



# CHEMICAL & CONSTRUCTION MATERIALS TECHNOLOGY LABORATORY

## MAIN ACTIVITIES:

- Materials Technology - mainly technology of clay brick and fireproof materials.
- Incorporation - Recycling of dangerous-toxic industrial Solid Waste into Clay Materials.
- Energy exploitation of industrial byproducts via their incorporation into clay bricks.
- Biofuels
- Liquid wastes



## RESEARCH PROJECTS:

- Statistical and mechanical behaviour of caolin + graphite fibres and cement + flying ash (Archimedes II, 01-01-2005 until 31-12-2007).
- Remazol decolorization (Archimedes I, 12-5-2004 until 31-12-2007).
- Development of new advanced ceramic products by incorporating industrial dust wastes in brick clays (Archimedes II, , 01-01-2005 until 31-12-2007)
- Incorporation of by-products of olive mills, sewage sludge, ASF and pet-coke into ceramic tiles. Research program sponsored by the private sector (TERRA SA, 7-10-2011 until 31-8-2014).
- Novel ceramic materials (SYNERGASIA 2011, 1-1-2013 until 30-6-2015).
- Algae fuel production (SYNERGASIA 2011, 1-1-2013 until 30-6-2015).

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## *Research Equipment and Infrastructure:*



- SEM.
- Thermal conductivity measurements.
- Particle size analysis (sieves).
- Specific surface calculation (Blaine).
- Vicat.
- Particle size analysis (Laser).
- Los Angeles.
- Plasticity measurement.
- Electronic penetrometer.
- Pilot plant production line for bricks by extrusion.
- Brick production by uniaxial compression.
- Drying ovens (atmospheric).
- Drying oven (inert gas).
- Planetary mill.
- TOC.
- GC.
- COD.

- Electronically programmed furnace.
- Water absorption measurements.
- Freeze thaw measurements.
- Three point bending.
- Mechanical properties measurements.
- Metallographic microscopy.
- Impact tests.
- Microhardness test (Vickers).
- Supersonic defection measurements.
- Dynamic ratio of elasticity.
- Acoustic emission.
- Surface smoothing machine.
- Density measurement.
- Electronic balances.
- Ceramics cutter.
- Ion chromatography.
- UV spectrometers.
- Bioreactors.
- BOD.

