

Institute of Microbial Chemistry (BIKAKEN)

PRODUCT DATA SHEET

4-Trehalosamine

(Trehalase resistant, preventive effect on starch retrogradation)



Specifications

Code No.	: 15612
CAS#	: 51855-99-3
Molecular Formula	: C ₁₂ H ₂₃ NO ₁₀
Molecular Weight	: 341.313
Source	: Streptomyces sp.
Supplied as	: Powder
Purity	:>90 % (qNMR)
Long Term Storage	: at -20 °C
Solubility	: Soluble in MeOH, DMSO and H_2O

Application Notes

4-Trehalosamine (4-amino-4-deoxy- α , α -trehalose) was isolated from fermentation broth of *Streptomyces* sp. MD303-SF1.¹) It showed weak antibacterial activity against some bacterial species, such as *E.coli* K-12, *K. pneumoniae* and *B. subtilis* PCI 219, by the cup assay.¹) It was biologically stable against mammalian trehalase digestion and was not hydrolyzed by a purified porcine trehalase.²) 4-Trehalosamine had preferable characteristics on biological stability against various microbes which degrade trehalose.²) 4-Trehalosamine is a useful trehalose substitute for various purposes, such as prevention of starch retrogradation, protein stabilization, and protection of microbes during freeze-drying, and high buffer capacity around the neutral pH.²)

References

- 1) 4-Amino-4-deoxy-α,α-trehalose, a new metabolite of a *Streptomyces*. Naganawa H, *et al. J Antibiot*. 1974 **27**(2) 145-146.
- 2) Rediscovery of 4-trehalosamine as biologically stable, mass-producible, and chemically modifiable trehalose analog. Wada S, et al. Adv Biol. 2022 6 2101309.