Bayer MaterialScience

Product Information

DESMODUR Z 4470 BA

Aliphatic Polyisocyanate

Description

Desmodur Z 4470 BA is an aliphatic polyisocyanate based on isophorone diisocyanate (IPDI) and dissolved in butyl acetate.

Application

Desmodur Z 4470 BA differs from conventional types of aliphatic polyisocyanates by having better solubility/dilutability in mild solvents (aromatics, aliphatics) as well as better compatibility with air-drying alkyd resins.

Desmodur Z 4470 BA polyisocyanate is mainly used as an "additive resin" in existing, ready-for-use coating formulations to accelerate their drying, curing, and chemical crosslinking to obtain shorter dry, tape, and recoat times, and improved hardness and gasoline resistance in cured films.

When Desmodur Z 4470 BA is used as an additional drying and curing component in air-drying alkyd coatings, NCO/OH ratios of less than 0.5/1.0 are usually sufficient. With some types of alkyd resins, higher additions of Desmodur Z 4470 BA polyisocyanate will cause embrittlement. The best level of addition should be determined in each case.

Weathering of films containing Desmodur Z 4470 BA polyisocyanate is mostly dependent on the type of alkyd resin used. The slight yellowing of alkyd resins modified with unsaturated fatty acids is slightly increased by the polyisocyanate addition. This tendency to yellow is more pronounced at drying temperatures above 176°F (80°C). It is recommended that forced drying be carried out below 176°F (80°C).

Combining Desmodur Z 4470 BA polyisocyanate with flexible polyesters and acrylics or properly formulated polyester/acrylic blends yields two-component polyurethane coatings with outstanding weather resistance. Adding Desmodur Z 4470 BA polyisocyanate limits the potlife of the coating material. The potlife is approximately 8 hours for coating materials adjusted to spray viscosity. The potlife is influenced by the ingredients used in the formulation of the coating.

As with any product, use of Desmodur Z 4470 BA polyisocyanate in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Product Specifications

Property	Value
NCO content, %	11.9±0.4
Viscosity @ 25°C, mPa•s	550±250
Solids, %	70±2
Color, Hazen	60 maximum
Monomeric IPDI, %	0.5 maximum

Typical Properties*

Property	Value
Appearance	Clear, slightly yellow liquid
Equivalent wt., avg. (as supplied)	353
Specific gravity @ 25°C, g/cm^3	1.06
Weight per gallon, lb. @ 25°C	8.75
Flash point (Setaflash)	91°F (33°C)
Viscosity @ 23°C, mPa•s	600

** These items are provided as general information only. They are approximate values and are not part of the product specifications.*

Solubility

Desmodur Z 4470 BA polyisocyanate is completely soluble in, or reducible with, aromatic solvents, even in the absence of polar solvents such as esters, ketones, or ether esters. It is possible to formulate solutions with a minimum solids content of 20% that have good storage stability using aromatic solvents. Stability must be checked in the particular solvent mixture used. Aliphatic solvents should not be used for dilutions. However, Desmodur Z 4470 BA polyisocyanate has enough compatibility with aliphatic solvents that it can be added to most aliphatic solvent-based coatings.

Water-containing solvents and solvents such as alcohols should not be used. Desmodur Z 4470 BA reacts with these materials, causing undesirable side effects.

Compatibility

Desmodur Z 4470 BA polyisocyanate has good compatibility with Desmodur N and Desmodur CB polyisocyanates. It can be combined with many alkyd resins, as well many Desmophen polyesters and acrylics. Desmodur Z 4470 BA is also compatible with vinyl copolymer resins and with some nitrocellulose and low molecular weight epoxy resins. Compatibility with cellulose acetate butyrate resins is limited.

Storage

Desmodur Z 4470 BA polyisocyanate should be stored in tightly sealed containers and protected from heat, moisture, and foreign materials. Contamination with foreign materials may adversely effect the processability of Desmodur Z 4470 BA. Recommended storage temperatures are 32–122°F (0–50°C). The ideal storage temperature range for ease of handling is 50–81°F (10–27°C). The shelf life is six months after receipt of material by customer, when stored in closed original containers at 75°F (25°C).

Health and Safety Information

Appropriate literature has been assembled which provides information pertaining to the health and safety concerns that must be observed when handling Desmodur Z 4470 BA polyisocyanate. For materials mentioned that are not Bayer products, appropriate industrial hygiene and other safety precautions recommended by their manufacturer should be followed. Before working with any product mentioned in this publication, you must read and become familiar with available information concerning its hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms such as material safety data sheets and product labels. For further information contact your Bayer MaterialScience representative or the Product Safety and Regulatory Affairs Department in Pittsburgh, Pa.

This product contains reactive IPDI polyisocyanate/prepolymer and/or monomeric IPDI and should only be handled using appropriate protective measures. Please review this product's Material Safety Data Sheet for a summary of such protective measures. These products are suitable only for and should only be sold for use by industrial or trade (commercial) professionals. These products are **not** suitable for Do-It-Yourself

Note: The information contained in this bulletin is current as of March 2011. Please contact Bayer MaterialScience to determine whether this publication has been revised.

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