

POM Sheet, Rod & Parts

Property

Product Name: POM.
Chemical Name and Synonym: Polyoxymethylene .
Material: CN LYG, Acetal, Delrin,

POM

Polyoxymethylene (POM), also known as acetal, polyacetal, and polyformaldehyde, is an engineering thermoplastic used in precision parts requiring high stiffness, low friction, and excellent dimensional stability.

POM is characterized by its high strength, hardness and rigidity to $-40\text{ }^{\circ}\text{C}$. POM is intrinsically opaque white because of its high crystalline composition but can be produced in a variety of colors. POM has a density of 1.410–1.420 g/cm³.

Homopolymer

To make polyoxymethylene homopolymer, anhydrous formaldehyde must be generated. The principal method is by reaction of the aqueous formaldehyde with an alcohol to create a hemiformal, dehydration of the hemiformal/water mixture (either by extraction or vacuum distillation) and release of the formaldehyde by heating the hemiformal. The formaldehyde is then polymerized by anionic catalysis, and the resulting polymer stabilized by reaction with acetic anhydride. Due to the manufacturing process, large-diameter cross-sections may have pronounced centerline porosity. A typical example is DuPont's Delrin.

Copolymer

The polyoxymethylene copolymer replaces about 1–1.5% of the $-\text{CH}_2\text{O}-$ groups with $-\text{CH}_2\text{CH}_2\text{O}-$.

To make polyoxymethylene copolymer, formaldehyde is generally converted to trioxane (specifically 1,3,5-trioxane, also known as trioxin). This is done by acid catalysis (either sulfuric acid or acidic ion-exchange resins) followed by purification of the trioxane by distillation and/or extraction to remove water and other active hydrogen-containing impurities. Typical copolymers are Hostaform from Celanese and Ultraform from BASF.

The co-monomer is typically dioxolane, but ethylene oxide can also be used. Dioxolane is formed by reaction of ethylene glycol with aqueous formaldehyde over an acid catalyst. Other diols can also be used.

Trioxane and dioxolane are polymerized using an acid catalyst, often boron trifluoride etherate, BF_3OEt_2 . The polymerization can take place in a non-polar solvent (in which case the polymer forms as a slurry) or in neat trioxane (e.g. in an extruder). After polymerization, the acidic catalyst must be deactivated and the polymer stabilized by melt or solution hydrolysis to remove unstable end groups.

Stable polymer is melt-compounded, adding thermal and oxidative stabilizers and optionally lubricants and miscellaneous fillers.

Jiangxi Beluns Plastics Co., Ltd. is a professional manufacturer of high performance plastics, fluoroplastics and general engineering plastics such as plates, bars, films and various special-shaped parts. The raw materials for plastic products can be processed according to the brand type specified by the customer. Extrusion, molding, turning, cnc processing are our main processing types. Products made from each material have different uses. Please contact us to select the appropriate plastic material for processing. Some of the data comes from the Internet, Understand if something is wrong

Applications

- Mechanical gears, sliding and guiding elements, housing parts, springs, chains, screws, nuts, fan wheels, pump parts, valvebodies.
- Electrical engineering: insulators, bobbins, connectors, parts for electronic devices such as televisions, telephones, etc.
- Vehicle: fuel sender unit, light/control stalk/combination switch (including shifter for light, turn signal), power windows, door lock systems, articulated shells.
- Model: model railway parts, such as trucks (bogies) and hand rails (handle bars). POM is tougher than ABS, comes in bright translucent colors, and is not paintable.
- Hobbies: radio-controlled helicopter main gear, landing skid, yo-yos, vaping drip tips, K'Nex, ball-jointed dolls, etc.
- Medical: insulin pen, metered dose inhalers (MDI).
- Food industry: Food and Drug Administration has approved some grades of POM for milk pumps, coffee spigots, filter housings and food conveyors.
- Furniture: hardware, locks, handles, hinges., rollers for sliding mechanisms of furnitures
- Construction: structural glass - pod holder for point
- Packaging: aerosol cans, vehicle tanks.
- Sports: paintball accessories. It is often used for machined parts of paintball markers that do not require the strength of aluminium, such as handles and reciprocating bolts. POM is also used in airsoft guns to reduce piston noise.
- Longboarding: puck material for slide gloves help the rider touch the road and lean on their hand to slow down, stop, or perform tricks.
- Clothing: zippers.
- Music: picks, Irish flutes, bagpipes, practice chanters, harpsichord plectra, instrument mouthpieces, tips of some drum sticks.
- Dining: fully automatic coffee brewers; knife handles (particularly folding knives).
- Horology: mechanical movement parts (e.g. Lemania 5100), watch bracelets
- Vapor/e-cigarette accessories: material used in the manufacturing of most "Drip Tips" (Mouthpiece).
- Tobacco products: The BIC Group uses Delrin for their lighters.
- Keyboard keycaps: Cherry uses POM for their G80 and G81 series keyboards.

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