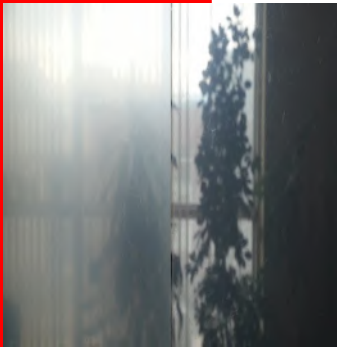


IMPORTANT FEATURES

- MORE TRANSPARENT PRODUCTS
- LESS CYCLE TIME
- SURFACE ABRASION RESISTANCE
- BRIGHT SURFACE
- REDUCE SHEARS
- LOW DOSAGE
- MORE IMPACT RESISTANCE



POLYPROPYLENE NUCLEATING AGENT

SMART LA NU 11066A

Polypropylene, like many other polymers, is a semicrystalline polymer that contains amorphous and crystalline regions. When the polypropylene starts to crystallize from the molten state, small nuclei are formed at the beginning of the phase transformation. Once these simple nuclei have occurred, they can reach the macro spherical dimension, and the resulting crystals are called spherulites. The use of nucleating agents provides higher nuclei density, which allows for greater number of spherulites during cooling of the melt. Whereas, in non-nucleic polypropylene, spherulites are typically fewer and

larger.

Nucleating agents increase physical and mechanical properties, hardness and impact

strength of polypropylene. Improving the mechanical properties makes it possible to lighten the parts in general and make them thinner.



With the use of the nucleating agent, the cycle time in the injection process is reduced and the number of parts production increases. When the nucleating agent is used, the rate of crystallization of polypropylene increases. Fast and isotropic crystallization allows the polypropylene to solidify more rapidly, and with a higher crystallization, the molding cycle at the injection is accelerated. The

pigments used in polypropylene have a great effect on crystallization during molding and also cause dimensional stability problems such as distortion. Distortion (especially phthalate group pigments) caused by some pigments are prevented by the use of nucleating agent. Isotropic spherulites are formed and the distortions are reduced. The erosion of the product surface will be increased and the brighter surface will be formed. The polypropylene homopolymer has two phases. Alpha and Beta phases. With the Beta nucleating agent, the cooling rate can be increased and the mechanical properties improved. The cooling rate of the polypropylene homopolymer with the alpha nucleation agent increases the physical and chemical properties as well as the transparency.

NUCLEATING AGENT BROCHURE SMART LA NU 11066A APPLICATIONS



Figure 1a: Natural PPH processed under normal conditions, does not contain additive.



Figure 1b: Natural PPH contains 0.5% of the nucleating agent SMART LA NU 11066A.

**“FIGURE 1a, 1b,
2 and 3 and
0,5% SMART LA
NU 11066A
added PPH
products are
seen”**

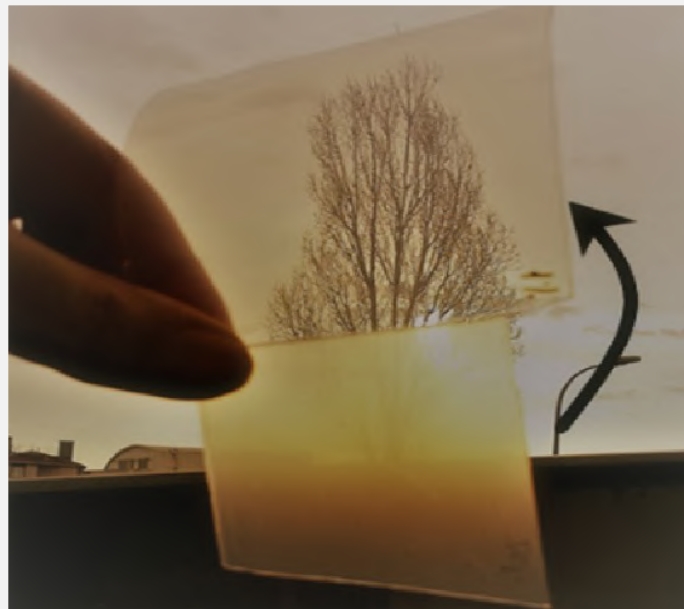


Figure 2:

With the addition of 0.5% SMART LA NU 11066A to the natural PPH, haze was reduced by 21%.



Figure 3: Addition of 0.5% SMART LA NU 11066A to Natural PPH.

REGULATORY INFORMATION

Our company can formulate custom color masterbatch in accordance with a number of regulatory guidelines; **MSDSRequest** 2D Chemicals can provide a MSDS upon request for any color masterbatch produced. To request a MSDS, please contact us. **Bisphenol A** We can formulate masterbatches and certify that the product is free of intentionally added Bisphenol A (BPA). **Deca BDE** We can formulate masterbatches and certify that the product is free of intentionally added Decabromodiphenyl ether (DecaBDE). **EU Food Contact Compliance** We can formulate masterbatches and certify that the pigments, additives and polymers in the product comply with EU Directive 2002/72/EC relating to plastic materials or articles intended to come into contact with foodstuff. **EU Packaging Directive** We can formulate masterbatches

and certify that the product complies with European Directive 94/62/EC on packaging and packaging waste. **FDA** We can formulate masterbatches and certify that the pigments, additives and polymers in the product comply with the appropriate section under Title 21 of the Code of Federal Regulations for their intended conditions of use. **Phthalates** We can formulate masterbatches and certify that the product is free of intentionally added phthalates. **REACH-SVHC** We can formulate masterbatches and certify that the product complies with REACH regulations regarding Substances of Very High Concern (SVHC). **RoHS** We can formulate masterbatches and certify that the product complies European Directive 2002/95/EC – RoHS. Restriction of Certain Hazardous Substances.



INFORMATION IN THIS BULLETIN ARE BASED ON OUR PRESENT KNOWLEDGE. HOWEVER, IT IS PROVIDED WITHOUT ANY WARRANTY AND SHALL BE USED ONLY AS A GUIDE.

*Catch the Future's Innovation
Today with SMARTLC&A® ...*

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2D Chemical, develops, produces and sells colorants and additives for the plastic industry. Our ruling principal is to work with leading and best raw material manufacturers and suppliers in the world that can meet our different and professional vision.

Our industry knowledge and experience is for more than 20 years and we believe customer-oriented company aims to have maximum customer satisfaction.

We have modern manufacturing techniques that gives us flexibility for small batch orders as well as large orders.

2D Chemical cares about innovation, it takes quality as its philosophy of life and grows with its customer and partners by increasing market value and profitability.

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