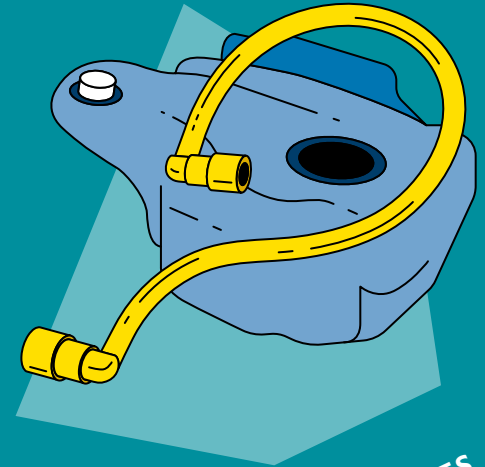


FROM GAS PIPE TO SPORTS SHOE

Thanks to its wide range of possibilities for processing, its compatibility with additives, and its susceptibility to chemical modification, PA 12 covers an extremely wide range of applications



1 HIGH-PERFORMANCE POLYMERS

This group of plastics comes into use where materials face special requirements, as they are distinguished by features such as an operating range of up to 300 degrees Celsius, for example in automaking, in space travel, and in medicine.
Price per kilogram: €10–250

2 ENGINEERING POLYMERS

If the requirements are not as high—for example, operation temperatures below 150 degrees Celsius—engineering polymers are used: for example, in machine construction, in industrial applications, and in beverage bottles (PET).
Price per kilogram: €5–12

3 STANDARD POLYMERS

Plastics from the lower segment are used for mass applications such as plastic bags, foams, and yogurt cups. Everyday products of this type are manufactured from standard plastics.
Price per kilogram: €3–8

DIVERSITY THANKS TO A TOOLKIT

The exact characteristics of PA 12 are set to match the requirements of the respective application by means of additives or chemical modification. The chemical, electrical, and mechanical properties of the material can be adapted in this way

Additives	Effect
Nanotubes	⚡ Provide electrical conductivity
Long glass fibers	↓ Increase stiffness
Teflon/graphite	↔ Improve sliding capability
Chemical modification	
Polymers	⚖ Increase hardness
Aromatics	🔥↑ Increase temperature resistance and raise melting point
Short amides	🔥↓ Lower melting point

AUTOMOBILES
e.g. fuel lines

< 0.5 million t

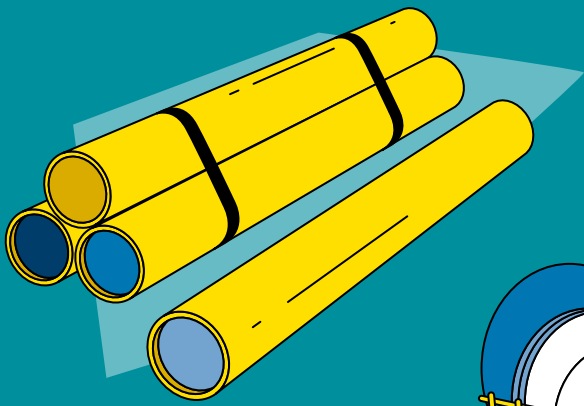
> 10 million t

> 200 million t

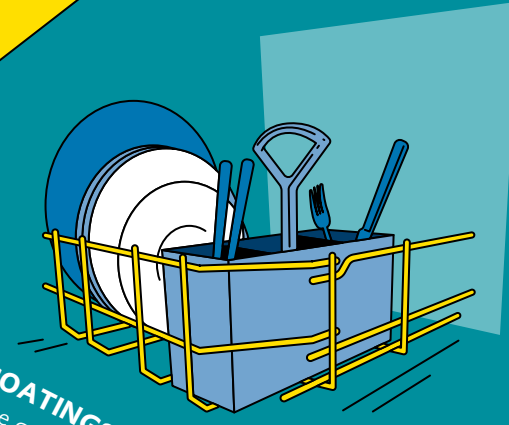
High-performance polymers such as PA 12 account for just around 0.25 of the global annual production of thermoplastics. Around 95 percent of the market is made up of low-priced standard plastics for mass-produced goods

BREAKDOWN BY PRODUCTION VOLUMES

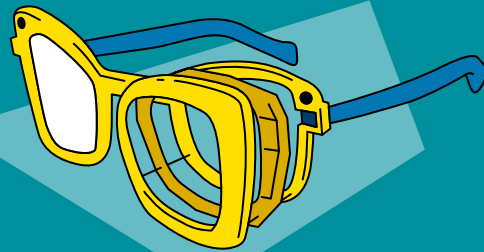
worldwide, in metric tons per year



OIL / GAS INDUSTRY
e.g. gas pipes



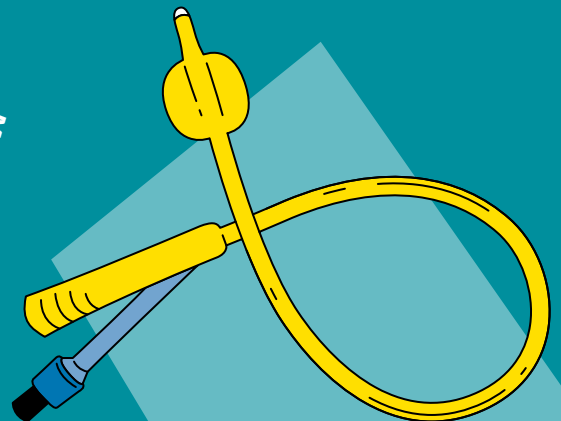
COATINGS FOR METAL
e.g. dishwasher baskets



3D PRINTING
e.g. eyeglasses frames

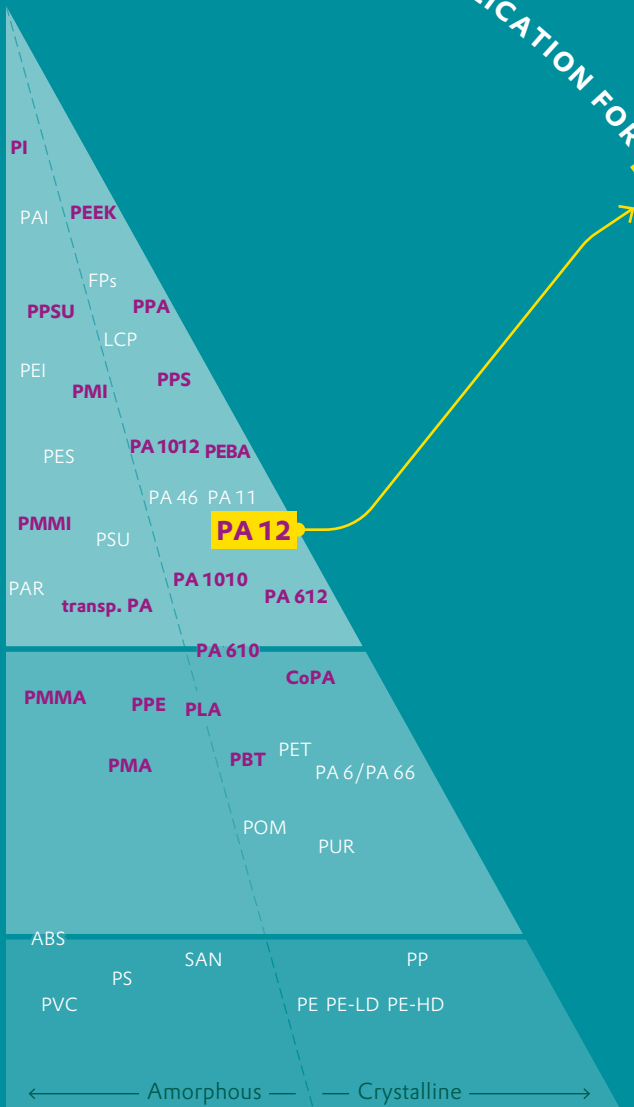


SPORT AND LEISURE
e.g. sports shoes



MEDICINE
e.g. catheter

AREAS OF APPLICATION FOR PA 12



BREAKDOWN ACCORDING TO TECHNICAL REQUIREMENTS

(Plastics from Evonik—not from Evonik)