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Arkema and its Piezoelectric materials in the spotlight of a European project on smart labels

The *SUPERSMART* European project funded by EIT (European Institute of Innovation and Technology) and coordinated by Arkema with 10 partners* has won the 2021 Organic Electronics Association competition Award for the Best Publicly Funded Project Demonstrator. This project advances the emerging technology of paper-printed organic electronics to the industrial phase.

Two innovative demonstrators were designed and produced on a pilot scale: a smart label including an impact sensor based on Arkema's Piezotech® piezoelectric material, and a smart counterfeit-proof label with conductive tracks and electrochromic displays directly printed on paper. The data detected on both components can simply be read via a cell phone app. Meanwhile, life cycle assessments (LCAs) and recycling studies have demonstrated the environmental benefit of these new solutions.

The smart impact sensor tag using Piezotech® material could find many applications in the short term:

- in the packaging of luxury goods, pharmaceutical and medical products to record their exposure to impact, fall or vibration during transit,
- for the care of people in hospital or at home, where the tag can be integrated under carpets, floor tiles or parquet floors to detect falls or abnormal movements of patients or the elderly,
- in vehicles to track accidents, in the military to detect falls and blasts,
- in the floors of offices and shopping centers, to count people and detect their movements in order to adjust lighting, air-conditioning or heating.

Our Piezotech® materials have been developed within Arkema's "Electronics Solutions" innovation platform designed to deliver the growth of sustainable solutions in line with the UN's SDG 9: "Build resilient infrastructure, promote inclusive sustainable industrialization, and foster innovation."

Fabrice Domingues Dos Santos, Piezotech® Product Development Manager who coordinated the project, commented on the success of *SUPERSMART* as follows: "The collaborative work within *SUPERSMART* and this recognition by the Organic Electronics Community pave the way for a new sustainable electronics and a large number of new applications using our piezoelectric materials."

*The other partners of the project are:
Institutional partners: CEA & CNRS (French public research laboratories), FCT (science and technology university in Portugal), FRAUNHOFER (German institute specializing in research in applied sciences), JOANNEUM RESEARCH (Austrian research institute), VTT (technical research center in Finland)
Industrial partners and SMEs: COATEMA (German manufacturer of printing and laminating equipment), ARJOWIGGINS (paper maker, specialist in paper recycling), and LUQUET & DURANTON (French medical and administrative stationery printer)

*Building on its unique set of expertise in materials science, **Arkema** offers a portfolio of first-class technologies to address ever-growing demand for new and sustainable materials. With the ambition to become in 2024 a pure player in Specialty Materials, the Group is structured into 3 complementary, resilient and highly innovative segments dedicated to Specialty Materials -Adhesive solutions, Advanced Materials, and Coating Solutions- accounting for some 82% of Group sales, and a well-positioned and competitive Intermediates segment. Arkema offers cutting-edge technological solutions to meet the challenges of, among other things, new energies, access to water, recycling, urbanization and mobility, and fosters a permanent dialogue with all its stakeholders. The Group reported sales of around €8 billion in 2020, and operates in some 55 countries with 20,600 employees worldwide. www.arkema.com*

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