

SOLUTIONS FOR THE OIL & GAS INDUSTRY

Your Local Partner for Safer & Better Well Construction

A member of LafargeHolcim







GLOBAL Leader



A world leader in building materials and a major player in cement, aggregates and concrete businesses. LafargeHolcim is committed to innovation to meet customers needs. Our innovative solutions are developed through a network of LafargeHolcim research centers and laboratories. Hundreds of new products designed to solve customer challenges serve as testimonials of LafargeHolcim service mindset. This expertise and resources are fully available to Oil & Gas industry needs.



LafargeHolcim WORLDWIDE





LafargeHolcim GROUP

THE WORLD'S LARGEST BUILDING MATERIALS RESEARCH CENTER

Customer driven Research and Development is fundamental to our innovation strategy. The hub of our R&D activities is the LafargeHolcim Research Center in Lyon, France, the first and largest R&D center in the construction industry. With 200 engineers and technicians representing more than 20 nationalities, and a range of disciplines, its excellence is achieved through strong technical expertise from materials science to building structure, semi-industrial scale testing capabilities and advanced open innovation approaches. The R&D center in Lyon is complemented by a global network of Construction Development Labs (CDL) and advanced technical centers, in order to better understand and serve local markets.

200 Researchers representing over

20 Nationalities working in R&D

2000 Granted patents or patent applications

A MARKET-BASED STRUCTURE TO BETTER RESPOND TO THE NEEDS OF OUR CUSTOMERS

As a global materials supplier, we operate closely within markets to ensure our products effectively meet the needs of our customers and to define areas to enhance our offerings. Our portfolio of segments offers the opportunity to share knowledge gained to apply in our research and development efforts and, ultimately, to improve products and services in the future.

DEDICATED ORGANIZATION AND SKILLS TO BOOST INNOVATION AND PERFORMANCE

Our human resources have been reorganized to support the strategic levers of our businesses. We have expanded our R&D and marketing teams, bringing in new skills combining technical knowledge and market experience. With our expertise, know-how and R&D resources, we offer our customers solutions that enhance their projects and build trust in our partnership. Beyond these solutions, our market growth activities are focused on creating new channels to serve our customers more effectively.



LafargeHolcim OIL & GAS



OIL & GAS INDUSTRY CHALLENGES

The Oil & Gas industry rapidly innovates and operates globally to meet growing energy demand. The International Energy Agency (IEA) estimates that 40 trillion Euros will be required in investment to meet this demand by 2035.

CUSTOMER EXPECTATIONS

To meet this challenge, our customers adopt technologies and operational advancements for the projects of today and tomorrow. The nature of exploration and production is constantly becoming more technologically advanced, capital intensive, and time sensitive. Ensuring state-of-the-art quality and innovation to address rapidly evolving drilling conditions, time gains and manageable costs, we know that this is what you expect from a solutions provider like us, locally and globally.

POSITIONED GLOBALLY TO SUPPORT CUSTOMERS LOCALLY

LafargeHolcim supplies well cements globally from 17 API plants in 14 countries. These plants have maintained licenses with the American Petroleum Institute (API) for many years and are identifiable to the markets they serve. We offer other products and services to support the Oil & Gas industry's needs: blended and composite cements, slag, fly ash, other materials. Our global team is complemented by locally deployed experts ready to respond to technical and service matters to address your project needs. It is from this global network that LafargeHolcim is positioned to serve the new and growing markets.

WHAT MAKES US DIFFERENT

- Global network of API certified plants
- Optimized logistics and 24/7 shipping
- Our far-reaching expertise in cement
- Diversified & innovative products portfolio
- Full product testing services
- Our state-of-the-art building materials research facility
- Over 1,7Mt of Oil & Gas products manufactured and delivered every year
- Full range of construction/infrastructure solutions





LafargeHolcim OIL & GAS

LAFARGEHOLCIM SUPPLIES OF WELL CEMENTS GLOBALLY CURRENTLY SERVING ALL CONTINENTS

In 2016 LafargeHolcim consolidated markets, applications and product knowledge, launched commercial transformation in key countries, developed customer focused offers, concluded marketing plans, worked with customers and API to be a global strategic partner.



OVERVIEW OF OUR OFFER

From site infrastructure on surface through materials for well construction at any depth, onshore and offshore, LafargeHolcim products and services support your local field operations.

API CEMENTS

The production of API well cements is the foundation of LafargeHolcim's service to the oil and gas industry. LafargeHolcim offers the global supply of API well cements to the Oil & Gas industry. Class A, Class G and Class H are the most common products supplied to our customers.

Class A is used in milder, less demanding well conditions, while Class G and H are specified for deeper wells, higher temperature and pressure applications. Leveraging over 100 years of experience in cement manufacturing and knowledge of well cement applications, LafargeHolcim looks beyond API performance metrics in our quality protocols to meet customer needs. LafargeHolcim operates the largest number of API plants globally and actively participates in API standards development and quality system audits. It is LafargeHolcim's commitment to the performance of our API cements that contributes to the effective and timely completion of your cementing projects.



KEY FIGURES

3 Main Companies (HERACLES – LafargeBeton – Lava)

2 Operating Cement Plants (Volos & Milaki) with 3Mt of Clinker Capacity

6 Cement Terminals

(with Bagging Facilities) & 8 3rd party bag depots (including LB)

11 Quarries

(Aggregates, Pumice, Gypsum, Pozzolana, Schist) + Limestone

14 RMX Plants

12 Own ports handling >7Mt of material p.a.

2.300 vessels loading and unloading operations per year

20 types of cement

1.500 silos

200 silo trucks

12 vessels





PLANT AND TERMINAL NETWORK

API Plant

and Terminals

strategically located

for global reach





Kavala Plant & Own Port



Igoumenitsa Plant & Own Port



Volos Plant & Own Port



Milaki Export Plant & Own Port



Thessaloniki Port Terminal



Drapetsona Port Terminal



Rio Port Terminal



Heraklion Port Terminal

HERACLES, member of LafargeHolcim

STRATEGIC LOCATION

- Bridge between Europe, Middle East and Africa
- Logistics and Distribution Hub
- Gateway to European Union

PRODUCT

- API 10A Class G Cement
- Full range of ASTM/EN Construction Cements
- Blended products addressing applications across all sections of the well

DISPATCH SOLUTIONS & PORT FACILITIES

• 8 dispatch points with privately owned ports, cement silos and bulk loading stations with weigh bridges

END TO END BULK DELIVERY SOLUTIONS

- Cement silos
- Loading stations with weigh bridges
- Dedicated fleet of road tankers with GPS
- Bulk cement self-unloading vessels

END TO END BAGGED DELIVERY SOLUTIONS

- Bagging stations for sacs and big bags
- Dedicated fleet of trucks
- Bagged cement self-unloading vessels





PACKAGING SOLUTIONS

- 40/50 kg Bags
- 1,5 MT Big Bags
- Specifically designed to meet Oil & Gas Industry specifications on traceability, durability, water proofness, UV resistance and easy of handling
- Covered warehouse facilities for big bags

TECHNICAL ASSISTANCE



LafargeHolcim personnel in Greece, is accessible to address any technical needs. Regional and in-country resources are available to address and respond to technical questions. These professionals are supported by our network of laboratories technical centers should further assistance be required.

We strive to deliver and support globally while maintaining the ability to respond promptly at a local level. Operations around the world allow LafargeHolcim Central team to coordinate knowledge sharing.



COMMITMENT TO QUALITY

LafargeHolcim Milaki Plant is certified by the American Petroleum Institute, according to API 10A 24th edition Specification for Cements production and API Q1 Quality Management System.

Milaki plant produces Class G Oil Well Cement by grinding own produced clinker with gypsum. Oil Well Cement is loaded either in bulk onto vessels or silotrucks or delivered in big bags. The procedure for using the API Monogram marking is followed in this case.

OIL & GAS LABORATORY - EQUIPMENT LIST

Milaki Oil Well Lab is equipped with:

- One **optical microscope** used during clinker production, in order to accurately measure the **size of the Alite crystals** (Tricalcium Silicate, C3S) as this parameter strongly affects the clinker reactivity.
- One **atmospheric consistometer** used for conditioning and stirring the cement slurry during the determination of **Free Fluid** content. The free fluid is showing the water tightness of the cement slurry. Free water can physically separate as cement slurry sets. This separation tendency, especially in the presence of a high-pressure gas-bearing formation, can impair zonal isolation, the primary job of the cement.
- Two **pressurized consistometers** used for measuring the Oil Well Cement **Thickening Time.** This test simulates the high pressure and high temperature conditions inside the earth's crust, under which the cement will be used. This parameter relates to the amount of time it takes for the cement to harden, which is very crucial for the drilling service companies to be predicable.
- Three temperature controlled baths used for curing cubic specimens.
- A hydraulic press for measuring strengths development at 38°C and 60°C.
- A high temperature and high pressure apparatus for measuring the slurry Fluid Loss and providing information on the cement's dehydration performance during and after the placement phase.

ANALYSIS

In parallel to the previous, the below analyses are performed in the general purpose Milaki chemical lab:

- XRF elemental analysis
- Insoluble Residue
- Loss on Ignition
- Free CaO

- NORTH AMERICA
- CARIBBEAN
- SOUTH AMERICA
- EUROPE
- SCANDINAVIA
- BALKANS

THE MARKETS / COUNTRIES WE SERVE

- MEDITERRANEAN BASIN
- EASTERN AFRICA
- MIDDLE EAST
- MALAYSIA
- AUSTRALIA

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