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Instrumental Polymer Technologies, LLC

# Technical Data Sheet

## QUICKSTAR™ 400PHCS

APPEARANCE.....CLEAR VISCOUS LIQUID
MOLECULAR WEIGHT RANGE.....7280g/mole
EQUIVALENT WEIGHT.....410g/equivalent
HYDROXYL NUMBER.....137 mgKOH/g
HYDROXYL FUNCTIONALITY.....16
SOLIDS.....100%
VISCSOCITY.....>500 POISE
DENSITY.....1.15g/ml
SOLUBILITY IN WATER.....COMPLETELY INSOLUBLE
SOLUBILITY IN BUTYL ACETATE.....COMPLETE
SOLUBILITY IN TOLUENE.....COMPLETE

### Description

QUICKSTAR™ 400PHC is an aliphatic polycarbonate polyol synthesized into the shape of a dendrimer. It is much smaller in size than our other dendrimers. Its surface is covered in hydroxyls whereas its interior is a highly branched aliphatic polycarbonate. QUICKSTAR™ 400PHC , has an interior core with extensive branching which makes the urethane build up toughness, as well as chemical resistance, very quickly during its cure.

The QUICKSTAR™ 400PHC dendrimer contains hard cycloaliphatic rings which results in a much harder coating, or urethane, than our other dendrimers. It also makes the dendrimer more compatible with a wider range of isocyanates and creates a urethane with extremely high gloss and shine. The polycarbonate backbone insures the cured urethane still retains toughness, despite the hardness of the urethane.

QUICKSTAR™ 400PHC has been designed in particular for high solids coatings which require the lacquer dry characteristics of conventional solids coatings. The crystallinity of the cycloaliphatic rings help create a lacquer drying characteristic as well as make the finished urethane harder with exceptional gloss. At 100% solids, it is a near solid, however, its viscosity drops very quickly in solvent due to it spherical shape.

Because the core of the dendrimer is an aliphatic polycarbonate, the resulting urethanes have very high water resistance, thermal resistance and UV resistance. QUICKSTAR™ 400PHC can be formulated to yield a urethane which can be continuously submersed in water. The resulting urethanes also have extremely high abrasion and impact resistance.

## Applications

QUICKSTAR™ 400PHC was designed for applications such as high solids clear coats of automotive refinishing or hard clear coats for wood in which a fast dust free time is required. High solids coatings usually have low equivalent weight and are liquid at room temperature so the wet time is long and the clear coat picks up dust very quickly. However, the high chemical, water and acid resistance make it suitable for a wide range of industrial coatings applications.

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