Next Generation of Polyethylene Resins

Asia Pacific
While much of the past decade’s research and development within our industry has concentrated heavily on metallocene-based LLDPE (mLLDPE), Dow has also steadily moved forward in its experimentation with Ziegler-Natta (Z-N) technology. The faith maintained and invested in the well-proven Z-N system led further improvement of our resin series and has now yielded nothing short of “super” results in the form of DOWLEX™ NG (Next Generation) Linear Low Density Polyethylene (LLDPE) Resins. DOWLEX NG Resins represent the latest breakthrough from Dow’s focused catalyst research. Dow researchers using high throughput techniques, coupled with the flexible operation of our proprietary Solution Process, have devised modifications to our Ziegler-Natta catalyst resulting in “super octene” LLDPEs. As they are typically referred in the market, “super hexenes” provide performance between conventional hexene and octene LLDPEs.

Now, with DOWLEX NG Resins, the “super octene” resin is a reality, and offers the potential to take LLDPE performance to the next level. These are “super octenes;” they take advantage of more uniform short chain branching distribution (SCBD) and molecular weight distribution (MWD) than conventional Z-N resins to offer significant improvements in terms of physical properties (dart/tear/puncture balance) and optics, all while retaining the excellent processability and consistency of DOWLEX resins.

Tougher for Today’s Demanding Applications
The Ziegler-Natta catalyst breakthrough that powers the NG series has been combined with density and melt index changes to take advantage of molecular structure changes that the new catalyst produces. A key performance enhancement arising from this is an overall higher dart/tear/puncture balance with great optics (haze, gloss) than currently available octene-based LLDPE resin.

Processing Performance
The outstanding reputation of DOWLEX resins for ease of processing is retained with these next-generation resins, thus lowering backpressure requirement. Lower backpressure can directly translate to lower electricity bills, offering the potential to help save you money. These exciting new offerings present many opportunities to converters seeking answers to a number of specific desires.

Tougher than Ever Before
DOWLEX NG is a super-tough version of traditional DOWLEX LLDPE Resins. This developmental resin has a dramatic combination of physical properties (dart/tear/puncture balance) as well as remarkable improvement in physicals over many conventional 1.0 MI, 0.920 g/cc products. It also has outstanding clarity and gloss for its fractional melt product.

Clarity that Stands Out
DOWLEX NG offers exceptional optics and processability without sacrificing physical properties. Our developmental resin is designed for high quality blown film applications requiring a combination of excellent optical properties, tear strength, and sealability. This makes it a good choice for use in:

- High clarity lamination films
- Stretch hood skins requiring high stretch and optics
- Agricultural films
- Medium-performance sealant layers
- Specialty packaging
Feedstock Costs

Rising feedstock costs are challenging bottom lines. The DOWLEX™ NG Resins series offers the ability for a substantial downgauging without sacrificing overall film properties. Reducing material use can potentially save money. Plus, the processing advantages enabled by all DOWLEX resins allow higher throughput at less energy consumption. Simply put, resin purchases will go further when using DOWLEX NG Resins, again making the most of your feedstock investment.

Downgauging and Sustainability

The ability to downgauge has never been more important than now. DOWLEX NG Resins offer the potential for up to 40% downgauging. Dramatically downgauged films made from DOWLEX NG Resins can be used to make more sustainable packaging, using less material and improving product protection for less damage and waste. Your Dow sales or Technical Service and Development (TS&BD) representative can offer ways to downgauge and considerations on your film structure’s environmental impact (sustainability).

The Next Generation is Ready Now

The first members in the family of DOWLEX NG Resins have arrived with improved toughness, enhanced optics, and the traditional processing ease long associated with DOWLEX resins. More are on the way. Dow research and development is active on numerous fronts, and Dow’s catalyst research center is using high throughput techniques and identifying technologies to further enhance our products. Right now, DOWLEX NG resins are available for trials. Please call your seller to order a sample for evaluation or to receive additional technical information. We are eager to hear your particular challenges. You could be a part of the next breakthrough.

ATTANE™ NG Ultra Low Density Polyethylene (ULDPE) Resins

Within the same Z-N technology development, we have also upgraded further the performance of our ATTANE™ NG resin family. These Ultra Low Density Polyethylene (ULDPE) Resins are designed with a molecular structure optimized to offer a combination of improved toughness (especially for cold temperature film applications), better optics, excellent flex crack resistance, low seal initiation temperature and enhanced processability. These performance properties make ATTANE NG ULDPE Resins well suited for demanding film applications targeted for use in abusive environments. The first resins to be launched offer an excellent balance of modulus, tear, puncture and bubble stability, achieved through Dow’s proprietary Solution Process. More specifically, ATTANE NG 4701G ULDPE is a 0.912 density grade offering unparalleled ULDPE toughness and a 0.8 Melt Index. ATTANE NG 4703G ULDPE is a super tough 0.905 density grade with a 0.5 Melt Index, providing the added benefit of enhanced optics. It is also a good sealant resin by virtue of its low heat seal initiation temperature. This resin, with its excellent impact modification, is well suited for use in heavy duty shipping sacks, as well as in general use cold temperature films, modified atmosphere packaging and individual quick frozen films.
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