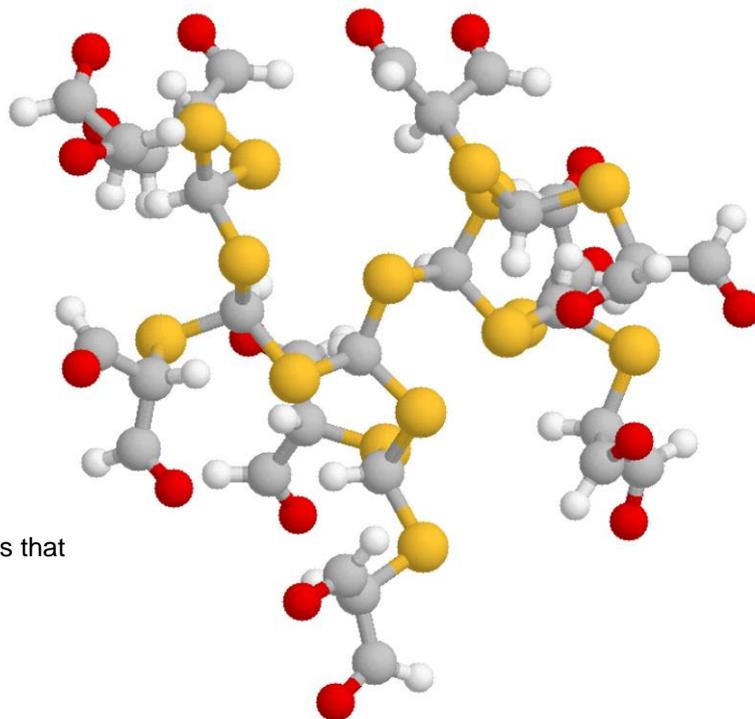


# Dendritic Oligomers

## Dendritics, What Are They?

Dendrimers are characterized as being perfect symmetrical star- or ball-shaped polymers that are built up layer by layer. They require a multi-stage polymerization process and have monodisperse molecular weight distributions. Dendrimers have extremely interesting properties but are difficult to prepare and are prohibitively expensive for most applications.

Dendritic oligomers mimic the performance of dendrimers but have a slightly irregular shape and have polydisperse molecular weight distributions. One major benefit to using dendritics instead of dendrimers is that they are available at a significantly lower cost.



## Dendritics in UV Light-Cure Coatings

Dendritic polyether oligomers form hyper-branched polymer networks when cured to themselves, to other monomers, and to oligomers. They are known to have an acrylated functionality of 16 or greater. Typically, dendritic polyether oligomers are incorporated into formulations at 35 to 70% by weight. They also are used at lower levels as a processing aid in coatings, as a compatibilizer to improve surface properties by reducing interfacial energy between polymers, and as a toughening agent that improves the mechanical performance. Dendritic oligomers are more spherical than rod-shaped and, because of this, they have significantly lower viscosity than typical linear oligomers of comparable molecular weights. This makes them ideal for use in high-temperature, low-viscosity applications for a variety of industries when exceptional mechanical and physical properties are needed.

### Features and Benefits of Dymax Dendritic Oligomers

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• High acrylate functionality</li> <li>• Fast, tack-free curing for faster processing and no defects from early handling</li> <li>• Low viscosity</li> <li>• Low oxygen inhibition</li> <li>• Low shrinkage for complete and uniform coverage</li> </ul> | <ul style="list-style-type: none"> <li>• Superior acid and chemical resistance</li> <li>• High temperature resistance up to 419°C</li> <li>• Excellent adhesion to a variety of substrates including ABS, SS, PC, PMMA, glass, and AL</li> <li>• Scratch and abrasion resistance</li> <li>• Tin-free material</li> </ul> |
|---|--|

## Dymax Dendritic Oligomers

Dymax's line of dendritic oligomers offers exceptional mechanical and physical properties along with excellent adhesion to a variety of substrates that include ABS, acrylic, aluminum, glass, polycarbonate, PMMA, polyester, and stainless steel. These oligomers are known to be resistant to decomposition at high temperatures with BDT-4330 being resistant up to 419°C. They also offer excellent acid and chemical resistance. When tested, BDT-4330 was unaffected after 24 hours of being in contact with Drano, nitric acid, yellow mustard, and hydrochloric acid.



Dendritic oligomers are ideal for use in high-temperature, low-viscosity applications for a variety of industries when exceptional mechanical and physical properties are needed.

Bomar™ Oligomer	Functionality	50:50 oligomer & TMPTA with 1% Omnirad™ 481				
		Uncured Properties	Mechanical Properties			
		Viscosity (cP)	Tensile strength	Elongation	Elastic Modulus	Durometer Hardness
BDT-1006	6	1,500 (at 25°C)	2,550 psi	3%	105 ksi	94D
BDT-4330	30	4,000 (at 50°C)	2,100 psi	2%	104 ksi	96D
XDT-1018	18	50,000 (at 25°C)	8,055 psi	4%	218 ksi	83D

**Bomar™ BDT-1006, BDT-4330, & XDT-1018 are available for sampling now.**  
**Custom dendritic oligomers are created upon request.**



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