

**FIGURE 1
TYPES AND SIZES OF POLYOLEFIN PILOT PLANTS**

TYPE	POLYMERIZATION MODES	SIZE AND PRODUCTS	USES
Laboratory Batch Unit	Single Reactor: <ul style="list-style-type: none"> • Hydrocarbon Slurry • Bulk Liquid Pool • Stirred Gas Phase Supported ZN, SSC, or Metallocene Catalysts	0.5 to 2 Kg/Batch PE Homopolymers PP Homopolymers Olefin Random Copolymers	<ul style="list-style-type: none"> • Catalyst Screening • Kinetic Parameters – Catalytic Activity and Decay Rate • Qualitative Product Properties
XYTEL-OAKWOOD Continuous Bench Scale Unit	One or Two Series Reactors: <ul style="list-style-type: none"> • Hydrocarbon Slurry CSTR • Bulk Slurry CSTR • Continuous Stirred Gas Phase Supported ZN, SSC, or Metallocene Catalysts	2 to 5 Kg/Hr PE Homopolymers PP Homopolymers Olefin Random Copolymers High Impact EP Copolymers Olefinic Terpolymers Thermoplastic Olefins	<ul style="list-style-type: none"> • Catalyst Evaluation - Kinetics • Process Scale-up Studies • Production of Commercially Relevant Polymers • Kinetics and Yield Response • Chain Transfer Agent Evaluation
Large Scale Pilot Plant	Multiple Reactors for all Commercial Modes: Loop, CSTR, Fluidized Bed, Tubular, Stirred Bed Supported ZN, SSC, or Metallocene Catalysts	25 to more than 150 Kg/Hr All Commercial Products	<ul style="list-style-type: none"> • Scalable to Commercial Units • Product and Market Evaluation • Process Development • Technical Services for Commercial Plant

**FIGURE 2
BLOCK DIAGRAM OF XYTEL-OAKWOOD
CONTINUOUS BENCH SCALE POLYMERIZATION UNIT**

