



NAME : ROBERTO SPOGLI

INSTITUTION : PROLABIN & TEFARM SRL

ACRONYM: P&T

COUNTRY : ITALY

Profile : Prolabin & Tefarm srl is an expert in the preparation of inorgano-organic layered compounds belonging to the classes of the hydrotalcites and zirconium phosphates/phosphonates.

P&T researchers gained their experience and know-how from research carried out over more than 30 years in the Department of Chemistry at the University of Perugia, enabling them to transfer their knowledge and technology to the industry. All the products are composed of **lamellar solids**, or **synthetic clays**, produced with ecofriendly procedures using only water as a solvent, therefore suitable for companies that are looking for innovative and green products.

Activities :

- Research & Development: P&T's competitiveness is based on intensive research, in order to develop products with high added value and meet the real needs in terms of technological innovation and performances.

P&T uses advanced analytical instrumentation to characterise the produced materials and collaborates with academic researchers with a deep knowledge in the field of lamellar solids chemistry.

The main research topics concern the optimisation of production processes and the functionalisation of new nanostructured lamellar solids with sustainable technologies and very low environmental impact.

These lamellar solids are innovative products used as:

1. nanostructured polymer additives,
2. raw materials and carriers of active ingredients for pharmaceutical, nutraceutical, cosmetic, and health care applications,
3. heterogeneous solid catalysts.

The development activity is aimed at prototyping and manufacturing new industrial materials able to improve the performance of finished products in strategic application areas and to explore many other different market sectors. The versatility of materials and the use of innovative technologies for the lamellar solid modification allows the preparation of tailor made products with strictly controlled chemical composition, purity, size distribution and morphology, in accordance with the specific production and plant requirements of the customer.

- Service providing to the industry: The company is equipped with two laboratories, one dedicated to the research and formulating in the Health Care sector and a chemical laboratory for research, development and analytical characterisation of new materials.

The high scientific training of the staff allows the company to provide a research and development service on demand in many disciplinary sectors to help the customer solve problems related to products or production processes.

- Education in the field of nanomaterials science: internships

Expertise on following materials:

- hydrotalcite,
- zirconium phosphates/phosphonates,
- polymer and biopolymer nanocomposites (fire retardant additives, gas and water vapour – barrier



- additives, UV absorber, Chrono controlled active delivery),
- nanoparticle synthesis: nanometals, nano-oxides, nanosilica, nanotitania, nano-hydroxalcalites,
 - nano zirconium phosphates, etc.,
 - coatings.

Actual research domains concerning materials technology / Competences:

- development of biocompatible polymeric additives for biomedical applications,
- development of nanostructured polymeric formulations endowed of piezo resistivity or particular conductimetric properties,
- development and optimisation of nanocomposites for automotive plastic materials,
- development and optimisation of nanocomposites for active packaging,
- development of additive and polymeric compounds for sheaths of electric cable and other components for electronics and telecommunications,
- development of additive for cement mortars, adhesives and sealants,
- development of rheological agents for water and solvent based paints and inks,
- development of pharmaceutical intercalated API for photo protection, active delivery and targeting.

Available research infrastructure : The company is equipped with the following laboratories.

A chemical laboratory fully equipped for the synthesis and characterisation of inorganic-organic compounds and nanoparticles, for extraction tests, for the study and research of new materials and for the preparation of samples for analysis.

A formulation laboratory for formulation development and for the *in vitro* functional characterisation of pharmaceutical, nutraceutical and cosmetic formulations, equipped with Franz cell apparatus, aging chambers and Sun-Test apparatus.

An analytical laboratory equipped with: XRPD (D2-phaser Bruker 2nd generation), TGA, DSC, DTA (Q-600 SDT TA Instruments), UV-Vis spectrophotometer (750-Jasco), ICP-OES (Agilent Varian 720), FT-IR-ATR (Thermo Fisher Nicolet 380), Granulometer (Mastersizer 200 with Scirocco and Hydro G), FE-SEM (LEO 1525 Bruker probe) and TEM microscopy, Franz cells apparatus, Ion Chromatography (Metrohm 883 IC plus), GC (Thermo Scientific Trace 1300).

A scale-up laboratory for chemical synthesis equipped with:

- a glass pilot plant (200 L), a turbomixer (350L) and a steel chemical reactor (1000 L);
- a system for solid liquid separation equipped with a filter press and a centrifuge;
- a system for powder drying equipped with a spray dryer (1 m³), a static oven (700 L) and a system for powder grinding.

Coordinate address : Via dell'acciaio 9,
06134 Perugia,
Italy

URL : www.prolabintefarm.com

Contact persons :

Name : Roberto Spogli
Function : General manager
Tel. : +39 075 6910472
Fax : +39 075 5919493
e-mail : roberto.spogli@prolabintefarm.com