



ETHNICON METSOVION
POLYTECHNION (NTUA), Athens, Greece

Products

Mortars, plasters, renders, and premix products with various insulating fillers and PCMs

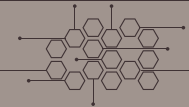
Capabilities & Equipment

Smart Concrete Pilot Line



- **Mixing Unit:** 500 l capacity with sensors for moisture content and homogeneity
- **Silos:** Three silos with 250 kg capacity each, equipped with automated weighing and feeding systems
- **Automated Monitoring:** Integrated energy consumption smart meters, water consumption monitoring systems, and a single datalogging system

Nano-materials & Additives



- Experienced in using nano-materials in liquid dispersions
- Utilizes additives like lightweight aggregates, fibres, PCMs, and other nanomaterials

Sensors & Quality Control



- Ability to integrate sensors for viscosity and temperature.
- Monitoring sensors for raw material quality properties like moisture.
- Characterization services for:
 - **Wet-mixture:** air content, flow table test, etc.
 - **Hardened product properties:** flexural and compressive strength, durability tests, thermal behaviour, etc.

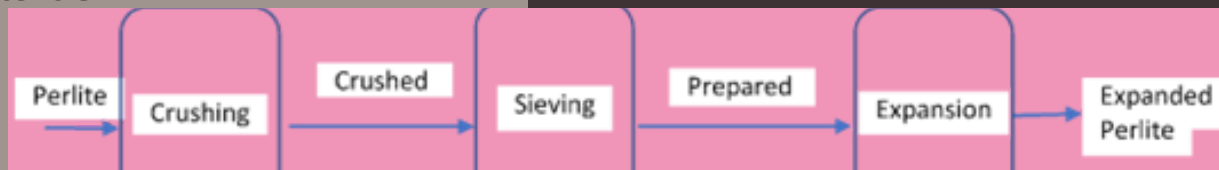
Sub-Pilot Line for Lightweight Aggregates



- **Vertical Electric Furnace (VEF):** Max temperature 1200°C, productivity up to 500 l/h
- **Infrared (IR) Furnace:** Max temperature 700°C, productivity up to 300 l/h
- Equipment for size reduction, size control (crushing and grinding devices), and size distribution control (sieving devices)



**Pilot Line 3:
Nano enabled
insulating mortars,
plasters, renders
and premix
products**





Scales of Operation

Small Scale Pilot (up to 40 l/batch)

- Suitable for product development and preliminary upscaling
- Includes raw material storage, mixing, moulding, and curing
- Customizable moulds available (5x5x5 cm³ to 40x40x20 cm³)

Large Scale Pilot (up to 500 l/batch)

- Simulates industrial mortar production
- Production capacity up to 1.5 m³/day
- Automated stages for storage, supply (transportation/weighing), and mixing with manual moulding
- Monitors and records conditions during production



Client Utilization

Target Clients

- Companies in the building sector, including cement, concrete, and construction material producers
- Customization of materials based on client requirements through process optimization

Advantages



Optimized Development

- Sensor-equipped pilot production ensures optimal development of lightweight mortars, plasters, and renders
- Scalable production steps for larger-scale operations

Sustainable Production

- Sub-pilot line for lightweight aggregates ensures fully mineral recipes with optimized insulation properties
- Guarantees sustainable production, recycling, and re-use

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info@Exploit4InnoMat.eu



<https://exploit4innomat.eu/e4im-open-call>

