction of less than 40%, turbidity flocculation and/or sedimentation may occur during storage. Storage trials should always be carried out.

The theoretical equivalent amount of polyisocyanate required for crosslinking is computed using this formula:

$$\frac{0.075\times\ (\text{OH Value})\times(\text{Non-volatile of OH component})}{(\text{NCO})}$$

Example: Joncryl® 507	
OH Value (mg KOH/g polyol on solids)	140
Non-volatile (nvf) (%)	80
Basonat® HA 3000, NCO 含量 (%)	19

$$\frac{0.075\times140\times80}{19} = 44.2$$

Dosage rate for 100 g Joncryl® 507 as supplied is 44.2 g of Basonat® HA 3000.

Solvents, pigments or extenders etc. used, should be free from compounds containing active hydrogen groups, e.g. water, alcohols or amines.

A water content of less than 500 ppm in solvents and binders is recommended for 2K polyurethane lacquers.

Storage

Basonat® HA 3000 is sensitive to moisture. The ideal temperature range for storage is 10 – 30 °C (50 – 86 °F) and under airtight conditions (exclusion of humidity and atmospheric oxygen).Containers should be flushed with nitrogen before resealing.

For further detailed application information please contact our Technical Support Department.

Safety
When handling this product, 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.

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