The revival of a world famous Greek magnesite activity

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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

REMIX, Delphi October 2018
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 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

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

<table>
<thead>
<tr>
<th>MgO (% on ignited basis)</th>
<th>Betamag</th>
<th>Alfamag</th>
<th>Deltamag</th>
<th>Kappamag</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>83-85 %</td>
<td>90-91 %</td>
<td>93-95 %</td>
<td>96-97 %</td>
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- **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.