

TERNA MAG

The revival of a world famous Greek magnesite activity

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The Group

TERNA MAG is a member of GEK TERNA group of companies

- **GEK TERNA Business sectors:**
 - Construction
 - Renewable Energy Resources
 - Thermal Power
 - Real Estate and Facilities Management
 - Mining

- **Key-figures/GEK TERNA:**
 - **€ 1.2** billion turnover
 - **5,000** employees
 - Presence in **16** countries
 - **45** years business activity



The company

TERNA MAG is a producer and supplier of magnesia and magnesium products



**TERNA MAG has revived the magnesite operations of FIMISCO
FIMISCO was world known for its high class refractory products**

Mapping of current activities on Euboea island



- All mines are within a 14 km radius around the industrial site
- Industrial production site is just 2 km away from the loading port

Mining activities

World-class cryptocrystalline magnesite deposits

- 2 underground mines (Gerorema area)
- 2 open pit mines (Kakavos area)
- 2 new underground mines on the way to permitting and operation



- Total current reserves: 15 mil MT magnesite
- Exploration continues for identification and confirmation of new reserves
- Total concession areas:
 - 404 km² in Euboea
 - 56 km² in various places in Greece

Beneficiation

Beneficiation takes place in-situ at two sites: **Gerorema & Kakavos**



- Beneficiation includes crushing, washing, screening/classification and use of magnetic and optical sorters
- Hand-picking is also used for the selection of high purity, special material

Industrial processing



- Calcination of magnesite in Mantoudi premises through state-of-the-art equipment
- Multiple Hearth Furnace (Herreshoff) provides high flexibility for custom-made and uniform CCM
- Rotary Kiln will be operational in November 2018 for CCM and DBM
- Strict QC and testing in own modern lab
- Fully automated processes
- High standards for Environment, Health, Safety

Annual capacity

120,000 MT of Caustic Calcined Magnesia and Dead Burned Magnesia

Challenges

- **Permits**

- Complicated permitting procedures
- Delays in permits



- **Relationship with local community**

- Well accepted
- Small groups opposing mining activity

- **Hard to find skilled workers**

- Hire local workforce



Sustainable Practices

- **Business model based on both CCM and DBM products**

	Betamag	Alfamag	Deltamag	Kappamag
MgO (% on ignited basis)	83-85 %	90-91 %	93-95 %	96-97 %

- Enables to utilize lower quality products
- Reduces wastes
- Reduces mined quantities

- **Use of cleaner energy sources**

- MHF furnace operates with LPG



Sustainable Practices

- **Water from mines used for washing in beneficiation plants**

- Water recycling



- **Rehabilitation**

Part of rehabilitation involves the:

- Construction of forest firebreaks (10 km)
- Construction and maintenance of forest roads (18.5 km)



Sustainable Practices

Utilization of old stockpiles

- Beneficiation tailings
 - Tailings are being processed with optical and magnetic separators
 - Products of low-mid quality
 - 1.3 mil MT



- Froth flotation tailings
 - Research in order to find feasible and sustainable use
 - 800.000 MT

Sustainable Practices

Utilization of beneficiation fines

- Research and pilot scale tests
- New process line has been constructed
- Production of low grades



Thank you for your attention

TERNA MAG S.A.