

Date: Nov 19, 2009

Technical Note

"EQUATE Polyethylene Products are TNPP-Free"

EQUATE Polyethylene products have been designed to fulfill all markets and regulations requirements. Effective October 1, 2009, All EQUATE polyethylene products are free of Tris-nonylphenylphosphite (TNPP) additive system. The TNPP has been replaced by equally potent additive system that will not have any negative impact on product quality and performance. TNPP additive system is a successful phosphite stabilizer for polyethylene products due to its excellent price/performance ratio and its good compatibility in Polyethylene rheology. As a response to ecological concerns surrounding some chemistries with similarities to nonylphenol, some organizations that serve the consumer market have taken the cautious step of removing stabilizers based on nonylphenol from their products. This has created a need for EQUATE to devise new environmentally friendly formulation which is able to meet the requirements of those markets that require TNPP free products. EQUATE continues to apply the same stringent quality standards in making its PE products with the new additive system. Figures 1 and 2 below compare oxidation induction time (OIT) and yellowness index (YI) - just two of many properties - of the old TNPP based and the new additive system for both LLDPE and HDPE products. The new formulation is clearly superior to the old TNPP based formulation. As a matter of policy, all EQUATE Polyethylene products meet latest FDA and EC regulations for food contact use.



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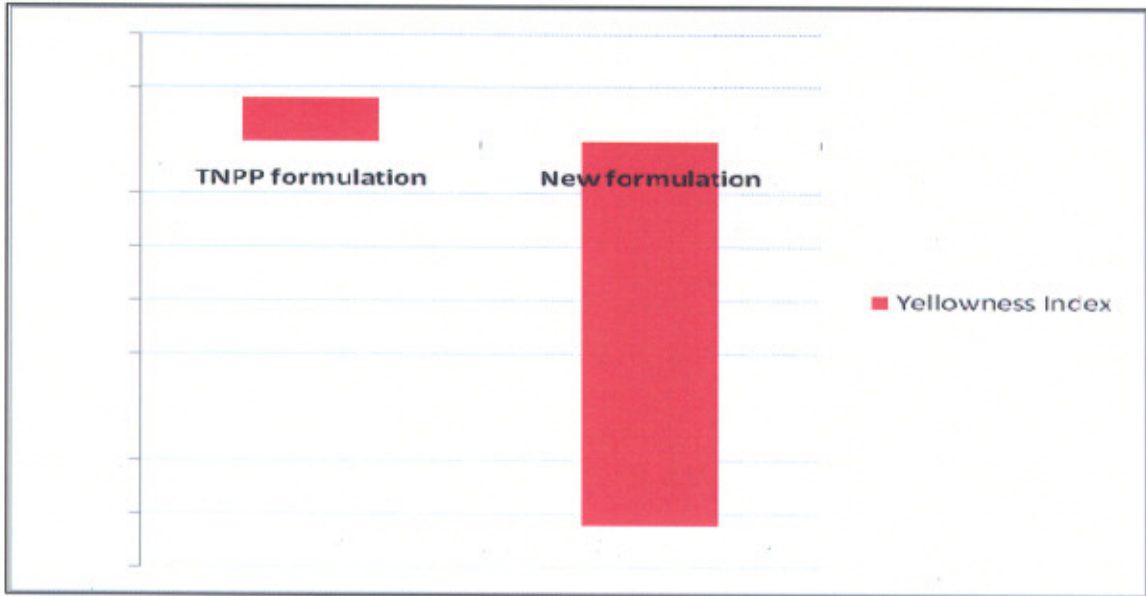


Figure 1: Yellowness Index (YI)

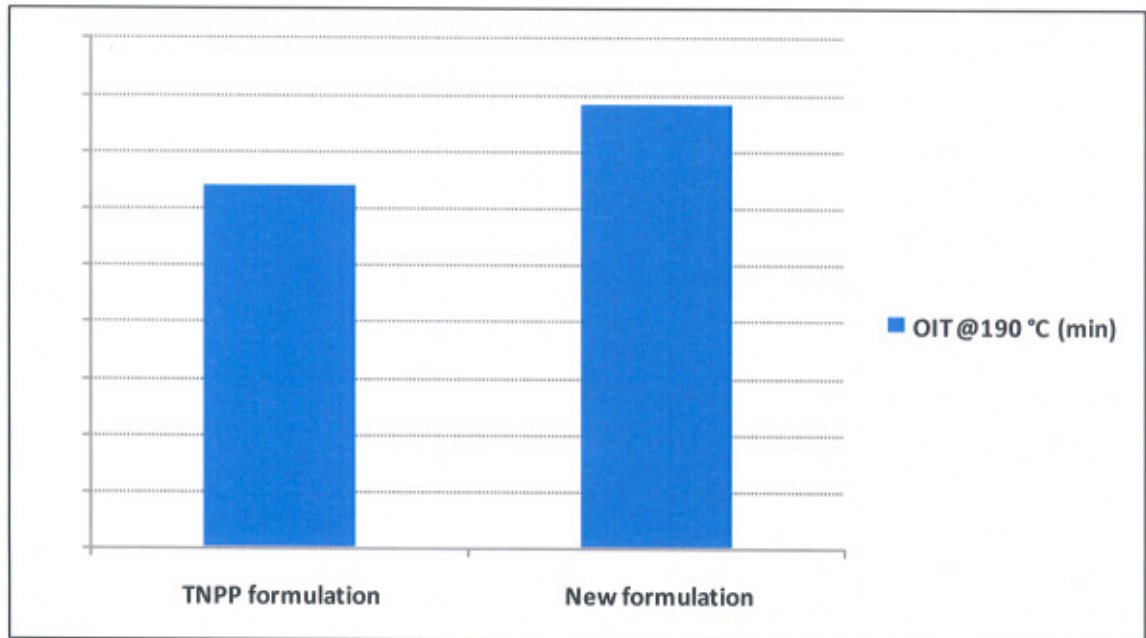


Figure 2: Oxidation Induction Time (OIT) @ 190 °C