Addivant™ is a global specialty chemicals company with leading positions in diversified markets. We build the chemistry that makes other products more durable, safer, cleaner and more efficient, in the building and construction, electrical and electronics, consumer, agricultural, industrial and transportation industries.

With more than 500 employees around the world, Addivant™ provides products and services in more than 100 countries and maintains worldwide manufacturing and research facilities as well as global sales offices.
OUR VISION

- To be the world’s most innovative supplier of solutions to the polymer industry
- To be our customers’ first choice as a committed supplier
- To offer the best cost-performance solutions through real innovation
- To invest in line with our customers’ growth strategies
- To offer the best service locally through integrated plants and supply chains

OUR PRODUCTS

We are a leading supplier of coupling agents, compatibilizers and impact modifiers which improve the physical characteristics of many thermoplastic polymers including rigidity, strength and durability to meet the most demanding customer and consumer requirements.

Our products are used to enhance most major thermoplastic materials: Acrylonitrile Butadiene Styrene (ABS), Styrene Block Copolymers (SBC, SEBS, SIS), Styrene Acrylonitrile (SAN), Thermoplastic Urethane (TPU), Polycarbonate (PC), Polyster (PBT, PET), Polymethyl Methacrylate (PMMA), Polyamides (PA), Polypropylene (PP), Polyethylene (PE) and Polyphenylene Ether (PPE) and we are committed to offering the broadest and best range of products in the industry.

As one of the world’s top providers of polymer modifiers, our POLYBOND® products improve mechanical properties of glass and mineral filled polyolefins, polypropylene/clay nanocomposites, wood/plastic composites and improve dispersion in polyolefin masterbatches and flame retardant compounds. These products are also used to improve polyolefin/metal adhesion, polyolefin/ink adhesion and in coextrusion tie layers. ROYALTUF® impact modifiers are widely used to toughen polyamides and provide a favorable balance of properties, including excellent room temperature and low temperature impact.
With over 100 technologists in the Antioxidants and UV Stabilizer Solutions business alone, we have more than 4,000 active patents and will continue to strongly invest in innovation to maintain our position at the forefront of new product development and offer the possibility to:

- Improve the cost / performance of our customers’ products
- Offer better performing replacements for competitive products
- Expand into new applications or new markets

**Expertise that adds value**

Our broad product range, combined with our technical expertise, allows us to offer multiple solutions to best meet the needs of the customer application. Most of our product solutions are kept in stock and can be shipped within 24 hours in order to support the most demanding development projects. With our growing technology team, we stand ready to fully support your development projects, over the phone or in person.
SERVICE WORLDWIDE

We appreciate that our success also relies on being an easy company to work with. This is why we have established multiple production sites, sales and technical offices and laboratories around the world, to bring us close to our customers in all the regions, offering better service and shorter lead times. As our customers invest heavily in the new, emerging markets, we have been focusing especially on our structure in those regions to guarantee service levels.

Our new technical application centre in China is the latest example to add to our existing locations in the Middle East, South Korea, USA, Brazil, Europe and Taiwan. We have also consolidated our Customer Care and shipping points and ensured we field a highly trained sales and distribution team.

Technical support
Our global network of technical experts are not only specialists in polymer applications, they are also specialized in using 6 Sigma and Lean Technology to help customers solve production or processing problems, and will train customers to use these tools for the future.

Regulatory compliance and corporate responsibility
Addviant™ is committed to the concept of Sustainable Development – to minimize the imprint that our operations and businesses leave on our collective health and safety and on the environment.

Investment in regulatory compliance and advocacy, including REACH*, is a priority. We commit resources to support this, maintaining a strong regulatory team and actively participating in industry advocacy groups. In short, we care about the future...for all of us.

*Registration Evaluation Authorization of Chemicals

Committed to future growth
Addviant™ is committed to growing its Antioxidant and UV Stabilizer Solutions business. We continue the expansion of our manufacturing plants, most recently investing in expansions in the Middle East, South Korea and France with future expansions planned for our polymer modifiers.

Our continued investment in innovation is paramount with an exciting channel of new and innovative technology currently under development. We have consolidated our North American R&D facilities at our Morgantown, WV manufacturing site to create our Polymer Modifier R&D Center of Excellence, which includes state of the art development and analytical testing equipment.
## POLYMER MODIFIERS SELECTION GUIDE

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<th>Functional Level F1MR</th>
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<th>MFR@ 230°C, 2.16kg g/10 min</th>
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<tr>
<td>POLYBOND® 1002</td>
<td>PP</td>
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<td>POLYBOND® 1009</td>
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<td>POLYBOND® 1103</td>
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<td>POLYBOND® 3000</td>
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<td>POLYBOND® 3200</td>
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## ROYALTUF® TYPICAL PROPERTIES

<table>
<thead>
<tr>
<th>Base Resin</th>
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<th>Functional Level F1MR</th>
<th>Mooney Viscosity ML(1+4) @ 125°C</th>
<th>MFR@ 265°C, 21.6kg g/10 min</th>
<th>Physical Form</th>
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<tr>
<td>ROYALTUF® 498</td>
<td>Amorphous EPDM</td>
<td>MA</td>
<td>High</td>
<td>30</td>
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<tr>
<td>ROYALTUF® ESG 115B R-2</td>
<td>Semi-Crystalline EPDM SAN</td>
<td>Medium</td>
<td>-</td>
<td>-</td>
<td>Crumb</td>
</tr>
<tr>
<td>ROYALTUF® 372P20</td>
<td>Semi-Crystalline EPDM SAN</td>
<td>Medium</td>
<td>-</td>
<td>20</td>
<td>Pellet</td>
</tr>
</tbody>
</table>

ESG 115B R-2 and 372P20 differ only in morphology. Continuous phase of ESG 115B R-2 is EPDM while that of 372P20 is SAN.
POLYMER MODIFIERS
FEATURES & BENEFITS

POLYBOND® 1001N
FEATURES
Polypropylene grafted with acrylic acid
Medium melt flow
High level of functionality

BENEFITS
Ideal for improving adhesion to metal

POLYBOND® 1002
FEATURES
Polypropylene grafted with acrylic acid
Low melt flow
High level of functionality

BENEFITS
Ideal for improving adhesion to metal

POLYBOND® 1103
FEATURES
Polypropylene grafted with acrylic acid
High melt flow
High level of functionality

BENEFITS
Lower viscosity for formulations where high melt flow is desirable
Ideal for improving adhesion to metal

POLYBOND® 1009
FEATURES
HDPE grafted with acrylic acid
Moderate melt flow
High level of functionality

BENEFITS
Ideal for improving adhesion to metal

POLYBOND® 3000
FEATURES
PP grafted with maleic anhydride
Highest level of functionality available
Highest melt flow available

BENEFITS
Ideally suited for long glass fiber applications
High efficiency in glass filled PP
Well suited for tie-layer compounds

POLYBOND® 3002
FEATURES
PP grafted with maleic anhydride
Low melt flow

BENEFITS
Well suited for tie-layer compounds

POLYBOND® 3150
FEATURES
PP grafted with maleic anhydride
Higher melt flow compared to PB3002
Increasing level of functionality compared to PB3002

BENEFITS
Well suited for tie-layer compounds
Ideal compatibilizer for PP/Nylon blends where improved hydrolytic stability is desired

POLYBOND® 3200
FEATURES
PP grafted with maleic anhydride
High melt flow
High level of functionality

BENEFITS
High efficiency in glass filled PP
High efficiency compatibilizer for nylon/PP blends
Recommended for clay PP-Nanocomposites and wood plastic composites
Also effective in agricultural fiber and starch formulations
Well suited for tie-layer compounds
**POLYBOND® 3009**  
**FEATURES**  
HDPE grafted with maleic anhydride  
Low melt flow  
Medium level of functionality  
Low gel counts  
**BENEFITS**  
Ideal for sheet & film applications

**POLYBOND® 3029**  
**FEATURES**  
HDPE grafted with maleic anhydride  
Low melt flow  
High level of functionality  
**BENEFITS**  
Ideal for wood plastic composite or other highly filled applications

**POLYBOND® 3039**  
**FEATURES**  
HDPE grafted with maleic anhydride  
Low melt flow  
High level of functionality  
Non-dusting micro-pellet form  
**BENEFITS**  
Easy, uniform distribution  
Ideal for wood plastic composite or other highly filled applications

**ROYALTUF® 485**  
**FEATURES**  
Semi-Crystalline EPDM grafted with maleic anhydride  
Medium level of functionality  
Free flowing pellet  
**BENEFITS**  
Effective impact modifier for a wide variety of polyamides  
5-7% loading for glass filled polyamides  
20% loading for super-tough polyamides

**ROYALTUF® 498**  
**FEATURES**  
Amorphous EPDM grafted with maleic anhydride  
High level of functionality  
Free flowing pellet dusted to facilitate storage and feeding  
**BENEFITS**  
Effective impact modifier for a wide variety of polyamides  
5-7% loading for glass filled polyamides  
20% loading for super-tough polyamides  
Provides highest level of impact properties at sub-ambient temperatures

**ROYALTUF® ESG 115B R-2**  
**FEATURES**  
50% EPDM Rubber grafted with styrene-acrylonitrile (AES)  
EPDM Rubber in the continuous phase  
Crum form  
**BENEFITS**  
Provides excellent impact properties at ambient and sub-ambient temperatures  
Maintains polymer properties in UV and thermal environments  
Provides exceptional weather resistant properties  
Compatible with many polar polymers

**ROYALTUF® 372P20**  
**FEATURES**  
50% EPDM Rubber grafted with styrene-acrylonitrile (AES)  
SAN in the continuous phase  
Pellet form  
**BENEFITS**  
Provides excellent impact properties at ambient and sub-ambient temperatures  
Maintains polymer properties in UV and thermal environments  
Provides exceptional weather resistant properties  
Compatible with many polar polymers
WHY ADDIVANT™?

Because we offer:

• True innovation and partnership in development
• The largest range of Polymer Modifier solutions in the industry
• Global reach and supply capabilities
• Unbeatable technical expertise and application knowledge
• Continued strategic investments in emerging markets
• Significant investments in regulatory compliance

Because we are committed:

• To be the world’s most innovative supplier of solutions to the polymer industry
• To be our customers’ first choice as a committed supplier
• To offer the best cost-performance solutions through real innovation
• To invest in line with our customers’ growth strategies
• To offer the best service locally through integrated plants and supply chains
The information contained herein is correct to the best of our knowledge. Your attention is directed to the pertinent Material Safety Data Sheets for the products mentioned herein.

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Responsible Care®
Addivant™ is dedicated to Responsible Care®, the chemical industry’s initiative to protect the environment, ensure the safety and security of our operations; and safeguard the health and safety of our employees and neighboring communities. Our goal is to make continuous progress toward the vision of no accidents, injuries or harm to the environment. As active and responsible members of the communities in which we operate, Addivant™ is committed to open communication with our employees and neighbors. We monitor the safe production, transportation and use of our products. Our employees are comprehensively trained to do their jobs safely and with minimum impact on the environment. We care about the future — for all of us. If you have any questions, or would like to comment on our Responsible Care program, please send an email to RCMS@addivant.com.