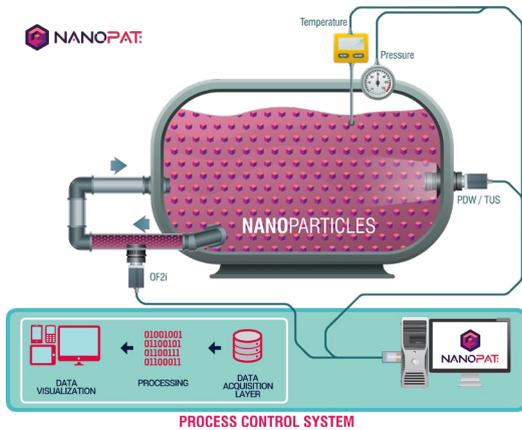


What is NanoPAT about?

Nano-scaled materials are abundant in different stages of industrial manufacturing. Physical and chemical properties of these materials are strongly dependent on their size. Characterisation of mean size, size distribution, and shape of nano-scaled particles (NP) is very critical for the quality and efficiency of manufacturing processes. The NanoPAT consortium aims at closing this gap by the demonstration of 3 novel, real-time nano-characterisation Process Analytical Technologies (PAT), namely Photon Density Wave spectroscopy (PDW), OptoFluidic force induction (OF2i) and Turbidity Spectrometry (TUS) including real-time data handling for digital process monitoring and product quality control. Those will be validated in 5 different industrial ceramic, polymer and mineral nanoparticles manufacturing and converting environments.



Process Analytical Technologies (PAT)

These are the three novel complementary real-time *in situ* particle size characterisation technologies (PAT) that are being further developed in NanoPAT:

Photon Density Wave Spectroscopy: An inline process analytical technology capable of calibration-free quantification of light absorption and light scattering in highly turbid, highly concentrated liquid dispersions.

Turbidity Spectrometry: A flexible optical technique for monitoring the evolution of suspending particles which size ranges from approx. 100 nm up to few microns.

OptoFluidic Force Induction: An active, single particle based high throughput PAT based on induced photonic & microfluidic forces. It provides statistically relevant data streams for particles from 20 nm up to several microns.

Case Studies

NanoPAT will validate the combination of different nano-characterization technologies in 5 industrial case-studies, demonstrating the viability of the proposed PAT solutions for the industrial NPs production of polymers, silica, hydroxyapatite, zeolites and for the dispersion of ceramic NPs into coatings via electrodeposition method.

Our Team

Our partners are from Austria, France, Germany, Greece, Netherlands, Portugal, Spain and Switzerland. They bring together solid scientific knowhow in the relevant fields and strong industrial and commercial involvement to ensure that the value chain of commercial actions can progress swiftly towards the introduction of new real-time solutions for the monitoring of nanoparticle production processes. All partners contribute actively to the project, ensuring the flow of ideas and projects results to the wider community.



To learn more visit: www.nanopat.eu

Get in touch with us!



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