FACT SHEET – AMPLIFY™ Functional Polymers

AMPLIFY™ Functional Polymers are a family of functionalized polymers from Dow Specialty Packaging & Films, a business group of The Dow Chemical Company (Dow). This family is comprised of four distinct series:

- AMPLIFY™ IO Functional Polymers (ionomers of ethylene acrylic acid copolymers) currently available in sodium and zinc grades
- AMPLIFY™ EA Functional Polymers (ethylene-ethyl acrylate [EEA] copolymers)
- AMPLIFY™ GR Functional Polymers (maleic anhydride [MAH] grafted polyolefins)
- AMPLIFY™ TY Functional Polymers (packaging tie-layer polymers)

About Functional Polymers

- Dow defines functional polymers as polyolefin products that have been engineered to meet end-use requirements or characteristics.
- Dow uses the generic reference of 'functional' to encompass polymers that are functionalized – including polymers comprised of an ethylene backbone with a polar comonomer or a polar group grafted on, or polyolefins where secondary chemistry is applied.
- The production technologies used to produce functionalized polymers include high-pressure reaction technology, low-pressure gas-phase technology and conventional techniques combined with further modification.

Key Customers and Market Segments

AMPLIFY Functional Polymers benefit coaters, compounders, molders, and fabricators across various markets including:

- Flexible food and specialty packaging
- Polymer modification/compatibilization
- Adhesives/tie-layers
- Thermoplastic powder coating
- Protective metal pipe coating
- Wood plastic composites
- Molded durable and sporting goods

Product Overviews

AMPLIFY™ IO Functional Polymers

These ionomers of ethylene acrylic acid copolymers are currently available in sodium and zinc grades and offer:

- Excellent optics (low haze, high gloss, high clarity) for good product appearance
- High melt strength for outstanding thermoformability
- Impact resistance and abrasion/scratch resistance for durability
- Adhesion to polyethylene, metals, glass, and nylon
- Exceptional processability during extrusion

These products are used in applications such as:

- Food packaging
- Medical and other types of retail packaging
- Molded durable goods such as golf balls
- Impact modification for nylon where optical properties are important
AMPLIFY™ EA Functional Polymers
These ethylene-ethyl acrylate (EEA) copolymers offer:

- Improved low temperature toughness and stress crack resistance
- Thermal stability, enabling use in high temperature processing conditions
- Exceptional adhesion, flexibility, and toughness across a broad service temperature range
- Excellent blend compatibility with other polyolefins
- Functional adhesion to polyolefins, metal, cellulose, polyester, polycarbonate, polyvinylidene chloride (PVDC), glass, foil, and other substrates
- Easy processing on a wide range of extrusion and injection molding equipment

They are ideal for use in:

- Polymer modification
- Adhesives
- Compatibilizers
- Binders

AMPLIFY™ GR Functional Polymers
The maleic anhydride (MAH) grafted polyolefins in the AMPLIFY GR series offer:

- Adhesion to metal, polyethylene terephthalate (PET), polycarbonate, glass, foil, cellulose, and polyolefins
- Good heat resistance
- Impact resistance in nylon blends
- Inorganic filler compatibilization for thermoplastic olefins (TPOs)

These MAH grafted polyolefins offer solutions in the following applications:

- Impact modification
- Pipe coatings
- Thermoplastic powder coatings
- Wood plastic composites

AMPLIFY™ TY Functional Polymers
The packaging tie-layer resin portfolio offers:

- Reactive and non-reactive functionality for enhanced adhesion to a variety of substrates including nylon (PA), ethylene vinyl alcohol (EVOH), ionomer, polyethylene, polypropylene, polystyrene, and PET
- Melt indices well suited for multi-layer structures
- Fully formulated, concentrated, and enhanced solutions for ease in use

These packaging-specific resins offer solutions for applications such as:

- Flexible film tie-layers (meat, cheese, cereal, snacks, bag-in-box, and medical packaging)
- Semi-rigid and rigid tie-layers (extrusion blow molded bottles)
- Thermoformed sheet tie-layers (pudding/gelatin/yogurt cups, food trays)
- Extrusion coated or laminated structures (liquid packaging)

For more information about Dow’s product offering for specialty applications or AMPLIFY™ Functional Polymers, visit www.dowamplify.com, www.dowplastics.com or call 1-800-441-4369 (U.S. and Canada).

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