POLYMERIZATION CATALYSTS

Description
Microspherical polymerization catalysts prepared by a universal technology can be used to produce various types of polyethylene and polypropylene differing in chemical composition, morphology, texture, and particle size. A range of ICT-8 supported catalysts has been developed with a controlled average particle size of 3 to 80 µm and a narrow particle size distribution meeting the requirements of various polymerization processes (slurry, gas-phase, liquid-phase). The high activity of the catalysts allows one to vary polymer characteristics (molecular weight, molecular-mass distribution, copolymer composition and homogeneity) over wider ranges and to produce advanced polyolefins.

Technical appraisal and economic benefits
The catalysts provide:
• a three- to fourfold increase in polypropylene yield per 1 g of catalyst;
• increase in polyethylene yield up to 200-1000 kg per 1 g of transition metal;
• a twofold reduction in the production cost of ultrahighmolecular-weight (UHMW) polyethylene;
• production of polymers with high bulk density, a low ash content, and a narrow particle size distribution.

Application areas
Production of molded and extruded polyethylene brands (of high and low density), production of ethylene copolymers with a-olefins (supported catalysts of the ICT-8-n series, including ICT-8-12, ICT-8-13, ICT-8-15, ICT-8-18, ICT-8-20).
Production of various brands of isotactic polypropylene and propylene-ethylene block-copolymers (ICT-8-5 and IC-8-21).

Development stage
Full-scale production of ICT-8-5 in Russia and abroad (under a BIC license). The catalyst provides for almost 50% of the domestic polypropylene output and is used in some European countries. Pilot-plant production of ICT-8-n catalysts.
Pilot-industrial production of UHMW polyethylene.
**Patent situation**

**Commercial offers**
Sale of licenses.
IKT-8-5 catalyst supply.

**Estimated Cost**
To be negotiated.

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