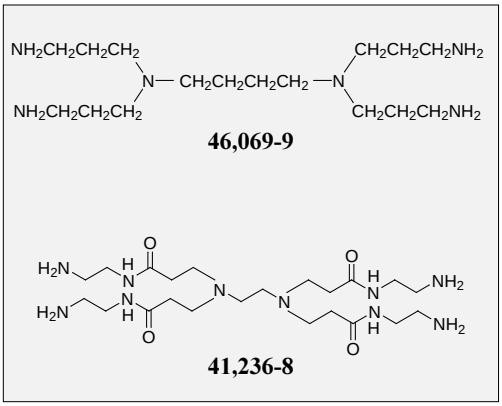
Dendrimers–Nanoscale Macromolecular Architecture

Since the first Starburst® dendrimers were reported in the 1980s,[1] these aesthetically pleasing macromolecules have now reached the point of commercial development. The spate of reports in the current literature has been directed toward their applications in a broad range of fields, including materials engineering, industrial, pharmaceutical, and biomedical. Specifically, nanoscale catalysts,[2,3] novel lithographic materials,[4] rheology modifiers,[5] and drug delivery systems[6] represent some of the potential applications.

Dendrimers are defined by their three components: a central core, an interior dendritic structure (the branches), and an exterior surface (the end groups). Over 50 compositionally different families of these nanoscale macromolecules, with over 200 end-group modifications, have been reported.[7] Aldrich is pleased to offer the dendrimers listed below, categorized on the basis of internal structure and surface functionality of the dendrimer molecule. If you would like to suggest novel building blocks (monomers) and initiator cores, critical to the development and advancement of new dendritic macromolecules, ***please bother us!*** Call our Technical Services department at **(800) 231-8327** (USA) or your local office, or e-mail us at **aldrich@sial.com**.



Aldrich Monomers, Polymers, and Additives—The Link to All Your Polymer Needs

Cat. No.	Dendrimer	Generation	No. of Surface Groups	Units
Polypropylenimine Dendrimers with Primary Amino Surface Groups*				
46,069-9	**DAB-AM-4, Polypropylenimine tetraamine Dendrimer**	1.0	4	**5mL ; 25mL**
46,072-9	**DAB-AM-8, Polypropylenimine octaamine Dendrimer**	2.0	8	**5mL ; 25mL**
46,907-6	**DAB-AM-16, Polypropylenimine hexadecaamine Dendrimer**	3.0	16	**1g; 5g**
46,908-4	**DAB-AM-32, Polypropylenimine dotriacontaamine Dendrimer**	4.0	32	**1g; 5g**
46,909-2	**DAB-AM-64, Polypropylenimine tetrahexacontaamine Dendrimer**	5.0	64	**1g**
Polyamidoamine Dendrimers with Primary Amino Surface Groups				
41,236-8	**Starburst® (PAMAM) Dendrimer**, 20 wt. % solution in methyl alcohol	0.0	4	**5g; 25g**
41,238-4	**Starburst® (PAMAM) Dendrimer**, 20 wt. % solution in methyl alcohol	1.0	8	**5g; 25g**
41,240-6	**Starburst® (PAMAM) Dendrimer**, 20 wt. % solution in methyl alcohol	2.0	16	**5g; 25g**
41,242-2	**Starburst® (PAMAM) Dendrimer**, 20 wt. % solution in methyl alcohol	3.0	32	**5g; 25g**
41,244-9	**Starburst® (PAMAM) Dendrimer**, 10 wt. % solution in methyl alcohol	4.0	64	**2.5g; 10g**
Polyamidoamine Dendrimers with Carboxylate Surface Groups				
41,234-1	**Starburst® (PAMAM) Dendrimer**, 20 wt. % solution in water	-0.5	4	**5g; 25g**
41,237-6	**Starburst® (PAMAM) Dendrimer**, 20 wt. % solution in methyl alcohol	0.5	8	**5g; 25g**
41,239-2	**Starburst® (PAMAM) Dendrimer**, 20 wt. % solution in methyl alcohol	1.5	16	**1g; 5g**
41,241-4	**Starburst® (PAMAM) Dendrimer**, 10 wt. % solution in methyl alcohol	2.5	32	**2.5g; 10g**
41,243-0	**Starburst® (PAMAM) Dendrimer**, 10 wt. % solution in methyl alcohol	3.5	64	**2.5g; 10g**
47,045-7	**Starburst® (PAMAM) Dendrimer**, 5 wt. % solution in methyl alcohol	4.5	128	**2.5g; 10g**
Polyamidoamine Dendrimers with Hydroxyl Surface Groups				
47,783-4	**Starburst® (PAMAM-OH) Dendrimer**, 20 wt. % solution in methyl alcohol	2.0	16	**5mL; 25mL**
47,784-2	**Starburst® (PAMAM-OH) Dendrimer**, 20 wt. % solution in methyl alcohol	3.0	32	**5mL; 25mL**
47,785-0	**Starburst® (PAMAM-OH) Dendrimer**, 10 wt. % solution in methyl alcohol	4.0	64	**2.5g; 10g**

* Products of DSM Fine Chemicals. Starburst is a registered trademark of Dendritech, Inc.

References: (1)(a) Tomalia, D.A. et al. *Polym. J.* **1985**, *17*, 117. (b) For a review, see Tomalia, D.A. *Aldrichimica Acta* **1993**, *26*, 91. (2) Zhao, M. et al. *J. Am. Chem. Soc.* **1998**, *120*, 4877. (3) Balogh, L.; Tomalia, D.A. *ibid.* **1998**, *120*, 7355. (4) Tully, D.C. et al. *Polym. Prepr.* **1999**, *40*, 402. (5) de Brabander, E.M.M. et al. *Polymer News* **1997**, *22*, 6. (6) Wilbur, D.S. et al. *Bioconjugate Chem.* **1998**, *9*, 813. (7) Dvornic, P.R. et al. *Polym. Prepr.* **1999**, *40*, 408.

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