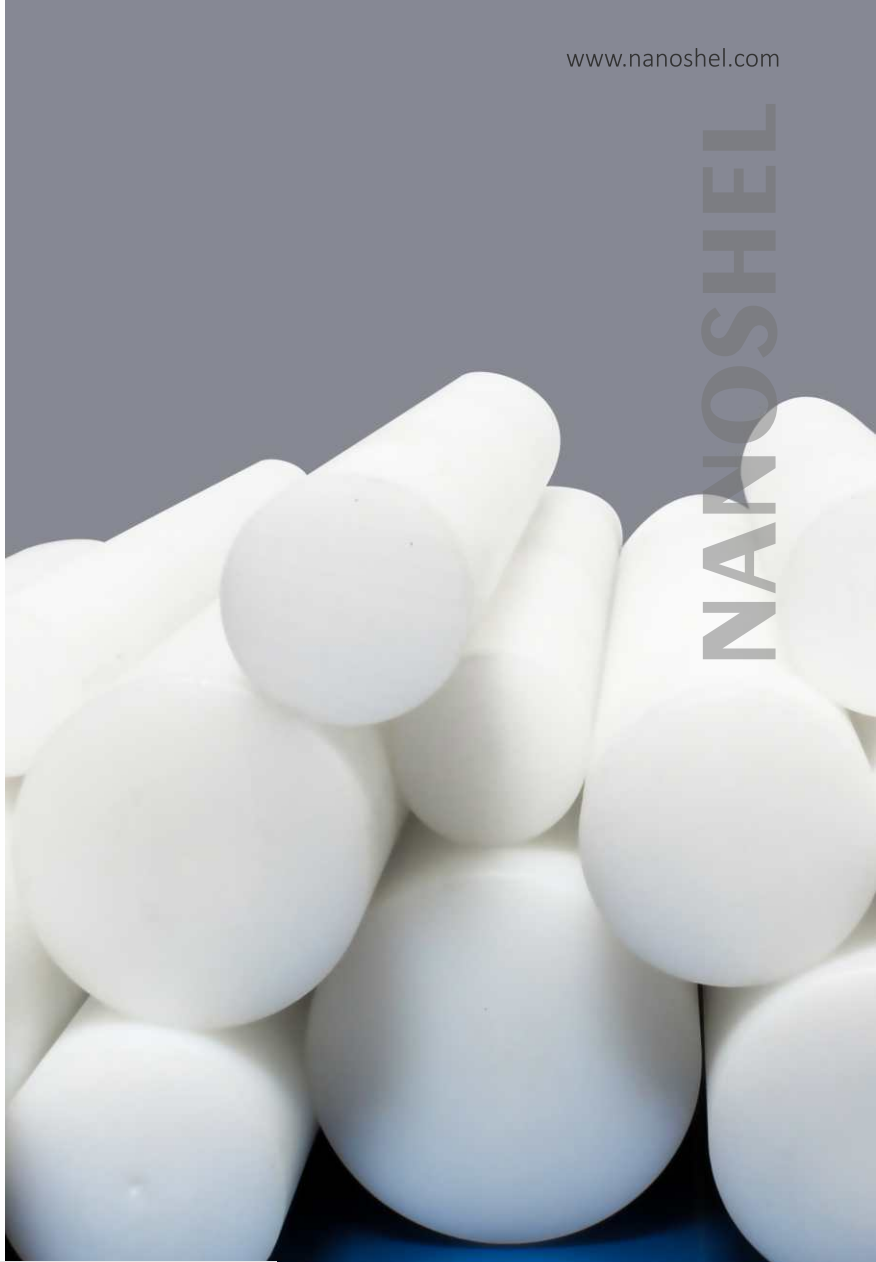




Ultra Polyethylene High Molecular Weight
(UHMWPE) Sheet & Rod

Engineered Polymer



NANOSHEL

UHMWPE Rods & Sheets



Make In India Initiative



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- ▶ Excellent wear resistance
- ▶ Good chemical resistance
- ▶ Excellent impact resistance at minus temperatures
- ▶ Available in Eco Friendly version made from organic raw materials
- ▶ Available with PTFE filler for extra low abrasion resistance

UHMWPE

Ultra Polyethylene High Molecular Weight

ENGINEERED POLYMER

In the last few decades, various bioabsorbable and stable biopolymers have been applied for use as biomedical devices in orthopedic applications. Ultra-high-molecular-weight polyethylene, otherwise known as UHMWPE, has been relied upon due to its very high ultimate tensile strength, good biocompatibility, corrosion resistance, low water uptake, a low coefficient friction, and high abrasion resistance. UHMWPE is odorless, tasteless, and nontoxic. Such properties define UHMWPE's use in many development areas and in medicine and biology, including the manufacture of artificial joints and implants for surgery and orthopedics.

- Linear type PE has branching chain loosely contain in one chain
- Mol.wt 2-4 million
- Due to high mol wt, show superior properties

Physical Properties

| Product | : | UHMWPE |
|---------------------|---|---------------|
| Molecule weight | : | 2-4(million) |
| MP | : | 125-135°C |
| Density | : | 0.93-0.94g/cc |
| Tensile yield | : | 19.3-23MPa |
| Elongation at break | : | 250-450% |
| Tensile modulus | : | 600-1500MPa |
| Shore d Hardness | : | 60-65 |

Size

| | | |
|--------|---|----------------------|
| Dia | : | 20-80mm |
| Length | : | 250mm, 500mm, 1000mm |

* We can also provide any other size as your special need.



UHMWPE

Medical Grade

Ultra-high-molecular-weight polyethylene, otherwise known as UHMWPE, has been relied upon due to its very high ultimate tensile strength, good biocompatibility, corrosion resistance, low water uptake, a low coefficient friction, and high abrasion resistance. UHMWPE is odorless, tasteless, and nontoxic. Such properties define UHMWPE's use in many development areas and in medicine and biology, including the manufacture of artificial joints and implants for surgery and orthopedics.



Technical Specification

| Formula | Density | Melting Point | Tensile Strength |
|----------------|-----------------------|---------------|------------------|
| $(CH_2CH_2)_n$ | 0.94g/cm ₃ | 146°C | 30-35Mpa |

Applications

- Implant
- Total Hip Replacement
- Knee Replacement
- Shoulder Replacement
- Ankle Replacement
- Small Joints
- Elbow replacement
- Spinal disk replacement

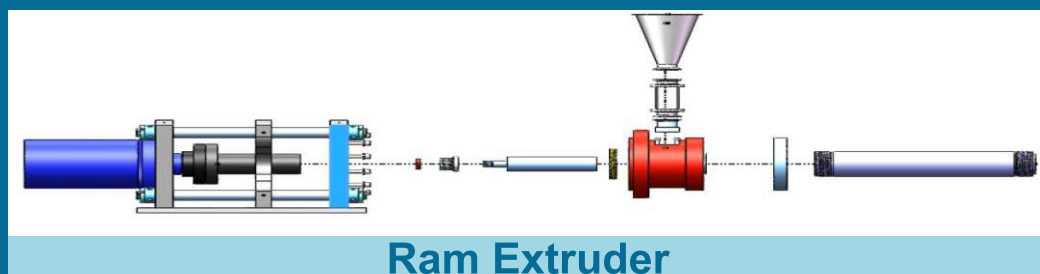


UHMWPE Medical Grade Rods

Available Sizes

| | | |
|--------------------|----------------|---------------|
| NS6130-10-1603 | Diameter: 20mm | Length: 500mm |
| NS6130-10-1603 (A) | Diameter: 25mm | Length: 500mm |
| NS6130-10-1603 (B) | Diameter: 30mm | Length: 500mm |
| NS6130-10-1603 (C) | Diameter: 35mm | Length: 500mm |
| NS6130-10-1603 (D) | Diameter: 40mm | Length: 500mm |
| NS6130-10-1603 (E) | Diameter: 45mm | Length: 500mm |
| NS6130-10-1603 (F) | Diameter: 50mm | Length: 500mm |
| NS6130-10-1603 (G) | Diameter: 55mm | Length: 500mm |
| NS6130-10-1603 (H) | Diameter: 60mm | Length: 500mm |
| NS6130-10-1603 (I) | Diameter: 65mm | Length: 500mm |
| NS6130-10-1603 (J) | Diameter: 70mm | Length: 500mm |
| NS6130-10-1603 (K) | Diameter: 75mm | Length: 500mm |
| NS6130-10-1603 (L) | Diameter: 80mm | Length: 500mm |

Medical Grade



In Association with:



ANDHRA PRADESH MEDTECH ZONE LTD.



NANOSHEL HEALTHCARE PVT. LTD.

Manufacturing Unit:

I Hub B1, Ground Floor, Andhra Pradesh
Medtech Zone Ltd, Survey No 480/2, Nadupuru
Village Pedagantyada Mandal, Visakhapatnam,
Andhra Pradesh, 530031 (India)

Regd Offc:

Plot No 123,
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Haryana (INDIA)



Make In India Initiative

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UHMWPE

Ultra Polyethylene High Molecular Weight

ENGINEERED POLYMER

UHMWPE [Ultra high Molecular Weight Polyethylene] has excellent chemical resistance, good fatigue and wear resistance. Specific gravity of polyethylene is less than 1, hence it floats in water and is easy to identify. UHMWPE has excellent impact resistance and can be used in low temperatures down to -80°C. Most grades are non toxic and can be used in applications in direct contact with food and can be easily machined.



MAIN ADVANTAGES OF UHMWPE

- Low density and easy machinability
- High toughness (also at low temperatures)
- Very good electrical and dielectric properties
- Very low water absorption
- Good protection against stress cracking Food safe
- Low steam permeability
- Low coefficient of friction and high abrasion resistance
- Very high surface release properties – promotes flow

PRODUCT PROPERTIES

- Exceptionally high notched impact strength
- High energy absorption capacity at high stress rate
- Excellent wear-resistant properties
- Low coefficient of friction
- Very high chemical resistance to acids, alkalis and corrosive gases
- Highly resistant to environmental stress cracking
- Wide service temperature range from -200°C to 90°C



GRADES

- Orthopedic implants
- Filtration
- Batteries/lithium
- Fibers
- Additives
- Membranes

PROCESSING

- Pressure less sintering
- Ram extrusion
- Compression molding
- Injection molding
- As a polyethylene with a very high molecular weight, GUR UHMW-PE is produced as a powder that requires special processing. In the semi-finished industry, the high pressures generated in compression molding and ram



KEY FEATURES

- Excellent wear resistance
- Good chemical resistance
- Excellent impact resistance at minus temperatures
- Available in Eco Friendly version made from organic raw materials
- Available with PTFE filler for extra low abrasion resistance

Bio medical applications

UHMWPE Rod can be used for all kinds of medically, it can also be used for heart valves, short surgical parts, artificial joints and birth control implants. UHMWPE has been used as the bearing material in total joint prosthesis (hip, knee, ankle, shoulder, elbow and wrist) because of unique material properties:

carbon steel, stainless steel, can be used instead of bronze material for textile, papermaking, food machinery, medical, transportation, coal, chemical industry and other departments.

Such as the textile industry technology, the shuttle is picking stick, gear, connecting rod, scan, buffer block, an eccentric block, swing rod bushing, consequences and impact wear resistance of parts. In addition, because of its wear resistance than carbon steel, and can do all kinds of machinery parts, including food machinery gear, worm gear, worm, bearing etc.

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