

## New and highly active catalysts for the polymerisation of beta-olefin derivatives

### About technology

The technology offered is the synthesis of novel chromium (III) picolinate and dipicolinate complex compounds. The innovative, newly obtained non-metallocene chromium (III) complexes show very high catalytic activity in the polymerisation of beta-olefin derivative. The calculated catalytic activity for the new catalysts is  $2609.86 \text{ g} \cdot \text{mmol}^{-1} \cdot \text{h}^{-1}$  for  $[\text{Cr}(\text{dipic})_2][\text{Cr}(\text{bipy})(\text{dipic})\text{H}_2\text{O}] \cdot 2\text{H}_2\text{O}$ ,  $2254.57 \text{ g} \cdot \text{mmol}^{-1} \cdot \text{h}^{-1}$  for  $[\text{Cr}(\text{dipic})_2]\text{Hdmbipy} \cdot 2.5\text{H}_2\text{O}$  and  $1434.33 \text{ g} \cdot \text{mmol}^{-1} \cdot \text{h}^{-1}$  for  $[\text{Cr}(2\text{-pic})_2(\text{OH}_2)_2]\text{NO}_3$ .

The proposed **polymerisation process** involves **newly synthesised catalysts** and developed catalytic procedures at room temperature, under atmospheric pressure. The synthesis of the new compounds is cheap, easy and efficient. The new catalysts can be used in the **metathesis of olefins** and their derivatives. The metathesis reaction allows the synthesis of many new chemicals with different properties. The technology shows potential for industrial use as **catalysts** in the **polymerisation of beta-olefin derivatives**, which are used in the **production of adhesives, hydrogels**, substances used in the chemical industry, coatings and elastomers.



TRL 4

### Research Team

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### IP Protection

The invention is the subject of patent protection:

- Pat.238757, UPRP,
- Pat.238758, UPRP.

### Implementation progress

**TRL 4** –Technology validated in laboratory conditions

### Cooperation opportunities

- Licensing agreement
- Transfer of ownership
- Spin off

