



## **EXOTHANE™ Elastomers: A New Series of Versatile Urethane (Meth)acrylates**

A novel set of energy curable materials, urethane (meth)acrylates, have been developed. Results of this work indicate that these UV and EB curable urethanes have superior toughness at max strength compared to the controls. In an unusual and unexpected finding, these materials exhibit low shrinkage while at the same time demonstrating high conversion rates. The enhanced properties of the UV curable elastomers, specifically the high percent elongation and hardness, suggest that these novel materials could be used as functional key components to increase the toughness and durability of coatings in a wide range of industrial applications. The combination of high conversion, low volumetric shrinkage and low shrinkage stress brings interesting attributes to a large variety of applications such as adhesives, photopolymer printing plates, floor coatings, dental restoratives, nail gel formulations, etc.

| Item Name, Product Code             | Toughness at Max Strength (J) | % Conversion | % Volumetric Shrinkage | Average Shrinkage Stress (MPa) | Color (APHA) | Average Hardness Shore D | Tensile Strength (N/mm <sup>2</sup> ) | % Elongation | Viscosity @ 25°C (cPs) |
|-------------------------------------|-------------------------------|--------------|------------------------|--------------------------------|--------------|--------------------------|---------------------------------------|--------------|------------------------|
| Urethane Dimethacrylate, X-850-0000 | 2.05                          | 75.2         | 5.8                    | 1.6                            | 18           | 82                       | 56.99                                 | 8.99         | 8,000                  |
| Exothane 8, X-891-0000              | 5.66                          | 94.2         | 3.3                    | 0.3                            | 30           | 69                       | 17.31                                 | 79.28        | 230,000                |
| Exothane 9, X-726-0000              | 2.74                          | 96.8         | 5.3                    | 0.3                            | 21           | 70                       | 17.03                                 | 32.96        | 8,700                  |
| Exothane 10, X-930-0000             | 15.1                          | 83.2         | 3.2                    | 0.4                            | 29           | 73                       | 28.5                                  | 64.45        | 816,000                |
| Exothane 26, X-892-0000             | 1.3                           | 96.2         | 3.6                    | 0.1                            | 24           | 53                       | 5.9                                   | 45.69        | 61,000                 |
| Exothane 24, X-893-0000             | 0.423                         | 49.9         | 4.2                    | 2.4                            | 26           | 93                       | 28.54                                 | 4.78         | 55,000                 |
| Exothane 32, X-894-0000             | 0.585                         | 97.4         | 3.1                    | 0.2                            | 17           | 37                       | 2.88                                  | 33.77        | 25,000                 |
| Exothane 108, X-991-0000            | 5.15                          | 94.9         | 2.4                    | 0.3                            | 16           | 59                       | 13.34                                 | 100.03       | 176,000                |
| Exothane 126, X-992-0000            | 0.26                          | 98.1         | 1.9                    | 0.1                            | 20           | 35                       | 2.09                                  | 29.13        | 31,000                 |
| BisGMA:TEGDMA Blend (70:30)         | 0.989                         | 71.7         | 7.1                    | 1.8                            | 14           | 72                       | 47                                    | 6.21         | 2,000                  |