Niax* catalyst A-1

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Description

Niax catalyst A-1 contains 70 percent bis(2-dimethylaminoethyl) ether, one of the most active urethane foam amine catalysts known. As a matter of convenience, the pure amine ether has been diluted with 30 weight percent dipropylene glycol to facilitate metering and to permit the use of conventional quantities in foam formulations.

Typical Physical Properties

Specific Gravity at 20/20°C (68/68°F)	0.9022
Viscosity at 20°C (68°F), cP	4.1
Freezing Point	Sets to glass below -80°C (-112°F)
Vapor Pressure, mm Hg	0.01
Solubility in Water at 20°C (68°F)	Complete
Solubility in Benzene at 20° (68°F)	Complete
Refractive Index, n_D25°C	1.4346
Flash Point, °C (°F) Pensky-Martens Closed Cup(1)	74 (165)

(1) ASTM Method D 93

Catalytic Activity

The basic chemical reactions important in the polyether foaming process are the polyol/isocyanate reaction and the water/isocyanate reaction. Table 1 shows how Niax catalyst A-1 compares to various amine catalysts in promoting these two basic reactions. In the polyol/isocyanate (alcohol/isocyanate) reaction, Niax catalyst A-1 gives a specific rate constant that is about 10 percent higher than a similar blend of triethylene diamine, the next most active amine. In the water/isocyanate reaction, however, Niax catalyst A-1 has a specific rate constant that is 50 percent greater than triethylenediamine, the next most active amine.

The strong catalytic effect of Niax catalyst A-1 toward the water/isocyanate reaction facilitates the balancing of the catalysis of the polyol/isocyanate reaction by small variations in the stannous octoate level. This control is important in the production of commercial open-celled, split-free, flexible urethane foam. The level of Niax catalyst A-1 can be adjusted over a wide range to permit control of foam rise time without a sacrifice in tin operating range.