Press Release

NECSO insights about energy efficiency and cutting-edge CSP technology at SolarPACES 2013

- **SolarPACES is one of the most important conferences offering insight into the development in technology, politics, the market and financing presented by top experts in the field of solar energy in USA and the world.**

- **From the design of the first plants in the 1980s, the solar thermal industry has made notable advancements along the learning curve, thanks to the development of new technologies. An example of the innovative nature of this industry is *NECSO* project that aims to design accelerated ageing protocols to test the evolution of these coatings under more aggressive conditions in the new designs. It is part of the 7th Framework Programme of the European Commission and funded by them.**

Madrid, September, 11th- Aries Ingeniería y Sistemas and IK4-TEKNIKER will participate with a poster in the next edition of SolarPACES conferences (September, 17-20. Las Vegas), international cooperative network bringing together teams of experts from around the world to focus on the development and marketing of concentrating solar power systems.

The CSP technology based on parabolic trough solar collector for large electricity generation purposes is currently the most mature of all CSP designs in terms of previous operation experience and scientific and technical research and development.

NECSO project "Nanoscale Enhanced Characterisation of SOlar selective coatings" (www.necso.eu) coordinated and led by IK4-TEKNIKER with the participation of Aries Ingeniería y Sistemas, will reanalyze the current technical approaches and will establish several characterisation and degradation protocols, being the main idea to provide criteria and tools to the end users to guarantee a proper performance of selective coatings during the expected life of the solar plants, about 25 years.

For the purposes included in NECSO is necessary to establish characterization methods and standard protocols to guarantee the performance, durability and quality control at medium and high working temperatures (between 400ºC and 600ºC), designing an accelerated degradation protocol and testing the ageing of real coatings.

The expected results and main tasks of the project are among others:

- Ageing protocol: to analyze the thermal cycling with different gases.
- Nanoscale structure and requirements: the composition, nanoroughness and crystallography.
- Mechanical properties: Study of the thermal stability, adhesion, nanohardness, wear.
- Degradation analysis by dry and wet corrosion and the possible synergistic impact of vibration.
- Optical properties and its evolution.
- Limitations to the diffusion after the ageing process.

Javier Barriga, NECSO project coordinator recently stated: "We are very proud of joining forces in NECSO project to push the collector parameters (temperatures and environments) towards a higher efficiency in CSP technology. We strongly believe NECSO project is born as an essential tool to ensure quality control on the coatings in solar parabolic technology. We expect the project results would boost solar energy research, development and industrial activities worldwide."

Another project related to NECSO, would be HITECO (both Aries and Tekniker are present in the consortium). HITECO introduces a new modular concept of collector. One of the key points is the stack of layers forming the selective absorber coating, because the new design of the coatings should fulfill the new requirements, taking into account the collector will be working at 600ºC in an atmosphere with a vacuum around 10^{-2} mbar.

About NECSO project

The main idea behind this NECSO project is to provide tools to the end users, namely solar plants builders, to guarantee that the selective coating will work properly during 20 to 25 years. Novel experimental methods for testing materials under extreme conditions (temperature and radiation) are needed providing a deeper understanding of the interaction of electromagnetic radiation with nanomaterials, as basis for design of new spectrally selective absorber coatings. Nanoscale characterisation will correlate the nanostructure parameters with coating performance.

The resulting outcomes are expected to contribute significantly to the infrastructure of the solar energy research, development and industrial activities worldwide.

For more information, please contact:

Aries Ingeniería y Sistemas
Sofía Martín
Dissemination Manager NECSO Project
smartin@aries.com.es
www.necso.eu