LASALLE O_3

Ozone Industrial Plateform

www.unilasalle.fr

The ozone platform is a R&D facility dedicated to the use of ozone in the fields of agro-industry, agri-food sector, environment and vegetal-based/plant/plant-derived chemistry

MAIN GOALS

- Design and manage both academic and industrial projects in R&D and technology development
- Carry out feasibility studies, share expertise, design pilots
- Achieve technology and knowledge transfer
- Host external R&D equipments as well as partners or clients skilled workforce for specific specialized trials

RESEARCH & DEVELOPMENT AXES

DISINFECTION AND STABILIZATION OF BIOLOGICAL PRODUCTS
- Disinfection of agricultural products, whether fresh or dry, raw or processed
- Product storage and preservation

DECONTAMINATION OF AGRICULTURAL AND AGRO-INDUSTRIAL MATERIALS
- Fungal decontamination and toxin load reduction
- Degradation of chemical contaminants and phytosanitary products

DEPOLLUTION OF AGRICULTURAL AND AGRO-INDUSTRIAL WASTE WATER
- Process water, cleaning water, irrigation water
- Effluent treatment for reuse purpose
- Discoloration and bleaching

BIOLOGICAL WASTE AND CO-PRODUCTS RECLAMATION
- Lignocellulose breakdown
- Molecules extraction
- Functionalizing and pre-functionalizing of materials

GREEN CHEMISTRY, ADVANCED CHEMISTRY, SUBSTITUTE CHEMISTRY
- New synthesis paths from bio-based products
- New chemical modifications (polymers)
- Extraction and activation of chemical complexes

TECHNOLOGIES AND RESOURCES

- **Various reactions can be carried out in this facility:**
  - Heterogeneous reactions (gas and liquid), for both newtonian and non-newtonian fluids
  - Heterogeneous reactions (gas and solid) involving fine solids
- **Both molecular and radical reactions can be achieved**, with or without molecular activation (chemical, UV, ultrasonic technology)
- **Infrastructures and analysis capabilities:**
  - **Hall:** 900 m^2
  - **Ozone generation:** Corona discharge ozone generators of various ranges (from 10 g/h to 1.5 kg/h)
  - **Ozonation pilots:** the ozone platform is a comprehensive tool designed to carry out multi-scale experiments on the industrial use of ozone, from bench experiments (few grams of substrate), to feasibility studies (a few kg/h) and pilot scale trials (starting at 50 kg/h or more)
  - **Sample characterization:** UniLaSalle brings together several laboratories specialized in fields such as microbiology, analytical chemistry, molecular biology, sensory analysis

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Overview of LASALLEO_3

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SCIENTIFIC COOPERATION AND INDUSTRIAL PARTNERSHIPS

LASALLE O_3 is strongly connected to the “Transformation & Agro-Ressources” research unit of UniLaSalle, and works with the Laboratory of Pulp and Paper Science (LGP2 - UMR CNRS 5518).

LASALLE O_3 hosts the OZONE2020 FUI project (Unique Interministerial Fund, granted by the French government) which is certified by three of the main competitive clusters (IAR, Axelera Chemistry and Environment, and Terralia).

SCIENTIFIC AND TECHNOLOGIC OUTPUTS

- Publications (peer-reviewed articles, conferences)
- Patents (process and production) and licenses
- Knowledge transfert