# **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

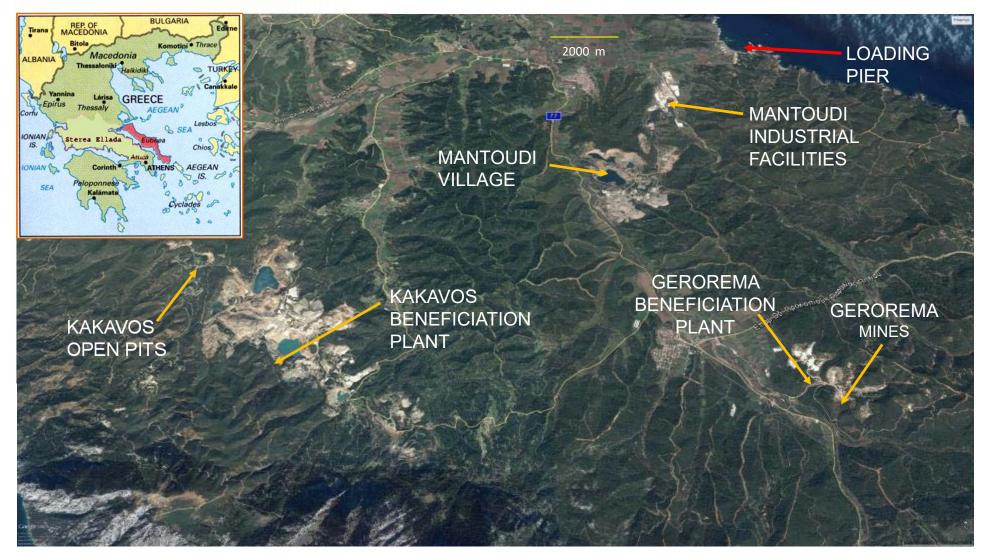


TERNA MAG has revived the magnesite operations of FIMISCO FIMISCO was world known for its high class refractory products



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## 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**

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### 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 km<sup>2</sup> in Euboea
  - 56 km<sup>2</sup> 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
- Rotaty 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





- Hard to find skilled workers
  - Hire local workforce

#### Relationship with local community

- Well accepted
- Small groups opposing mining activity





#### Business model based on both CCM and DBM products

	Betamag	Alfamag	Deltamag	Kappamag
<b>MgO</b> (% 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





- 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)







#### **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



#### **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.



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