

聚丙烯 (PP)

Polypropylene (PP)

聚丙烯是以丙烯 ($\text{CH}_3\text{—CH=CH}_2$) 为单体, H_2 为分子量调节剂, 通过聚合反应得到的合成树脂, 存在等规、无规和间规三种不同立体结构。

聚丙烯不含极性基团, 具有优良的电绝缘性能, 吸水率小于 0.01%; 为半结晶性聚合物, 具有优良的化学稳定性, 除强氧化剂外, 对大多数化学药品都是稳定的, 无机酸、碱、盐的溶液对聚丙烯几乎无破坏作用。

聚丙烯具有优异的延展性、抗弯曲疲劳性能和耐热性能, 比重轻, 聚丙烯熔点在 165°C 左右, 抗张强度和表面硬度较高, 连续使用温度可达 120°C , 耐环境应力开裂性能好。

Polypropylene is a synthetic resin made by polymerization of propylene ($\text{CH}_3\text{—CH=CH}_2$) with H_2 as the molecular weight modifier. There are three stereoisomers of PP – isotactic, atactic and syndiotactic.

PP contains no polar groups and has excellent electrical insulation properties. Its water absorption rate is less than 0.01%. PP is a semi-crystalline polymer with good chemical stability. It is stable to most chemical except strong oxidizers. Inorganic acid, alkali and salt solutions have almost no damaging effect on PP.

PP has good heat resistance and low density. Its melting point is at around 165°C . It has high tensile strength and surface hardness and good environmental stress crack resistance. It can withstand 120°C continuously.

主要用途

聚丙烯用途广泛多样, 可用注塑、挤塑、吹塑和中空成型等方法进行加工, 广泛应用于纺织、包装、家电、汽车和建筑等行业。

中国石化采用不同工艺技术的装置可生产出各具特色的均聚、无规共聚和抗冲共聚聚丙烯产品, 用于生产 BOPP 薄膜、CPP 薄膜、纤维、管材、涂覆、拉丝和各种注塑产品, 满足客户的不同需求。

Applications

PP has a variety of applications. It is suitable for multiple processing methods such as injection molding, extrusion molding and blow molding and is widely used in the textile, packaging, electrical household appliances, automobile and real estate industries.

Sinopec PP plants have varied technologies to produce homopolymer, random copolymer and impact copolymer PP with distinct properties. These products include BOPP film, CPP film, fiber, pipe, coating, yarn and injection-molding products.

中国石化是中国最大的聚丙烯树脂生产商, 生产能力达 505 万吨/年, 目前拥有 25 套连续法聚丙烯生产装置 (包括在建装置), 分别采用日本三井的 HYPOL 工艺、Amoco 公司的气相法工艺、Basell 的 Spheripol 与 Spherizone 工艺、Novolen 气相法工艺等。中国石化自行开发了国产第二代环管工艺聚丙烯生产技术, 拥有雄厚的科研开发实力。

Sinopec is the largest PP producer in China with the capacity of 5.05 million tons/a. The company currently has 25 PP plants by the continuous process (including those under construction). Technologies used by these units include Mitsui Chemical's HYPOL process, Amoco's gas phase process, Basell's Spheripol and Spherizone process and Novolen's gas phase process. With its strong scientific research capability, Sinopec has independently developed a second-generation loop-process for PP production.