

# PRODUCTS AND APPLICATIONS

Xellatech provides advanced, high-purity ceramics for advanced technology applications. Our engineering experts are able to help our customers to make the most suitable advanced ceramic materials for their applications.

## Pump and Valve Parts

With its superior wear and tear resistance, advanced ceramics are used in pump Plunger, magnetic pump shafts, blade and sleeves. In ball and faucet valves, ceramic are used to provide excellent sealing quality and wear resistance.



## Thread guides

Ceramics are used as guiding parts for thread processing and oil nozzles, rollers and twining. It possesses high resistance to wear, very low susceptibility to damage by high-speed thread and low coefficient of friction.



## Grinding Mill Parts

Benefiting from high wear resistance, grinding mills use ceramics for their liners, agitator screws and rollers. Balls mill are manufactured from the same materials.



## Food Machine Applications

The inherent cleanliness and “non-stick” properties made ceramics a great material in kneading rollers and filling machines such as valves and pumps.

## Paper Manufacturing

Ceramics are used in cleaner cones separating foreign matter from pulp slurry. It extends the life of tools due to its high wear resistance.



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## Cutters and Punches

Of all ceramic materials, zirconia exceeds in strength, toughness and wear resistance over other materials. It is used in industrial cutters and slitters to process fiber, paper, film and similar materials and to cut other metals. It is also widely used as punches, jigs, fixtures and die set.



## Physiochemical equipment mechanical parts

Due to the superior chemical and heat resistance, high purity alumina ceramics tubes are used in physiochemical equipment.



## Ceramic Bearings

Advanced ceramic possesses high resistance to wear and tear and self lubrication. It makes the bearing last longer. It does not require lubricant and high wear resistance that make it an ideal product for medical or clean environment applications.



## Lifestyles and household appliances

Less subject to rust and more wear resistant than conventional metal, ceramic are used for knives, golf, bicycle bearings, skating blades, baseball spikes, clock casings and many other sports and recreational products.



## Wire drawing machine parts

To benefit from ceramics wear resistance and light weight, wire drawing machine parts use ceramics in capstan rollers and wire guide rollers.



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## Grinding Media

Xellatech offer a comprehensive range of grinding media used for particle size reduction of numerous products within a wide variety of industrial sectors. Typical application areas include:

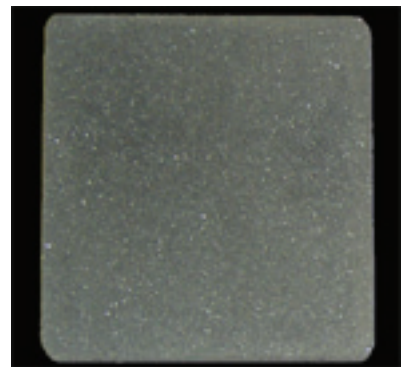
- Pigments, paints, inks and coating materials
- Advanced ceramic materials, frits and glazes
- Pharmaceutical and cosmetics
- Agrochemical



## Porous Ceramics

Porous Ceramic products are used in in filtration (solid particulate removal), diffusion (gas-gas, gas-liquid, and liquid-liquid mixing), liquid dispersion (wicking) and Fluidizing / Pneumatic conveying and other applications in a wide range of industries. It possess the following characteristics:

- Very good resistance to corrosion solution.
- Withstand up to 500°C.
- It can be made to variety of porous size of up to 50µm according to the user's requirement.
- As it is chemically stable, it will not cause secondary pollution.



## Bush / Hanger Bearings

- Major increase in bearing life
- Increase in life of journal and shaft
- Significant reduction in galling
- Potential noise reduction
- Option to use ceramic liner or replace only bottom bearing.



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## Silicon Nitride

Silicon nitride,  $\text{Si}_3\text{N}_4$ , is a hard, dense, refractory material.

Key Properties of silicon nitride:

- Low density
- High temperature strength
- Superior thermal shock resistance
- Excellent wear resistance
- Good fracture toughness
- Mechanical fatigue and creep resistance
- Good oxidation resistance

## Applications

The material is used currently in niche market applications for example:

- Reciprocating engine components
- Turbochargers
- Bearings, balls/beads
- Bullet proof vests
- Metal cutting
- Shaping tools
- Hot metal handling

