TECHNICAL UPDATE

Dymalink® 9200 – New Additive for Increasing Heat Distortion Temperature of Polypropylene and Synergist with Glass Fiber

Benefits

- Increased heat distortion temperature (HDT) of polypropylene
- Increased modulus and yield strength of glass-filled polypropylene

Target Markets/Applications

- Automotive
- Industrial

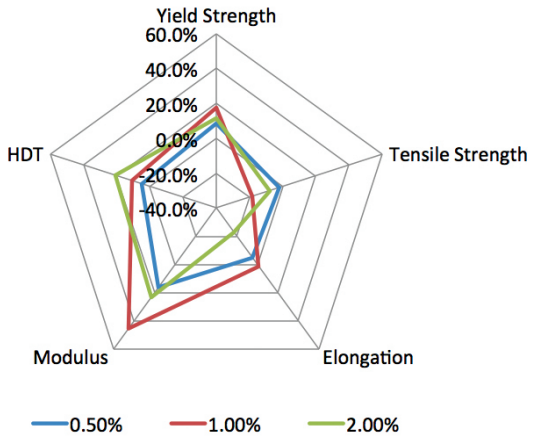
Additional Information

MSDS/TDS: Dymalink® 9200

Description

Polypropylene (PP) has long been heralded as an important material within the industrial world. PP is a cost-effective, simple-to-process polyolefin with decent chemical stability and myriad properties. One long-standing deficiency, however, is temperature resistance, which historically has been mitigated by integrating glass fibers or nucleating agents, or moving into an engineering thermoplastic. However, each of the aforementioned strategies may have a detrimental influence on other physio-mechanical properties, and/or increase cost.

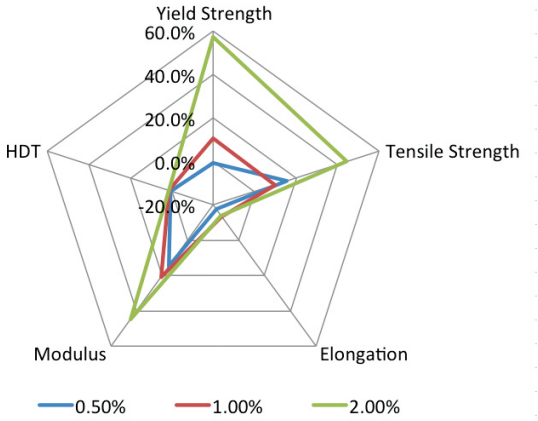
Resin Solutions has recently developed Dymalink® 9200, a zinc carboxylate salt that will increase the heat distortion temperature (HDT) performance of polypropylene grades by as much as 20% without discounting the inherent value of PP. Low doses of the free-flowing powder are introduced via melt blending under modest shear to achieve the desired effect. Figure 1 depicts the changes in a typical property set for a PP grade modified with Dymalink 9200.



Material	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	Modulus (GPa)	HDT (°C)
PP	35.2	35	25	0.7	64.5

Figure 1: Typical change in property profile of a PP (MFI = 19 g/min) grade at various loadings of Dymalink 9200. Note the pronounced effect in HDT via a reinforcing characteristic, while the balance of properties remains intact.

The apparent reinforcing capabilities of the zinc carboxylate salt derived from modification of neat PP was similarly observed in a 30% glass-filled (sized for polyolefins) system. Figure 2 depicts the changes in a typical property set for a 30% glass-filled PP modified with Dymalink 9200.



Material	Yield Strength (MPa)	Tensile Strength (MPa)	Elongation (%)	Modulus (GPa)	HDT (°C)
PP+GF	45.1	49.1	5	2.1	162.6

Figure 2: Typical change in property set of PP filled with 30% glass fiber and modified with Dymalink 9200. Note the synergistic effect on modulus, HDT, yield strength, and tensile strength.

Resin Solutions

Resin Solutions, is the premier global supplier of specialty chemical additives, hydrocarbon specialty chemicals, and liquid and powder tackifying resins used as ingredients in adhesives, rubbers, polymers, coatings and other materials. Resin Solutions has pioneered the development of these advanced technologies, introducing products that enhance the performance of products in energy, printing, packaging, construction, tire manufacture, electronics and other demanding applications.

For more information, please visit **www.resinsolutions.com.**

* The information herein was developed on a laboratory-scale 20 mm twin-screw extruder; property nuances are expectedwhen translating to production-scale equipment. The product discussed herein may be considered commercial; however, Resin Solutions reserves the right to discontinue the product at any time.

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