



CALSELECT® Na



The next generation of super hydride, also known as **CALSELECT® Na**, offers higher purity, consistent quality, and a high degree of flexibility for your critical hydride chemistries. **CALSELECT® Na** by Ascensus is available in quantities from kilograms to commercial volumes to support your process from lab to launch.

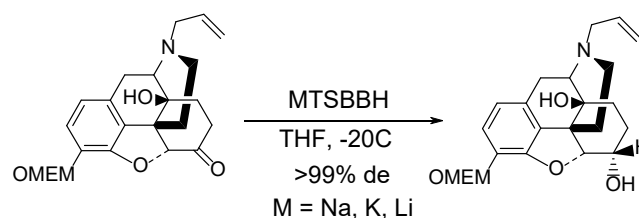
CALSELECT® Na (sodium tri-sec-butylborohydride)

High selectivity, reactivity, and specificity can lead to simpler, less expensive purification routes to the desired product. **CALSELECT® Na** next generation super hydride can help achieve these goals.

CALSELECT® Na (NaTSBBH) is a powerful hydride reagent used in a wide variety of chemical reactions and transformations. Applications include reduction of ketones, esters, and other functionalities. The next generation super hydride, **CALSELECT® Na**, offers advantages in overall yields, cycle time, and throughputs.

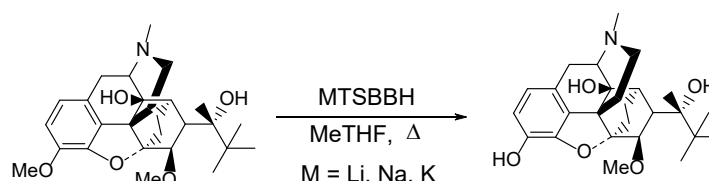
Stereoselective Reductions of Opioid Analogs

CALSELECT® Na is an excellent diastereoselective reducing agent in opioid synthesis. **CALSELECT® Na** reduced late-stage Naloxol intermediate, α -6-MEM-O-naloxol, to provide >99% of the desired α -isomer in Naloxol's commercial synthesis. The resulting high purity of the desired Naloxol intermediate shortened the process cycle time by eliminating a costly and cumbersome isomer purification [WO 2007/124114].



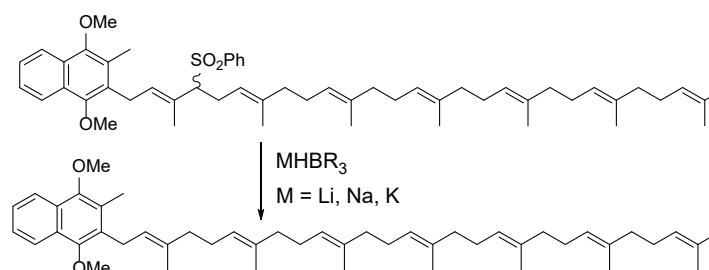
Selective Demethylations

Additionally, **CALSELECT®** reagents demonstrated their broad utility in the demethylation of 3-O-methyl-norbuprenorphine. The clean demethylation in MeTHF provided safe and mild conditions in the chemistry of opium alkaloids allowing ready access of significant amounts of key hydroxy intermediates [J. Org. Chem. **1998**, 63, 4392; WO 2019/073247].



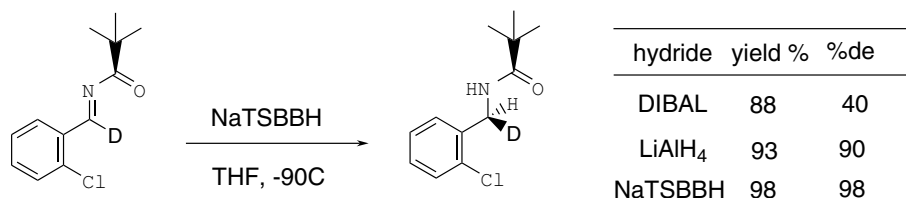
Squalene Synthesis

CALSELECT® hydride reagents are highly effective for desulfonation reactions. Witkowski and co-workers demonstrated the desulfonation process during the elegant convergent Menaquinone 7 synthesis [Org. Proc. Res. Dev. **2016**, 20, 1026].



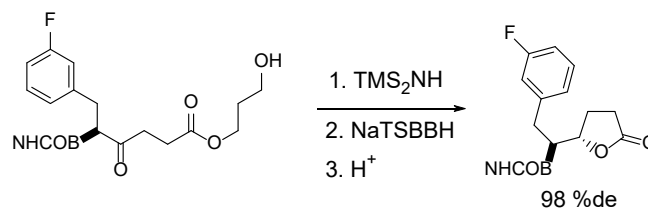
Optically Active Deuterated Primary Amines

CALSELECT® Na is an excellent reducing agent in the preparation of optically active deuterated primary amines. The optimal conditions included THF as the solvent of choice and low temperature conditions. **CALSELECT® Na** gave the highest diastereoselectivities and yields when compared to other reducing agents such as DIBAL and LiAlH_4 [*J. Org. Chem.* **2014**, 79, 8417].



Stereoselective Synthesis of Anti-amines

CALSELECT® Na gave high diastereoselectivities (46:1) of desired anti amino hydroxy intermediate, which in the presence of acid cyclized to lactone product. This excellent transformation has been demonstrated in other stereoselective amino alcohol synthesis. [*Org. Proc. Res. Dev.* **2004**, 8, 169]



Headquartered in Bellevue, WA, **Ascensus Specialties** is the global leader in catalysts, ligands, building blocks, and specialty reagents. Our 60+ years of synthetic knowhow, allows us to bring additional value to our clients through our custom synthesis and cGMP services. From world-class production plants in Elma, WA, Evans City, PA, Newburyport, MA, and Cambridge, UK, Ascensus has a global reach that ensures our clients can consistently manufacture their products to the highest standards.

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