

低密度聚乙烯 (LDPE)

Low-density polyethylene (LDPE)

低密度聚乙烯是高压下乙烯自由基聚合而获得的合成树脂，故又称“高压聚乙烯”。由于分子链中含有较多的长短支链，因此产品密度较小，柔软，耐低温性、耐冲击性较好；具有良好的化学稳定性，除强氧化酸外，一般情况下耐酸、碱、盐类的腐蚀作用，具有优异的电绝缘性能，水蒸气透过率低，流动性好，具有良好的成型加工性能，适合注塑、挤塑、吹塑、旋转成型、涂覆、发泡工艺、热成型、热风焊、热焊接等热塑性成型加工的各种工艺。

Low-density polyethylene (LDPE) is a synthetic resin using a high pressure process via free radical polymerization of ethylene and is therefore also called “high-pressure polyethylene”. Since its molecular chain has many long and short branches, LDPE is less crystalline than high-density polyethylene (HDPE) and its density is lower. It features light, flexible, good freezing resistance and impact resistance. LDPE is chemically stable. It has good resistance to acids (except strongly oxidizing acids), alkali, salt, excellent electrical insulation properties. Its vapor penetration rate is low. LDPE has high fluidity and good processability. It is suitable for being used in all types of thermoplastic processing processes, such as injection molding, extrusion molding, blow molding, rotomolding, coating, foaming, thermoforming, hot-jet welding and thermal welding.

主要用途

低密度聚乙烯主要用于做薄膜产品，在农业用薄膜（如地面覆盖薄膜、大棚膜等）、包装用膜（可用于糖果、蔬菜、冷冻食品等包装）、液体包装用吹塑（涂覆）薄膜（可用于牛奶、酱油、果汁、豆腐、豆奶等包装）、重包装袋、收缩包装薄膜、弹性薄膜、内衬薄膜、建筑用薄膜以及一般工业包装薄膜和食品袋等方面有广泛的应用；低密度聚乙烯还用于电线电缆绝缘和护套，经过交联的低密度聚乙烯是高压电力电缆绝缘层的主要材料；此外，低密度聚乙烯还用于注塑制品，如塑料花、医疗器具、药品和食品包装材料；挤塑成型管材、板材、异型材等制品；低密度聚乙烯也可用于生产吹塑成型中空制品，如食品容器，药物、化妆品、化工产品的容器，槽罐等。

Applications

LDPE is principally used for making films. It is widely used in the production of agricultural film (mulching film and shed film), packaging film (for use in packing candies, vegetables and frozen food), blown film for packaging liquid (for use in packaging milk, soy sauce, juice, bean curds and soy milk), heavy-duty packaging bags, shrinkage packaging film, elastic film, lining film, building-use film, general-purpose industrial packaging film and food bags. LDPE is also widely used in the production of wire & cable insulation sheath. Cross-linked LDPE is the main material used in the insulation layer of high-voltage cables. LDPE is also used in the production of injection-molded products (such as artificial flowers, medical instruments, medicine and food packaging material) and extrusion-molded tubes, plates, wire & cable coatings and profiled plastic products. LDPE is also used for making blow-molded hollow products such as containers for holding food, medicine, cosmetics and chemical products, and tanks.

中国石化是国内最大的低密度聚乙烯生产商，2008年产能占国内产能的67%，产品类别齐全、牌号众多，基本覆盖了低密度聚乙烯全部应用领域，包括普通膜料、高透明膜料、重包装膜料、收缩膜料、流延膜料、注塑料、涂覆料、电缆料等总计约96个牌号的产品。

Sinopec is China's largest LDPE producer. In 2008, its LDPE capacity accounted for 67% of the country's total capacity. The company is able to produce a full product portfolio of LDPE products in all fields. The company produces around 96 grades of LDPE products for general-purpose film, highly transparent film, heavy-duty packaging film, shrinkable film, injection molding, coatings and cables.

主要生产企业及工艺列表

Manufacturers and Processes

生产企业 Manufacturers	所在地 Locations	产能 (万吨/年) Design Capacity (10,000 Tons/a)	工艺技术 Processes	企业认证 Certifications	
				质量管理体系 Qualification Management System	HSE管理体系 HSE Management System
燕山分公司 Yanshan Petrochemical	北京 Beijing	18	日本住友釜式法 Autoclave Process of Japan Sumitomo Chemical	ISO 9001	GB/T 19001-2000
		20	美国EXXONMOBIL管式法 Loop Process of US Exxon Mobil		
齐鲁分公司 Qilu Petrochemical	淄博 Zibo	14	荷兰国家能源管式法 Loop Process of Netherlands Essent	ISO 9001	GB/T 19001-2000
上海石化 Shanghai Petrochemical	上海 Shanghai	8	日本三菱油化管式法 Loop Process of Japan Mitsubishi Petrochemical	ISO 9001	GB/T 19001-2000 GB/T 24001-2004 GB/T 28001-2001
		8	日本三菱油化管式法 Loop Process of Japan Mitsubishi Petrochemical		
茂名分公司 Maoming Petrochemical	茂名 Maoming	10	美国匡藤管式法 Loop Process of US Quantum Chemical	ISO 9001	GB/T 19001-2000
		25	巴塞尔管式法 Loop Process of Basell		
扬巴石化 BASF-YPC	南京 Nanjing	40	巴塞尔管式法 Loop Process of Basell	ISO 9001	GB/T 28001-2001 GB/T 24001-2004 GB/T 19001-2000