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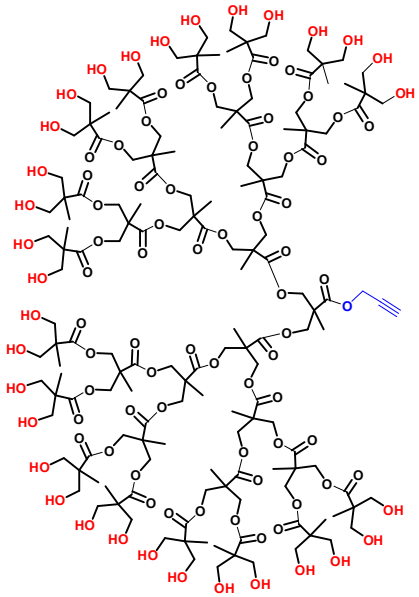
TechnicalBulletin

Polyester-32-hydroxyl-1-acetylene bis-MPA dendron, generation 5

Catalog Number **686611**
Storage Temperature 2–8 °C
Technical Bulletin AL-242

Synonym: Dendron-G5-Acetylene-OH

Product Description



Theoretical MW: 3655.64 g/mol
Average Molecular Formula: $C_{158}H_{252}O_{94}$
Number of hydroxyl groups: 32
Number of acetylene groups: 1

This monodisperse compound has multiple surface hydroxyl groups and a single alkyne focal point function. The alkyne function is well suited for "Click chemistry" catalytic cycloaddition to azides (see Procedure). The hydroxyl groups are selectively reactive with anhydrides or acyl halides. It is transparent to light in the UV/Vis wavelength region.

The product is a freeze-dried, white powder, which may contain traces of methanol or ether.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

The product is soluble in polar organic solvents (THF, DMSO, DMF, and methanol) and water.

Storage/Stability

Polyester dendrons are susceptible to hydrolysis, which is accelerated when material is dissolved in water, at acidic/basic pH, or at elevated temperatures. For extended storage, store the dry powder at 2–8 °C.

Procedure

Core functionalization via "Click chemistry"
(see Figure 1)

1. Dissolve the dendron in THF or DMF and add a minimum of 1.2 equivalents of the appropriate azido derivative (see available azides at www.sigma-aldrich.com/click) per equivalent of acetylene functionality.
2. Add water until the solution becomes opaque.
3. Add 1 equivalent of (+)-sodium L-ascorbate (Catalog Number A7631) and 0.5 equivalent of copper(II) sulfate (Catalog Number 451657).
4. Follow the reaction with ^{1}H NMR until the peak corresponding to the acetylene proton disappears (a triplet at ca 2.43 ppm; C≡CH, 1H).
5. When the reaction is complete, evaporate all the solvents and purify the compound by gradient flash chromatography (EtOAc → EtOAc:MeOH) to obtain the final product.

References

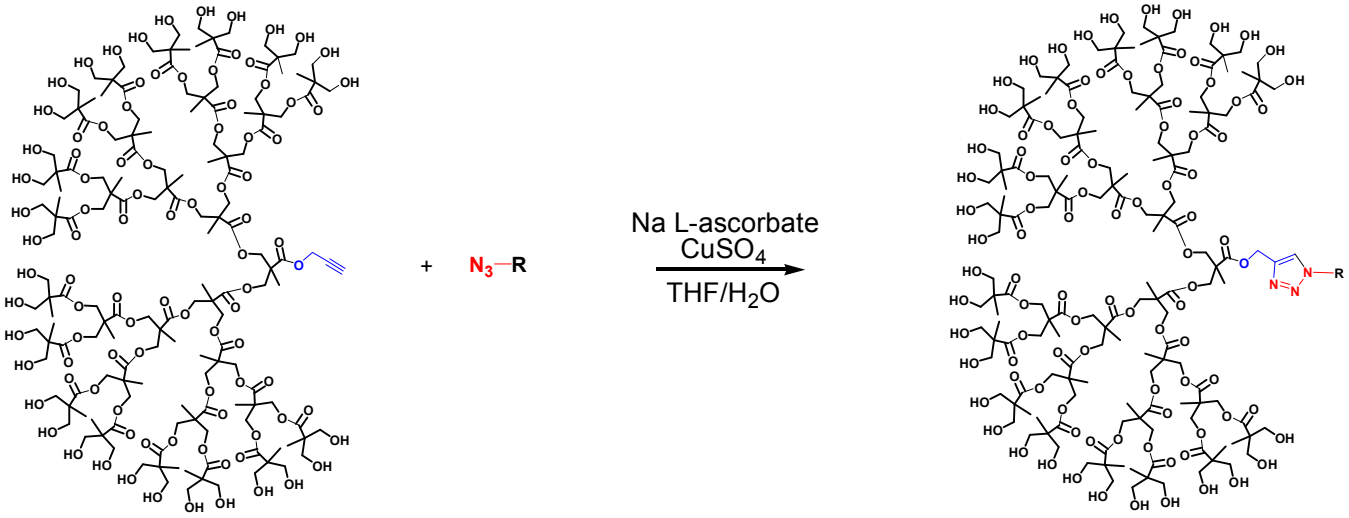
1. Malkoch, M., *et al.*, Multivalent, Bifunctional Dendrimers Prepared by Click chemistry. Chem. Communications, **46**, 5775-5777 (2005).

Related Products:

Polyester-8-hydroxyl-1-acetylene bis-MPA dendron, generation 3 (Catalog Number 686646)
Polyester-16-hydroxyl-1-acetylene bis-MPA dendron, generation 4 (Catalog Number 686638)

Manufactured by Polymer Factory Sweden AB.

Figure 1.
Reaction Scheme



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