

The main components of the plastics of this material category are dicarboxylic acids and diols.

Primarily bio-based 1,3-propanediol (PDO) or 1,4-butanediol (BDO) are used, while the dicarboxylic acid is also either bio-based or is a petrochemical product.

The following three polymers are synthesized on a large industrial scale from these basic monomers.

Polymer

Handelsname

Biobasierte Monomere

Polytrimethylenterephthalat (PTT)

Sorona

PDO

Polybutylensuccinat (PBS)

Bionolle 1000

BDO

Succinic acid

Polybutylensuccinatadipat (PBSA)

Bionolle 3000

BDO

Succinic acid

Adipic acid

Polybutylenadipatterephthalat (PBAT)

Ecoflex

BDO

Adipic acid

The polymers are thermoplastic and in terms of applicability scarcely differ from the petrochemical plastics so that they can be used on the existing fabrication machines for plastics. The properties of the materials are comparable with those of industrial plastics such as PA, PET or PC.

The disadvantage is the momentary low availability of the material, which, however, can be rapidly expanded by using the existing infrastructure for PET production. Because of the similar fabrication, the PET installations only require a minor modification to be retooled for PTT production.

The current market for PTT applications is rather small. PTT was developed on the basis of renewable raw materials primarily for the production of fibers for carpets and fabric for industrial applications. The packaging sector also represents a possible field of use.

With the introduction of the PTT materials from BioPDO onto the market, a market potential of 227,000 tons is predicted for the year 2020 on the basis of the production process. However, a large corporation, DuPont, stands behind the production process and is capable of increasing the capacity as needed. However, it is fundamentally possible to use the existing PET installations for the production of PTT because of the similar production process. The

production of PDO represents a bottleneck here, since it has to be set up separately.

According to the current state of knowledge, prices of €2.30/kg are realistic.

(Source: Ostfalia)