



CALCIUM CARBONATE



IMERYS
Performance Minerals



WORLD
MINERALS

A WORLDWIDE INDUSTRIAL GROUP

IMERYS IS THE WORLD'S LARGEST PRODUCER OF WHITE INDUSTRIAL MINERALS, WITH A NETWORK OF PLANTS ACROSS FIVE CONTINENTS, INCLUDING MAJOR SITES IN THE UK, BELGIUM, FRANCE, ITALY, SPAIN, USA, BRAZIL, AUSTRALIA, JAPAN AND CHINA.

IMERYS SUPPLIES MINERALS TO A WIDE RANGE OF INDUSTRIES, INCLUDING POLYMERS, PAINT, PAPER, FILTRATION 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.



World famous Carrara marble deposit, Italy

WHAT IS CALCIUM CARBONATE?

Calcium carbonates are composed of the crystalline mineral calcite, which occurs naturally in the form of chalk, marble and limestone.

Calcium carbonate is found in many countries although the quality of the deposits and the way they are processed varies considerably. IMERYS combines high quality feed materials, state-of-the-art processing techniques and in-depth market knowledge to generate a portfolio of ground calcium carbonate (GCC) products for the paint, plastics, film, adhesives, rubber and other industries.

IMERYS is a leading producer of high quality calcium and calcium magnesium carbonates and has production sites throughout the world.

QUICK VIEW

Mineralogy:

Calcite (CaCO_3) with some dolomite

Typical Aspect Ratio: 3:1

Typical MOH Hardness: 3

Specific Gravity: 2.7

Refractive Index*: 1.6

Moisture (max %): 0.2

pH: 9

*The data quoted are determined by the use of IMERYS Minerals Ltd Standard Test Methods

HIGH PERFORMANCE & VERSATILITY

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GEOLOGY

Calcium Carbonate is a polymorph, a mineral with different structures but the same chemical formula and generally sediments on the sea bed.



1. Geological movements combined with the drying of oceans leaves **chalk** deposits. Clays and soil components are deposited with time, some may permeate into the chalk.

2. Minor compaction by late sediments becoming harder with formation of **flints**. Some compaction occurs to give harder **limestone**.

3. Volcanic activity leads to melting and recrystallisation as **marble**.

Chalk (also known as whiting or chalk whiting) is usually fine textured and varies in colour depending on the deposit. Limestone is highly compressed chalk and in its raw form is harder than chalk.

If the limestone then undergoes recrystallisation under extreme heat and pressure due to volcanic activity it will form marble. In some cases this natural process yields pure marble of exceptional whiteness, such as the famous deposits in Carrara, Italy or Marmara, Turkey from where IMERY sources raw materials.

HIGH PERFORMANCE & VERSATILITY

The origin of the GCC will impact upon both the industrial value of the deposit and the process complexity, reducing or increasing its value depending on the application. As an example, a key feature of the ImerCarb™ and the Carbital™ marble-based grades is their exceptional whiteness.

An understanding of the crushing, dispersing, milling and classification of the GCC is essential in attaining the correct product properties, depending on their application.

Following a number of milling processes the particle size distribution is controlled using various dry or wet classification technologies to tailor the final product depending on user requirements.

For some applications, calcium carbonate is coated with an hydrophobic surface treatment in order to enhance specific attributes, such as reduced moisture and optimum dispersion in a polymer matrix.

VARIED PROPERTIES MULTIPLE USES



ADHESIVES & SEALANTS:

The constant control of high-brightness low-yellowness coated GCCs combined with a unique and constant ratio between high surface area and low moisture content make IMERYS' GCC products an excellent choice for highly reactive sealant systems.



BIOPOLYMERS & BIODEGRADABLE POLYMERS:

Engineered calcium carbonate provides increased tear strength and impact strength in biodegradable films, as well as faster cooling, increased throughputs and increased productivity.



BUILDING & CONSTRUCTION:

IMERYS' in-depth understanding of the relationship between particle shape and size distribution on flow properties and anticaking performance, makes IMERYS' GCCs and dolomites an excellent choice for redispersible powders and many other construction applications.



FILM & PACKAGING:

The FilmLink® range of ultrafine GCC is the leading mineral product used in breathable film applications for the hygiene, medical and roofing markets.

In packaging applications (film and rigid) the use of engineered calcium carbonates, such as Supercoat®, allows faster throughput during extrusion and downgauging of the film or walls with subsequent improvements in cost efficiency. Calcium carbonate can also be used for extension and pigmentation of opaque BOPP films.



NONWOVENS:

FiberLink™ is the latest development in nonwoven and mineral technology. FiberLink™ has been specifically engineered to enable the amount of resin used in nonwoven production to be substantially reduced. This reduces the overall carbon footprint of the final product, whilst also providing a cost saving. Application-specific performance enhancement, such as increased softness, opacity, strength and filtration efficiency, can also be achieved.



PAINT & COATINGS:

Calcium carbonates are widely used in a variety of coatings where they can provide a range of effects from simple extension to engineered functionality. These benefits include: high whiteness, TiO₂ spacing and gloss control



PLASTICS:

The addition of highly thermally conductive minerals such as calcium carbonate improves extrusion properties and, often, production rates. Calcium carbonates are widely used as extenders in a variety of applications and, when added to polymer systems, can reduce the overall formulation cost.



RUBBER:

In rubber, GCC is mainly used as an extender to reduce the formulation cost and to change the rheology of the polymers to improve processability.

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