

Search for a Spanish Partner for a Bilateral R&D Project

Organization	
Date of Request:	11 October 2026
Company name:	Egyptian Atomic Energy Authority (EAEA), Egypt
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SECTION 1: Entity launching the partner search

(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)

Sector	Nuclear science and technology, radiation chemistry, advanced materials, polymer science, plastics and rubber technology, food packaging, and radiation processing for industrial applications.
Entity mission or core functions	The Egyptian Atomic Energy Authority (EAEA) is a public governmental scientific and research institution dedicated to the peaceful applications of nuclear science and technology. Its activities include scientific research and development, the application of ionizing radiation in industry, agriculture, medicine and environmental protection, the development of advanced materials, and the transfer of research outcomes into practical and industrial applications.
Date of establishment	1956
Ownership (if public and traded, add stock exchange and ticker symbol)	Public governmental research institution operating under the Egyptian government.
Total number of employees	3000 employees
Number of employees in R&D	1500 researchers
Key products sold or services provided	EAEA primarily conducts research and provides scientific, technical and analytical services. Its relevant activities include: • Research and development of radiation-processed polymeric materials, plastics and rubber. • Development and evaluation of advanced materials and nanocomposites for industrial applications. • Characterization and testing of materials using advanced analytical techniques. • Research on radiation-induced modification of polymers and improvement of their functional properties. • Scientific and technical support for industrial applications of radiation technology. • Research related to food packaging, stored-grain protection and environmentally friendly materials.
Entity core technical competences	• Radiation chemistry and the application of ionizing radiation to materials. • Radiation-induced modification of polymers, plastics and rubber. • Preparation and development of polymer nanocomposites and functional films. • Investigation of radiation-induced cross-linking, chain

	scission and oxidation in polymeric materials. • Materials characterization using X-ray diffraction (XRD), Fourier-transform infrared spectroscopy (FTIR), UV–Vis spectroscopy, scanning electron microscopy with energy-dispersive X-ray analysis (SEM–EDX), and Raman spectroscopy. • Evaluation of polymer structure, composition, morphology and functional properties. • Research into advanced packaging materials and potential applications in stored-grain protection and postharvest loss reduction.
Key R&D programs and activities	The relevant R&D activities include: • Development of radiation-processed polymeric films and nanocomposites for advanced packaging applications. • Investigation of the effects of ionizing radiation on polymer structure, morphology and performance. • Development of functional packaging materials to improve stored-grain protection and reduce losses caused by stored-product insect pests. • Research into incorporating selected active agents and nanomaterials into polymer matrices, subject to food-contact safety and regulatory requirements. • Evaluation of the mechanical, structural and functional properties of developed materials. • Collaboration with national and international research institutions and industrial partners to facilitate technology transfer and industrial implementation.
Examples of accomplishments	EAEA has conducted research on radiation-induced modification of polymeric materials and the development of polymer composites for industrial applications. Relevant research experience includes investigating polyethylene-based materials, incorporating silver nanoparticles and evaluating their resistance to stored-grain insect penetration. The Authority also has scientific expertise in polymer characterization, materials testing, radiation processing and the investigation of structure–property relationships. These capabilities provide a foundation for developing innovative packaging materials and translating laboratory research into industrially relevant products. The proposed collaboration aims to build on these capabilities through joint research, industrial validation and the development of a potential technology for practical application in grain storage and packaging.
Company strategic	The Egyptian Atomic Energy Authority (EAEA) aims to

orientation	strengthen its scientific research and development capabilities, promote the peaceful applications of nuclear science and technology, and translate research outcomes into practical industrial solutions. Its strategic priorities include: Research and Innovation: Developing advanced polymeric materials, radiation-processed plastics and rubber, nanocomposites, and functional films for industrial and environmental applications. Industrial Collaboration and Technology Transfer: Establishing partnerships with national and international companies to validate research outcomes, develop prototypes, and facilitate the commercialization and industrial application of innovative technologies. Sustainable Materials and Food Security: Developing innovative and environmentally responsible packaging materials to improve stored-grain protection, reduce postharvest losses, and support sustainable agricultural practices. International Cooperation: Promoting joint research projects, knowledge exchange, researcher training, and access to complementary expertise, advanced characterization facilities, and industrial testing capabilities. Through this strategy, EAEA seeks to strengthen the link between scientific research and industrial needs, support technology localization in Egypt, and contribute to sustainable industrial development. The long-term objective is to establish sustainable research–industry partnership that transforms scientific results into technically validated, environmentally responsible, and commercially viable packaging solutions.
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SECTION 2: Spanish Company Profile

(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)

Profile of ideal technology partner	A Spanish industrial company specializing in polymer materials, plastic films, advanced packaging, active and functional food packaging, polymer nanocomposites, or innovative polymer-processing technologies.
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	The ideal partner should have the capacity to collaborate in the development, testing, and industrial validation of advanced packaging materials for the protection of stored grains and the reduction of postharvest losses.
Core technological competencies and expertise	The prospective Spanish partner should have expertise in one or more of the following areas: • Food and agricultural packaging technologies. • Plastic films and polyethylene-based packaging materials. • Active, functional, and intelligent packaging technologies. • Advanced polymer materials and polymer nanocomposites. • Incorporation and dispersion of functional additives and nanomaterials into polymer matrices. • Sustainable, recyclable, and environmentally responsible packaging solutions. • Industrial development of innovative materials for grain storage and postharvest protection. • Polymer modification and processing technologies, including extrusion, compounding, and coating.
Other essential qualifications (e.g.: ownership, track records etc.)	The Spanish partner should preferably have experience in one or more of the following areas: • Development, formulation, and industrial processing of polyethylene and other polymer films. • Manufacturing of active, functional, or nanocomposite packaging films. • Incorporation of functional additives or nanomaterials into polymer matrices. • Film extrusion, compounding, coating, and other relevant polymer-processing technologies. • Mechanical, thermal, barrier, and durability testing of packaging materials. • Food-contact material safety, migration testing, and compliance with applicable European regulations. • Pilot-scale production, product optimization, and industrial scale-up. • Development of innovative packaging solutions for agricultural products and stored commodities.

	Experience with radiation-processed polymers or collaboration with research institutions would be an advantage but is not essential.
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	We are seeking Spanish companies with relevant industrial capabilities and facilities to support: • Joint development and optimization of innovative polymer-based packaging materials. • Preparation of prototype films or packaging bags using suitable industrial processing techniques. • Evaluation of mechanical properties, moisture and gas barrier performance, durability, and packaging functionality. • Assessment of manufacturing feasibility, scalability, and production costs. • Industrial validation and assessment of potential commercialization opportunities. Potential partners may include small and medium-sized enterprises (SMEs), established packaging manufacturers, polymer-processing companies, and technology-driven companies with in-house R&D capabilities or established links with research institutions..
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	The proposed collaboration involves bilateral research and development between the Egyptian Atomic Energy Authority (EAEA), Egypt, and a Spanish industrial company, within the framework of the relevant Egyptian–Spanish research and innovation funding programme. The collaboration aims to combine EAEA's expertise in radiation chemistry, radiation processing, polymer modification, and materials characterization with the Spanish partner's industrial expertise in polymer formulation, film manufacturing, packaging development, and industrial scale-up. The proposed activities include joint research, technical knowledge exchange, prototype development, performance testing, industrial validation, and potential technology transfer and commercialization.
Interested areas of collaboration	We welcome expressions of interest from Spanish SMEs, established industrial companies, packaging manufacturers, polymer-processing companies, and technology-driven enterprises with relevant industrial

	capabilities. Priority will be given to companies interested in developing innovative, economically viable, and environmentally responsible packaging solutions for agricultural products and stored grains, particularly solutions that improve grain protection, reduce stored-product insect damage, and minimize postharvest losses.
Specific R&D contribution you are seeking/offering	• The Spanish industrial partner is expected to contribute: • Industrial expertise in the formulation, processing, and manufacturing of advanced polymer films. • Facilities and technical support for producing prototype films or packaging bags. • Characterization and testing of mechanical, thermal, barrier, and durability properties. • Assessment of production feasibility, scalability, and manufacturing costs. • Support for industrial validation and evaluation of commercialization opportunities. • The Egyptian Atomic Energy Authority is expected to contribute: • Expertise in radiation chemistry, radiation processing, and radiation-induced polymer modification. • Research on the development of radiation-processed active polymer nanocomposite films. • Materials characterization and evaluation of radiation-induced structural and functional changes. • Investigation of packaging performance for stored-grain protection, including resistance to stored-product insect penetration. • Scientific coordination, joint data analysis, and contributions to research publications and technology development. • Expected joint outcomes: • Development and evaluation of innovative radiation-processed active polymer nanocomposite films. • Production and testing of packaging prototypes for stored-grain protection.

	• Assessment of packaging performance, food-contact safety, environmental considerations, and industrial feasibility. • Potential reduction of stored-product insect damage and postharvest losses. • Joint scientific publications, intellectual property protection where appropriate, and opportunities for technology transfer and commercialization.
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Project Summary

Proposed Project Title:

Radiation-Processed Active Nanocomposite Sacks for Stored-Grain Protection and Stored-Product Insect Control

The proposed Egyptian Spanish bilateral R&D project aims to develop innovative, functional and environmentally responsible polymer-based packaging materials to protect stored grains and reduce postharvest losses caused by stored-product insect pests.

The project will investigate the development of polypropylene-based films or packaging sacks incorporating selected active agents, Propolis extract, a natural resinous product collected by honeybees and nanomaterials, using suitable radiation-processing techniques to modify material properties and potentially enhance packaging performance.

The Egyptian Atomic Energy Authority will contribute its expertise in radiation chemistry, polymer modification, nanocomposite development and materials characterization. The Spanish industrial partner will contribute expertise in polymer processing, packaging-sacks manufacturing, prototype production, performance testing and industrial scale-up.

The joint research will focus on optimizing material formulations and processing conditions, characterizing the developed films, evaluating their mechanical and barrier properties, and investigating their effectiveness in preventing insect penetration and protecting stored grains. Food-contact safety, potential migration of active components, environmental considerations and applicable regulatory requirements will be addressed.

The expected outcomes include the development and validation of prototype packaging materials, assessment of their industrial feasibility, and establishment of a foundation for future technology transfer and commercialization.

The project aims to strengthen Egyptian Spanish scientific and industrial cooperation while contributing to sustainable grain storage, improved food security and reduced postharvest losses.

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