

## Description

Not only are PE plastics widely used in the packaging and building sectors, but they are also increasingly important as a material for semi-finished technical products. The range of types extends from low density polyethylene (PE-LD) to ultra-high molecular weight polyethylene (PE-UHMW). The common features worth mentioning are their favorable price, large impact resistance and good chemical stability. All types of PE have a partly crystalline structure. They belong to the poly-olefin group.

## PE Types

### PE-LD (soft polyethylene)

Low density PE, produced by high pressure polymerization process 0.915 – 0.94 g/cm<sup>3</sup>

### PE-HD (hard polyethylene)

High density polymerised PE produced by the Ziegler low pressure process 0.94 – 0.965 g/cm<sup>3</sup>. Within these types of PE-HD, a “refinement” is achieved by increasing the molecular weight. This produces the following advantages:

- Improving chemical stability
- Improving notch impact resistance
- Improving wear resistance
- Improving high and low temperature stability
- Improving UV and weathering stability

Accordingly, we divide PE-HD (hard polyethylene) into the following three groups:

- PE-HD / hard polyethylene
- PE-HMW / high molecular hard polyethylene
- PE-UHMW / ultra-high molecular hard polyethylene

## Characteristics of LD and HD polyethylene

- ✓
- ✓ Low density
- ✓ High tenacity and ultimate elongation
- ✓ Good low temperature tenacity (—50°C)
- ✓ Non-stick surface properties
- ✓ Very low moisture absorption
- ✓ Very good chemical stability
- ✓ Very good dielectric properties
- ✓ Un-dyed, non-toxic and physiologically innocuous
- ✓ Inflammable (without developing smoke or toxic fumes)
- ✓ Inexpensive