

Abstract**Polyethylene for Pipes**

The present invention provides a process for the preparation of a multimodal polyethylene comprising: (i) polymerising ethylene and optionally an α -olefin comonomer in a first polymerisation stage to produce a first ethylene polymer; and (ii) polymerising ethylene and optionally an α -olefin comonomer, in the presence of said first ethylene polymer, in a second polymerisation stage, wherein the first and second polymerisation stages are carried out in the presence of an unsupported metallocene catalyst and each polymerisation stage produces at least 5 %wt of the multimodal polyethylene, and the multimodal polyethylene has a multimodal molecular weight distribution, a molecular weight of at least 50,000 g/mol and a bulk density of at least 250 g/dm³, and wherein a solution of the unsupported metallocene catalyst in a solvent is employed. The present invention also provides a multimodal polyethylene, a process for preparing a pipe comprising preparing a multimodal polyethylene and extruding the multimodal polyethylene to produce a pipe, and a pipe obtained by such a process.

Figure 1