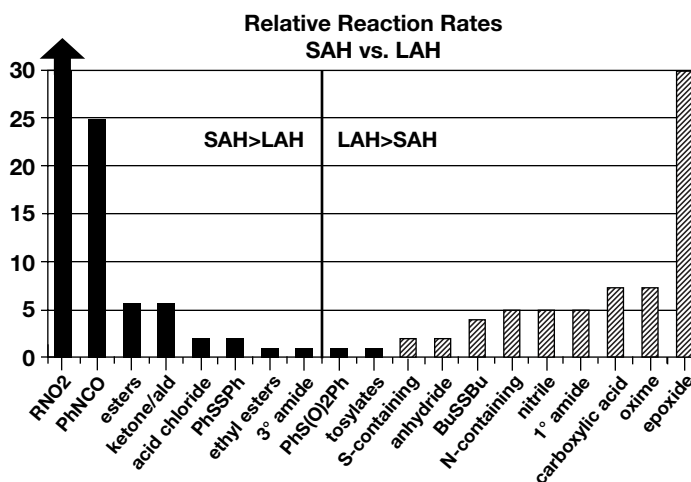


Description

Sodium aluminum hydride (SAH) is a multipurpose reducing agent used primarily for reductions of organic and non-organic functional groups such as aldehydes, ketones, esters, amides and nitriles. It can also be used as a synthon for milder aluminum hydride reducing agents. SAH has good solubility in ethereal solvents, such as tetrahydrofuran (THF) and 1,2-dimethoxyethane (DME).

Applications

SAH has been shown to reduce almost every functional group as readily as lithium aluminum hydride¹, and reaction rate differences are complementary.



In many cases a moderate increase in reaction temperature can be used to achieve similar results, and this can significantly reduce cooling costs in commercial-scale reactions.

¹Cha & Brown, *J. Org. Chem.* 1993, **58**, 4727

Physical Properties

Appearance @ 25 °C.....	white powder
Formula	NaAlH ₄
Formula weight	54.00
Product composition, wt %	
SAH	> 93
NaAlEt ₂ H ₂	< 0.2
Na ₃ AlH ₆	2.0 - 5.0
Al (free)	< 1.0
Theoretical hydrogen	7.47 (1.67 L of hydrogen @ STP)
Stability in contact with air	non-pyrophoric
Stability in contact with water	reacts violently
Thermal stability	decomposes endothermically @ 186 °C. No exotherms observed below 250 °C
Solubility @ 25 °C, wt % in THF	13 - 14
ΔH of dissolution in THF	3.0 kcal/gmole SAH 86 btu/lb (85% SAH)
Average bulk density, g/ml	0.79
Compressibility, %	10.7

Shipping Information

Container Information

Up to 1.0 kg in plastic-coated jars. From 5.0 - 10.0 kgs, double-bagged in PE bags inside clamping ring 5.0 gal cans. For larger quantities, SAH solid can also be shipped in cone drums of various sizes up to 53.0 gal.

Shipping Classification

Proper shipping name:	Complex Metal Hydride (Sodium Aluminum Hydride)
Hazard class:	4.3 (dangerous when wet)
ID number:	UN2835
Placard (s):	dangerous when wet w/#4 and flammable w/o #
Label (s):	dangerous when wet w/#4 and flammable liquid w/o #

Safety and Handling Information

The water-reactive nature of SAH presents potential hazards not common to most solid chemicals.

Chemical Registration Numbers

CAS:	13770-96-2
EINECS:	237-400-1
ENCS number:	not listed
ECL serial number:	KE-31625

The information presented herein is believed to be accurate and reliable, but is presented without guarantee or responsibility on the part of Albemarle Corporation. It is the responsibility of the user to comply with all applicable laws and regulations and to provide for a safe workplace. The user should consider any health or safety hazards or information contained herein only as a guide, and should take those precautions which are necessary or prudent to instruct employees and to develop work practice procedures in order to promote a safe work environment. Further, nothing contained herein shall be taken as an inducement or recommendation to manufacture or use any of the herein materials or processes in violation of existing or future patents.



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