

Desmodur[®] W

Characterization

Desmodur W is a liquid cycloaliphatic diisocyanate.

Characteristic data

Property	Value	Unit of measurement	Method
NCO content (GC)	≥ 31.8	%	internal method
Hydrolyzable chlorides	≤ 10	ppm	internal method
Assay (GC)	≥ 99.5	%	internal method
Acidity	≤ 10	ppm	internal method
Hazen color value	≤ 30		DIN EN 1557

Other data*

Property	Value	Unit of measurement	Method
Density at 20°C	1.07	g/cm ³	DIN EN ISO 2811
Viscosity at 25°C	approx. 30	mPa*s	DIN EN 3219/A.3
Vapor pressure at 25°C	approx. $2.1 \cdot 10^{-5}$	hPa	
Flash point	approx. 200	°C	DIN EN 22719
Total chlorides	≤ 1,000	ppm	
Start of crystallization	approx. 25	°C	

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

Properties / Applications

Desmodur W is also known as PICM, hydrogenated MDI (HMDI or H₁₂MDI), saturated MDI (SMDI), reduced MDI (RMDI), and dicyclohexylmethane diisocyanate. Desmodur W diisocyanate is useful as a reactive building block for the preparation of chemical products, reactive intermediates and polymers. Desmodur W diisocyanate is especially useful as an organic intermediate because the isocyanate groups can undergo addition reactions at room temperature with compounds which contain active hydrogens. Desmodur W diisocyanate allows the preparation of polyurethane products which have a unique set of properties. Polyurethane resins based on Desmodur W diisocyanate have a high degree of flexibility coupled with good mechanical strength. They are resistant to abrasion and hydrolysis and retain gloss and physical properties upon weathering.

A unique feature of Desmodur W diisocyanate is its ability to form optically clear polyurethanes when combined with suitable polyol coreactants. Products based on Desmodur W diisocyanate may be useful in coatings for flooring,



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roofing, maintenance, and textile applications as in cast elastomers, potting and encapsulation compounds, optical products, medical products, adhesives, and sealants. As with any product, use of Desmodur W in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Regulatory Information

Desmodur W is in compliance with 21 CFR 175.105 and 177.1680 for use as a component in the manufacture of polyurethane adhesives that comply with 175.105 and polyurethane resins that comply with 177.1680 subject to these limitations and any other applicable regulations.

Handling Information

This product contains reactive H₁₂MDI polyisocyanate/prepolymer and/or monomeric H₁₂MDI 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 applications.

Storage

Desmodur W diisocyanate must be stored in tightly sealed containers. Precautions must be taken to avoid contamination by moisture and air. Processability of this material can be adversely affected by contamination. Water or moisture in the air reacts with the product to generate pressure. If partially filled containers are stored, it is advisable to blanket the liquid surface with dry nitrogen before sealing.

If Desmodur W diisocyanate is stored for prolonged periods at or below a temperature of 77°F, crystallization and settling of the isomer may occur. Storage in a cold warehouse can cause crystals to form. These crystals can settle to the bottom of the container. If the crystals do form, they can be melted easily with moderate heat. It is suggested that a container the size of a drum be warmed for 16–24 hours at 104–122°F (40–50°C.) When the crystals are melted, the container should be agitated by rolling or stirring, until the contents are homogenous. Since heated Desmodur W diisocyanate (104–122°F) will generate vapors more rapidly than product at 77°F, be sure to follow the precautions listed on the MSDS in the section entitled "Personal Protection" whenever you open a heated container of Desmodur W diisocyanate.

Should it become necessary to transfer Desmodur W diisocyanate from the original containers, new containers should be of plain, clean steel, or steel lined with a suitable coating (i.e., DuPont's Dulux 1840-045). If Desmodur W diisocyanate is transferred to glass, use acid-washed amber or Pyrex glass. Bottle caps should be aluminum foil lined for the best moisture seal. Bung plugs used for larger containers should contain a polyethylene seal.



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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.

Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling this product. Before working with this product, you must read and become familiar with the available information on its risks, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., safety data sheets and product labels. For further information contact your Covestro LLC representative or the Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

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 utilize our products, technical assistance and information 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 us. 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.

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Product Datasheet