

## Hybrid Plastics MS0825 Nanoreinforced<sup>®</sup> POSS<sup>®</sup> Polypropylene

Category : Polymer , Thermoplastic , Polypropylene (PP)

### Material Notes:

Nanoreinforced<sup>®</sup> polypropylene utilizes POSS<sup>®</sup> technology to achieve, increased hydrophobicity, lower coefficient of friction and improved processability through structural control at the nanometer level. These enhancements can be realized in any grade of PP and are controlled by the nanoscopic size and reliable dispersion of POSS cages throughout the resin. Enhanced hydrophobicity: The hydrophobic properties of POSS<sup>®</sup> synergistically combines with PP morphology to create a nano-rough surface that is both hydrophobic and low friction. The technique is ideally suited to masterbatching. Enhanced hydrophobicity is observed by water contact angle differences for PP and Nanoreinforced<sup>®</sup> PP. Water contact angle increases with POSS<sup>®</sup> content, and follows standard rules of mixing when let down from a masterbatch. A Low Friction Surface results at the nanometer scale. A four times increase in surface roughness is caused by the POSS<sup>®</sup> cages. This effectively reduces the contacted surface area, leading to a significant decrease in coefficient of friction. Coefficient of friction ( $\mu$ ) decreases of 60% can be realized by incorporation of POSS and can be controlled by the let down of a masterbatch. For example: PP  $\mu$  = 0.17, 5% POSS<sup>®</sup> PP =  $\mu$  0.14, 10% POSS<sup>®</sup> PP  $\mu$  = 0.07, Teflon<sup>®</sup>  $\mu$  = 0.03. Faster processing results from a lubricity effect that is imparted by the POSS and increases melt flow and decreases the screw torque required during compounding and during masterbatch let down. Suggested Applications as a low-cost replacement for fluorinated and silicone resins.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Hybrid-Plastics-MS0825-Nanoreinforced-POSS-Polypropylene.php](http://www.lookpolymers.com/polymer_Hybrid-Plastics-MS0825-Nanoreinforced-POSS-Polypropylene.php)

Physical Properties	Metric	English	Comments
Melt Flow	25 g/10 min	25 g/10 min	5% POSS <sup>®</sup> in PP
	30 g/10 min	30 g/10 min	10% POSS <sup>®</sup> in PP

Mechanical Properties	Metric	English	Comments
Coefficient of Friction	0.070	0.070	10% POSS <sup>®</sup> in PP
	0.14	0.14	5% POSS <sup>®</sup> in PP

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