



Instrumental Polymer Technologies, LLC

Technical Data Sheet

QUICKSTAR™ 750H

APPEARANCE.....	CLEAR LIQUID
MOLECULAR WEIGHT RANGE.....	500-1500g/mole
EQUIVALENT WEIGHT.....	190g/equivalent
HYDROXYL NUMBER.....	295 mgKOH/g
HYDROXYL FUNCTIONALITY.....	4-8
VISCOSITY (100% SOLIDS AMBIENT).....	15-30 POISE
DENSITY.....	1.08 g/ml (8.96 lb/gal)
SOLUBILITY IN WATER.....	INSOLUBLE
SOLUBILITY IN BUTYL ACETATE.....	COMPLETE
SOLUBILITY IN TOLUENE*	COMPLETE

Description

QUICKSTAR™ 750H is an aliphatic polycarbonate polyol synthesized into the shape of a dendrimer. The high molecular weight and high crosslink density of this dendrimer enable, upon reaction with isocyanates, the formation of urethane coatings, elastomers and sealants with very high scratch resistance, chemical resistance, water resistance and overall toughness. This particular dendrimer has been designed for excellent compatibility with a wide range of isocyanates, polymers and solvents. It's low viscosity makes it particularly suited for 2K urethane systems which are high solids or 0VOC.

QUICKSTAR™ 750H is one of our "H" series in which a percentage of its surface hydroxyls have been alkylated so the dendrimer does not have the extreme difference in polarity between the surface and interior of the dendrimer. Consequently, it is not water soluble and will not absorb and hold hydrophobic molecules. Both the interior and the interior of the dendrimer are hydrophobic .

Although it has an alkylated surface, the interior of the QUICKSTAR™ 750H dendrimer is a highly chemically resistant, highly crosslinked aliphatic polycarbonate structure. The soft alkyl groups on the exterior of the dendrimer simply allow the molecule to be soluble in solvents and to flow very easily.

QUICKSTAR™ 750H, containing an aliphatic polycarbonate core, yields urethanes with very high strength. Because of the high crosslink density within the core of the dendrimer, this strength

builds up very quickly during cure. This dendrimer is ideal for situations in which coatings will see use within one day of application.

The quick crosslinking of the dendrimer with isocyanates also helps extend the pot life of high solids systems. Less catalyst is required for quick through cure and therefore the pot life can be extended.

Applications

QUICKSTAR™ 750H dilutes to a very low viscosity in solvents. It also is compatible with all isocyanates, including hydrophobic isocyanates such as HDI trimers. Consequently QUICKSTAR™ 750H is perfectly suitable for low viscosity urethanes or 0 VOC, 100% solids coatings.

Cured with isocyanates, QUICKSTAR™ 750H yields a very hard but flexible, scratch resistant and durable coating urethane which is ideal for clear coats for concrete or wood floors. It also allows for very high loading of pigments for pigmented systems.

Despite the hardness achieved through cure, the coating remains surprisingly flexible and tough. QUICKSTAR™ 750H can even be used to form coatings over leather and plastic.

The extremely high strength of urethanes made from QUICKSTAR™ 750H allows for the formation of urethane molded products such as wheels, without the use of aromatic amines.

Due to its high functionality and low viscosity QUICKSTAR™ 750H can be useful as an additive in many urethane formulas to improve the flow, increase the chemical resistance, speed the cure and increase the potlife. Even less than 5% in a formula can have dramatic effects. QUICKSTAR™ 750H can reduce your cost of a formulation by allowing the formulator to use less expensive polymers and additives in a formula. It also allows for an extremely high loading of pigment. If the pigment is calcium carbonate, the cost of the formula can be dramatically reduced. If it is a color pigment, higher hiding is obtainable in the formula.

The ability to underindex the dendrimer when curing with isocyanates to yield a tough material with free hydroxyls, makes it particularly useful for 2K urethane coating systems which will require a long overcoat time. Such is the case for base coats of a base coat clear coat system.

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