Catalysts

CONSISTA® Catalyst Systems

CONSISTA® catalysts are the first 6th generation, non-phthalate based catalysts; designed to produce advanced-performance polypropylene with broad applicability that can be used to fabricate lighter, cleaner and clearer articles..

CONSISTA® C601 and C602 Catalysts with new CONSISTA donors:CONSISTA® D7600, D8700 and D9700deliver high reactor operability and on-stream time. CONSISTA Catalyst systems are tailored for the UNIPOL® PP Process.

Process and Product Benefits

- Non-phthalate based catalyst chemistry
- Excellent reactor operability and protection
- Excellent product performance in major application areas
- Applicable to a broad range of commodity and specialty grades
- Enables a reduction in resin manufacturing costs through less peroxide usage
- Drop-in technology without capital investment with UNIPOL® Process Technology
- Broader applicability to the entire product wheel than any other catalyst
- Higher stiffness for homopolymer lightweighting

- Market-leading impact/stiffness balance
- Lower haze for clarified random copolymer
- Broad molecular weight distribution yields improved extrusion processing for pipe, sheet and thermoforming applications
- Improved taste-odor for food contact grades
- Lower VOC faster cycle time high melt flow rate (MFR) grades for injection moulding

Donor Portfolio Offers Complete Product Range

Donor	Product Types	Productivity (ton/kg)	Value Elements
CONSISTA® D9700	Homopolymers, random copolymers	50 – 80	Wide range of premium homopolymers and random copolymers
CONSISTA® D8600	Random copolymers, impact copolymers	50 – 80	Optimized random copolymer performance, especially fractional melt flow pipe
CONSISTA® D8700	Impact copolymers, low xylene solubles homopolymers	60 – 100	Wide range of premium impact copolymers, highest catalyst productivity
CONSISTA® D7600	Very high melt flow impact copolymers	40 – 60	Very high melt flow impact copolymers, peroxide elimination

SHAC® Catalysts and Donors

SHAC® Catalyst Systems, which includes ADT Donors, are complementary components and designed specifically for UNIPOL® PP Technology. They are suitable for all other gas-phase PP technologies. SHAC® Catalysts Systems are easy to use, consistent and contribute to the low operating cost of the process.

Licensees benefit from Grace's commitment to discovering, developing and marketing proprietary catalysts. We have a proven track record for developing innovative solutions.

Grace's range of catalysts and donors offer our licensees the ability to choose the best catalyst and donor combination to meet their specific needs and requirements.

SHAC® Catalyst Systems, are designed specifically for UNIPOL® PP Technology. They are also suitable for all other gas-phase PP technologies. SHAC® Catalyst Systems are easy to use, consistent and contribute to the low operating cost of the process.

Licensees benefit from Grace's commitment to discovering, developing and marketing proprietary catalysts. We have a proven track record for developing innovative solutions.

Grace's range of catalysts enables our licensees the ability to choose the best catalyst and donor combination to meet their specific requirements.

Product Family	**Catalyst System**
Homopolymers	SHAC® 201 Catalyst or SHAC® 320 Catalyst + ADT Donor
Random Copolymers	SHAC® 205 Catalyst + ADT Donor
Impact Copolymers	SHAC® 320 Catalyst + ADT Donor
High Melt Flow Impact Copolymers	SHAC® 320 Catalyst + CONSISTA® D7000 Donor

SHAC® Catalyst and Donors: PP Product Capabilities

Catalyst Type	**Homopolymer**	**Ethylene and Butene Random**	**Impact Copolymer**
SHAC® 201	ADT 4000 and 5000-N Series		ADT 4000 Series
SHAC® 205	ADT 4000 and 5000-N Series	ADT 4600 ADT 5500-N	ADT 4000 Series

SHAC® 320	ADT 4000 and 5000-N Series		ADT 4000 Series

ADT Donor Portfolio

Advanced donors are available for the entire range of products

SHAC®Catalyst Donor Series	**Product Types**	**Catalyst Productivity (Homopolymer) (ton/kg)**	**Value Elements**
ADT 4500	Impact copolymers Homopolymers	30-60	Enhanced operability. high productivity, premium impact copolymers
ADT 4600	Impact copolymers Homopolymers	25-50	Best operability for premium impact copolymers, random copolymers
ADT 5100-N	Homopolymers-high XS	20-30	Best operability, premium high X5 homopolymers, BOPP film
ADT 5500-N	Homopolymers Random Copolymers	20-35	Enhanced operability, high productivity premium homopolymers and random copolymers
ADT 5600-N	Homopolymers Random Copolymers	20-30	Best operability, premium homopolymers including spunbound

UNIPOL® POLYPROPYLENE PROCESS TECHNOLOGY - SHAC® CATALYST ADT

SHAC® Catalyst Systems: Advanced Donor Technology Improves Process Operability and Product Performance

SHAC® Catalyst Systems, ADT Donors and the new CONSISTA® Donor Technology are complementary components designed specifically for the UNIPOL® Polypropylene Technology. They are also suitable for all other gas phase polypropylene technologies.

This platform technology offers polypropylene producers the ability to significantly improve reactor stability and process operability under adverse conditions and at the same time maintain or improve product performance properties.

A System To Meet Your Needs

The use of SHAC® Catalyst ADT allows for tailored product specific applications based on xylene solubles (XS), molecular weight distribution (MWD) and oligomers requirements.

The SHAC® Catalyst ADT includes two primary product lines. Both are used as external donors.

SHAC® Catalyst ADT 4000 Series

Delivers broad polymer molecular weight and are best applied in producing impact copolymers.

SHAC® Catalyst ADT 5000 Series

Produces narrow polymer molecular weight for homopolymers and random copolymers.

