

Production Polycaprolactone (PCL) is a biodegradable plastic produced on the basis of petroleum. It consists of a sequence of methylene units, between which ester groups are formed.

Fabrication and properties Through this very simple structure a slightly limited rotation of the individual chain segments is possible, leading to a very low glass transition point. At room temperature short-chained, amorphous polycaprolactone is correspondingly soft and rubberlike. Because of the uniform structure, however, it is easily crystallized, resulting in the strengthening of the material. Crystalline polycaprolactone resembles polyethylene in crystal structure.

PCL is highly miscible and combines well with other plastics as well as with lignin and starch. In addition, it adheres well to a large number of surfaces. It is easily fabricated, easily melted and is non-toxic.

Applications and economical aspects Besides packaging materials, PCL is used above all in the medical sector. In this field, it is used for timed release of medications, medical adhesives and orthopedic castings. The price range for the materials is between €4.50 and €6.00 per kg.

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