

Third Laureate Research & Development



- **Project title:** Know-How Development and Production of Random Copolymer Polypropylene Pipe Grade for Hot and Cold Water Transfer
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Abstract:

The most important morphological characteristics of this random copolymer pipe grade are: broad MWD, proper ethylene bonding and highly random distribution of ethylene in PP backbones. For random copolymer pipe grade production in PP plant of Shazand Petrochemical Complex which operates with just one loop reactor, the only solution is utilizing proper catalyst/internal donor/external donor system. This catalytic system should be capable of producing broad MWD polymer, high ethylene incorporation (~%3.8 %4 wt.) with random distribution in backbones. The latter enhances the impact properties of the resin to pass standard regulation tests. In this regard, the polymerization tests in lab and pilot scales showed that the best internal donor was a mixture of phthalate and succinate esters, and the optimum external donor was D-alkoxysilane. In accordance with the plant PDP documents and operational experience, the know-how of production in polymerization and additive extrusion sections was codified and developed. Heretofore 7 KT of this grade has been produced in the industrial plant which has similar characteristics as Basell grade; HOSTALEN PP5416. The product has food contact certificate from PIRA, EXOVA certificate for passing the tests in accordance with ASTM F 2389, Iranian building and housing research center certificate, and congratulatory scroll from licensor; Basell.