

Exploring the world of new material technologies **Ceramic Injection Molding at INDO-MIM**



What's the new trend change in injection molding?

Ceramic Injection Molding is an innovative new process at INDO-MIM under a six sigma controlled environment. The CIM process gives production engineers and product designers more versatility in the use of ceramics as an alternative material - with higher productivity, lower manufacturing costs and improved product performance. CIM is also a good option, when you need to replace plastic and metal components that fail to perform adequately.

The inherent advantages of the CIM process place a focus on quality and precision, working closely with customer specifications and a closely monitored process that meets these requirement. The low cost and complex designing capabilities of CIM Technology offers higher economies of scale and cuts manufacturing time by eliminating elaborate machining and finishing.

Quality Systems and certifications for CIM

At INDO-MIM, quality management is not just a regulatory mechanism but engineered into the system - providing continual improvement, emphasizing defect prevention and reducing variation and waste. Quality assurance is also a key measure of discussion with customers – to be understood and executed by every member of the team, for complete customer satisfaction. Our facility is certified with ISO 9001:2015 and ISO 14001:2015

Material solutions under CIM for a variety of applications

INDO-MIM provides special purpose material options to help clients derive optimal benefits in terms of process efficiency and other related benefits

- **Alumina (92%, 96% and 99.7%):** For parts that require good wear and corrosion resistance, such as electrically insulating bodies, chemical operations, industrial machinery and the vacuum industry. Maximum temperatures from 1200-1600 ° C.
- **Zirconia (YSZ):** For applications where the strength of alumina is insufficient and is available in white and black. Maximum temperatures – up to 1200° C.
- **Zirconia toughed Alumina (ZTA):** For parts with excellent surface quality requirements and reproduction of fine details. It delivers good wear resistance and high strength for biomedical applications, micro-engineering, and fiber optics. Maximum temperatures – up to 1200° C.

Our capability spectrum for Ceramic Injection Molding

- Achieving small, highly complex geometries
- High strength attributes
- Superior corrosion resistance
- Complex geometries without machining
- Excellent surface finish
- Overall part size and weight reduction
- Consolidation of multiple components into a single design
- Reduction of part count and assembly time
- Cost effective technique for complex designs
- Ability to produce net or near-net shape parts
- Stringent tolerance control
- Low-cost, high and low volume manufacturing runs



Current application areas for Ceramic Injection Molding

When you integrate the benefits of ceramic materials with the process advantages of injection molding, you derive highly complex geometries with minimal machining. You also reduce part count and assembly time. Ceramic injection molding (CIM) is now the recommended option for durable, demanding parts that require high resistance to heat, corrosion and wear. It offers the advantages of repeatability and consistent quality - with proven statistical process control.

- **Medical/Dental :** Dental implants, prosthetic replacements, endoscopic tools, tweezers and scissors
- **Lifestyle applications :** Precision gears, colored ceramics, cufflinks, spectacle nose pads, watch links and watch cases
- **Engine components :** Water pump seals, precision dispensation nozzles, sensor covers, sensor tubes, bearings and seals
- **Textile industry :** Wire guides, textile threaded guides, twist stoppers
- **Automotive :** Valve components, turbocharger rotors, swirl chambers, airbag components, valve seat, radial rotors with integrated ceramic shaft
- **Electrical :** Exhaust electrical components, RF and electrical insulators, microwave dielectric parts, electrical micro heaters, heat sinks, electronic packaging
- **Mobile phone and laptops :** Keypads, specific laptop keypads, mobile phone buttons
- **Household appliances :** Knives, injectors for percolators, cups, printer gear, disk drive rocker arms, camera parts, micro gears in tooth brushes, inkjet print heads and back covers of mobile phones

For proven, expert, cost-effective solutions, delivered with strict adherence to deadlines, do contact us at www.indo-mim.com

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