

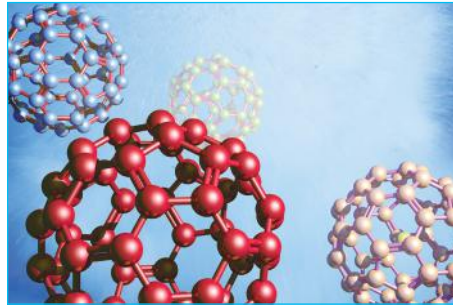
# Fullerenes: Fighting friction - Improving mechanical properties

Cooperation of **Connect Chemicals** and **Nanopolymer** provides a unique access to high quality fullerenes on an industrial scale

Fullerenes are spherical shaped nano-sized carbon modifications (C60) that are used as high performance additives for thermoplastic polymers and composites. Fullerenes are produced by pyrolysis of graphite under a helium atmosphere, giving fullerene soot as a raw material that contains up to 15% fullerenes (C60, C70, higher types). **Nanopolymer** has developed a unique patented production and extraction process that gives access to all types of Fullerenes on industrial scale and opens new possibilities for this unique nanomaterial.

Their ball-like structure (Buckyballs) gives Fullerenes unique physical and chemical properties when compared to other nanomaterials like Carbon Nano Tubes (CNT):

- High mechanical stability C60 keeps its spherical shape under extreme high pressure (up to 20 GPa) extremely potent low-friction additive
- Low electrical conductivity isolated molecules
- Easy to disperse, easy to incorporate into polymers Fullerenes can react with e.g. amino-groups in Epoxy-hardeners, thus are



chemically bound into the final product

- Easy to modify giving access to tailor-made products  
Applications of Fullerenes are widely known in literature and industry :
- Modified PA6 for low-friction, high wear resistant conveyor rollers Friction coefficient is reduced by up to 50%
- Fullerene-filled epoxy/carbon fiber composite for higher matrix/fiber binding giving tougher composite materials with increased impact strength, higher Young's modulus and higher tensile strength

- Fullerene-modified lubricants for high-pressure applications

**Connect Chemicals** is the exclusive distribution partner for these high-value, high-performance nanomaterials from Nanopolymer. With offices and partners all over the world, your local Connect Chemicals sales representative will gladly answer all your questions.



Person in Charge: Dr. Christian Beierlein

E-Mail: [fullerenes@connectchemicals.com](mailto:fullerenes@connectchemicals.com)

Web: [www.connectchemicals.com](http://www.connectchemicals.com)

