

Cycloolefin Polymerization

Walter Kaminsky¹, Laura Boggioni², Incoronata Tritto², Syarifah N.Aqida³

¹University of Hamburg, Hamburg, Germany;

²National Research Council, Milan, Italy;

³Universiti Malaysia Pahang, Pekan, Pahang, Malaysia

ABSTRACT

Highly active metallocenes and other single-site catalysts as well as Grubbs and Schrock metathesis systems have opened up the possibility to polymerize cycloolefins or to copolymerize them with ethene or propene. The polymers obtained show exciting structures and properties. The cycloolefins such as cyclopentene, cyclooctene, norbornene, and their substituted compounds are incorporated into the polymer chain either by double bond or by ring-opening metathesis polymerization (ROMP). Materials with elastomeric properties or tactic polymers with high glass transitions and melting points are obtained depending on the wide range of different microstructures. Cycloolefin copolymers (COCs) and other homo- and copolymers of norbornene are of great academic and industrial interest because of their properties and applications in optoelectronics, lenses, and coating.

KEYWORDS

Cyclo copolymers; Cycloolefin; Cyclopentadiene; Cyclopentene; Cyclopentene copolymers; Metallocene catalysts; Norbornene; Norbornene copolymers; Polycyclopentene; Polynorbornene

DOI: <https://doi.org/10.1016/B978-0-12-803581-8.11675-3>

