Kaolin

APPLICATIONS
- Adhesive, Caulk and Sealant
- Building and Construction
- Plastics and Film
- Paint, Ink and Coatings
- Personal Care
- Rubber
IMERYS IS THE WORLD’S LARGEST PRODUCER OF WHITE INDUSTRIAL MINERALS, WITH A NETWORK OF PLANTS ACROSS SIX CONTINENTS INCLUDING MAJOR SITES IN THE UK, BELGIUM, FRANCE, ITALY, SPAIN, USA, BRAZIL, AUSTRALIA, JAPAN AND CHINA.

IMERYS KAOLIN supplies minerals to a wide range of industries, including polymers, rubber, paint, paper and ceramics. Specialist divisions serve each industry, so that our customers always deal with people who understand their business. This is supported by an absolute commitment to quality to ensure the consistency and reliability of our products and services.

WHAT IS KAOLIN?
Kaolin (china clay) is a hydrated aluminium silicate crystalline mineral (kaolinite) formed over many millions of years by the hydrothermal decomposition of granite rocks. Hydrous kaolin is characterised by its fine particle size, plate like or lamellar particle shape and chemical inertness.

Calcined Kaolin is an hydrous aluminium silicate produced by heating ultrafine natural kaolin to high temperatures in a kiln. The calcination process increases whiteness and hardness, improves electrical properties, and alters the size and shape of the kaolin particles.

**QUICK VIEW**

<table>
<thead>
<tr>
<th></th>
<th>Kaolin</th>
<th>Calcined Kaolin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Aspect Ratio:</td>
<td>20:1</td>
<td>Irregular, with surface voids</td>
</tr>
<tr>
<td>Specific Gravity:</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Refractive Index*:</td>
<td>1.56</td>
<td>1.56</td>
</tr>
<tr>
<td>MOH Hardness*:</td>
<td>2.5</td>
<td>4-5</td>
</tr>
<tr>
<td>Moisture: (max %)</td>
<td>1.5</td>
<td>0.5</td>
</tr>
<tr>
<td>pH:</td>
<td>5 - 7.5</td>
<td>6 - 8</td>
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</tbody>
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*The data quoted are determined by the use of IMERYS Minerals Ltd Standard Test Methods
ENGINEERED FOR ADDED PERFORMANCE

PRODUCTION PROCESSES
Kaolin production is an intricate process that involves distinct operations:

MINING
In open pit mining the kaolin is removed by excavators and loaded into trucks. The trucks then deliver it to the blunging site. We ensure the quality of kaolin mined by using drill hole quality data in conjunction with GPS surveying techniques. As each deposit is depleted, our environmental team move in and begin the land reclamation process.

BLUNGING
The kaolin is then blunged in a process that mixes kaolin, water and dispersant to create a workable suspension and fully liberate the clay particles. After blunging, the kaolin slurry is processed through degritting equipment which removes quartz, sand, mica and other impurities. The degritted slurry is then pumped via pipelines to the plant for further processing.

PARTICLE ENGINEERING
Centrifuges are used to separate the finer particles from the coarser particles in the feed to reach a target particle size distribution. The coarse and fine particles with unique properties can be used for a variety of different grades of kaolin. Centrifuge products are then fed to grinders charged with grinding media to delaminate the kaolin into high aspect ratio particles. The aspect ratio and particle size are controlled in all of these processes.

BRIGHTNESS ENHANCEMENT
To enhance what nature gave us we use several processes to increase product brightness. High intensity magnetic separators remove magnetic materials like anatase and iron compounds. Leaching chemicals are added to reduce iron oxides into non-discoloring forms. Other proprietary methods are also used to enhance brightness.

FILTRATION
After all wet processing is completed, kaolin slurry is filtered on rotary vacuum filters that remove water, collecting the product on a couch roll at higher solids. Dispersants are added to remix the filter cake to a slurry that has an acceptable viscosity.

Drying
Filter products are processed to reach the final shipping form by drying in a spray dryer to a bulk powder or by making a high-solids slurry using an evaporator.

CALCINATION
Specially prepared feeds are dried and fed into high temperature calciners to allow dehydroxylation and formation of aggregated kaolin particles with excellent brightness and opacifying properties. Control of temperature and feed properties allows for customization of the calcined products.

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DELIVERY
An efficient global logistics infrastructure is essential to the business. With our network of shipping lines, road, rail and barge suppliers, we are able to provide a high quality, cost-effective and reliable service to our customers, wherever they are in the world.
QUALITY RESERVES AND PRECISION PROCESSING

QUALITY ORE RESERVES
IMERYS has detailed knowledge of the specific properties of each mineral and the applications that provide most value. The refining and conversion tools used to purify minerals and adapt them to precise industrial applications are adjusted for optimum functionality for a given mineral and grade.

PRECISION PROCESSING
At state-of-the-art plants crude ore is engineered to carefully controlled specifications such as particle size, specific surface area, colour and pH. The unique nature of our deposits and processes gives precise functional properties when selected for specific applications.

QUALITY CONTROL
IMERYS has developed a sophisticated method of analysing and benchmarking its minerals based upon standard and customised tests. Our quality management systems are ISO 9001 certified and, through our individual team activities, we seek to continually improve their effectiveness to enhance customer satisfaction and to remain the leader in quality in our industry.

ADDING VALUE THROUGH RESEARCH
Our experienced scientists and engineers work closely with our customers' plant and production managers in a wide range of industries. We offer problem solving advice for increasing productivity or improving product quality utilising existing grades, innovative solutions or customised new product development. Our application development laboratories conduct basic and applied research, product development, process improvement and pilot plant operations.