

Product Data Sheet

DIBAL-H

Product description	Diisobutylaluminum hydride	
	Molecular formula	: (isoC ₄ H ₉) ₂ AlH
	Molecular weight	: 142.2
	CAS No.	: 1191-15-7
	EINECS/ELINCS No.	: 214-729-9
	TSCA status	: listed on inventory
Composition	<i>Component</i>	<i>Specification (wt%)</i>
	Diisobutylaluminum hydride ^a	: 97.0 min.
	Triisobutylaluminum ^a	: 3.0 max.
	Other R ₃ Al ^a	: --
		<i>(wt%)</i>
	Aluminum ^b	: 18.8
Characteristics	Appearance	: clear, colorless liquid
	Density, 30°C	: 0.797 g/ml
	Melting point	: -80°C
	Viscosity, 30°C	: 13.5 mPa.s
	Boiling point, 1 mm Hg	: 114°C
	Stability to air	: ignites upon exposure
	Stability to water	: reacts violently, may ignite upon contact
	Solubility	: soluble in aromatic and saturated aliphatic and cycloaliphatic hydrocarbons
Thermochemical properties	Specific heat, 57°C	: 2.146 J/g.°C (0.513 cal/g.°C)
	Heat of vaporization ΔH _v , at NBP ^c , 1 bar	: 297 J/g (71 cal/g)
	Heat of hydrolysis, 25°C	: 3523 J/g (842 cal/g)
	Heat of formation ΔH _f ^o , 25°C, 1 bar	: -402 kJ/mole (-96 kcal/mole)
	Heat of combustion ΔH _c ^o , 25°C	: -6410 kJ/mole (-1532 kcal/mole)
Availability	DIBAL-H is a commercial product available as the neat pyrophoric liquid and as pyrophoric and nonpyrophoric solutions in a variety of hydrocarbon solvents. Consult your AkzoNobel representative for further information.	

^a Although nonpyrophoric by the paper char test, according to UN regulations, DEB-M must be classified as pyrophoric, since it gives a positive result by the 'silica test'. For more information on pyrophoricity, see the AkzoNobel technical bulletin entitled *Pyrophoricity of Metal Alkyls*.

^b Analyzed by ¹H or ¹¹B nuclear magnetic resonance spectroscopy.

Storage

DIBAL-H and its solutions are stable when stored under a dry, inert atmosphere and away from heat. DIBAL-H decomposes slowly above about 120°C. Decomposition products include hydrogen, isobutylene and elemental aluminum.

Packaging and transport

DIBAL-H and its solutions are available worldwide in cylinders and portable tanks.

In North America only, DIBAL-H is also available in tank trailers and rail cars. Containers are fabricated from carbon steel and are equipped with dip tubes for top discharge and all connections are located in the vapor space.

Both packaging and transport meet the international regulations.

Safety and handling

DIBAL-H ignites upon exposure to air and reacts violently with water. Hydrocarbon solutions of DIBAL-H may also ignite upon exposure to air. Solutions of DIBAL-H in ethers have been known to decompose violently. DIBAL-H and its solutions must be handled under a dry, inert atmosphere, e.g. nitrogen or argon. Water must be scrupulously removed from process equipment prior to putting it into metal alkyls service. Failure to do so may result in an explosion. Products of complete combustion of DIBAL-H and its solutions are aluminum oxide, carbon dioxide and water. DIBAL-H causes severe burns to the skin and eyes. It is imperative that proper personal protective equipment be worn when handling DIBAL-H.

Please refer to the Material Safety Data Sheet (MSDS) for further information on the safe storage, use and handling of DIBAL-H. This information should be thoroughly reviewed prior to acceptance of this product.

The MSDS is available at www.akzonobel.com/polymer.

Applications

DIBAL-H is used as a cocatalyst in the Ziegler-Natta polymerization of olefins and as a reducing agent in organic synthesis.

All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable. AkzoNobel, however, makes no warranty as to accuracy and/or sufficiency of such information and/or suggestions, as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. Nothing contained herein shall be construed as granting or extending any license under any patent. Buyer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes. The information contained herein supersedes all previously issued bulletins on the subject matter covered. The user may forward, distribute, and/or photocopy this document only if unaltered and complete, including all of its headers and footers, and should refrain from any unauthorized use. You may not copy this document to a website.

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