FAroGels

MSCA Doctoral Network

DOCTORAL CANDIDATE POSITION

DC[12] – Bio-based Aerogels for Active & Safe Food Packaging

Position	DC12: Bio-based Aerogels for Active & Safe Food Packaging
Project	FAroGels – Food-Grade Aerogels for Sustainable Food Systems
Funding programme	Horizon Europe – Marie Skłodowska-Curie Actions Doctoral Networks (HORIZON-MSCA-2025-DN-01-01)
Grant Agreement number	101312450
Recruiting/Host organisation	University of Santiago de Compostela (USC), Santiago de Compostela, Spain
PhD awarding institution	University of Santiago de Compostela (USC), Department of Analytical. Chemistry, Nutrition and Food Science, FoodChemPack Research Group, Santiago de Compostela, Spain
Type of contract	Fixed-term employment contract, 36 months
Job status	Full-time (100%)
Application deadline	09 December 2026, 23:59 (CET)
Expected start date	March 2027

About FAroGels

FAroGels – Food-Grade Aerogels for Sustainable Food Systems is a Marie Skłodowska-Curie Actions Doctoral Network funded by the European Union under Horizon Europe. The network brings together academic and non-academic partners with complementary expertise in food science and technology, materials science, biopolymer science, biotechnology, process engineering, analytical characterization, packaging and sustainable innovation. **FAroGels** aims to develop, characterize and validate food-grade, bio-based and biodegradable aerogels for sustainable food systems. The network will investigate how these highly porous materials can support more efficient food processing, improved food quality and safety, nutritional and sensory functionality, protection and delivery of bioactive compounds, and sustainable packaging solutions.

Position Description

This position forms part of the FAroGels research program on food-grade, bio-based, and biodegradable aerogels and their application in sustainable food systems. The selected candidate will be employed by University of Santiago de Compostela (USC) and will be required to enroll as a PhD student at **USC** in accordance with the relevant admission and enrolment requirements.

The doctoral project will focus on Bio-based aerogels with integrated active and safety functionalities for food-contact packaging.

- The transition towards sustainable food packaging requires innovative materials that combine bio-based composition, high functionality and demonstrated safety. DC12 will develop polysaccharide-based aerogels with integrated antioxidant and antimicrobial functionalities for direct food-contact applications, while establishing a comprehensive strategy for their safety assessment.

  The project will focus on polysaccharides derivatives functionalised with polyphenolic tannins recovered from agro-industrial side streams. Unlike conventional surface-coated systems, tannins will be incorporated during the gelation process to achieve a homogeneous distribution within the aerogel network, promoting strong intermolecular interactions, high porosity and controlled release. Aerogels will be produced through sol-gel processing followed by supercritical CO_2 drying or freeze-drying, depending on the desired structural and functional properties.

  The PhD candidate will investigate the relationships between composition, processing conditions, structure and functionality through a multidisciplinary characterisation approach, including morphological and structural analyses,

thermal and mechanical properties, swelling behaviour, antioxidant and antimicrobial activity, and stability during relevant storage and application conditions. Experimental results will be used to optimise aerogel formulations and identify the most promising materials for food-contact applications.

A central challenge will be to demonstrate that enhanced functionality does not compromise food-contact safety. The candidate will therefore develop and apply analytical strategies for the identification and quantification of potential migrants and transformation products using GC-MS and LC-MS/MS, complemented by migration testing under relevant food-contact conditions. The project will further integrate dietary exposure assessment and in-silico toxicological approaches to support the safety evaluation of the developed materials according to the EU regulatory framework for food contact materials.

The research will contribute to FAroGels by linking bio-based aerogel design, active functionality and safety-by-design, supporting the development of sustainable and safe next-generation food-contact materials.

- The position will involve laboratory-based research, data analysis, scientific communication and close collaboration with other FAroGels Doctoral Candidates, supervisors and partner organizations.

Supervisory Team

The Doctoral Candidate will be supervised by a team combining academic and non-academic expertise:

Role	Name	Organisation	Country
Main supervisor	Dr. Letricia Barbosa Pereira	University of Santiago de Compostela (USC)	Spain
Academic co-supervisor	Prof. Carlos A. García González Dr. Raquel Sendón García	University of Santiago de Compostela (USC)	Spain
Industry supervisor	Dr. Philip Jaeger	Eurotechnica GmbH (EuT)	Germany

Planned Secondments

As part of the training programme, the Doctoral Candidate will complete planned secondments at FAroGels partner organisations:

Host organisation	Sector	Country	Duration
Aerofybers Technologies S.L. (AFyb)	Non-academic	Spain	3 months
Middle East Technical University (METU)	Academic	Türkiye	2 months
Universita degli Studi di Udine (UNIUD)	Academic	Italy	3 months

Main Responsibilities

The Doctoral Candidate will be expected to conduct research on:

→ Develop and optimise **polysaccharide-based aerogels** functionalised with polyphenolic tannins recovered from agro-industrial side streams.

→ Investigate **sol-gel processing and drying strategies** (SC-CO_2 and freeze-drying) and characterise the resulting aerogels in terms of structural, morphological, thermal, mechanical, swelling, antioxidant and antimicrobial properties.

→ Study the **stability, interactions and potential release of tannins** within the aerogel network under relevant conditions.

→ Assess **food-contact safety and migration** using relevant testing conditions and GC-MS/LC-MS/MS, complemented by dietary exposure modelling and in-silico toxicity assessment.

→ Evaluate the **application of selected aerogels in food packaging**, including their compatibility with food products, active functionality and effects on food quality and shelf life during storage.

→ Integrate material, functionality, food application and safety data to establish **structure–property–function–safety relationships** and optimise aerogels for sustainable direct food-contact packaging.

- Plan, perform, document and analyse experimental work using relevant laboratory, analytical, processing and/or modelling methods.
- Participate actively in FAroGels network meetings, workshops, training schools, seminars and transferable-skills activities.
- Undertake planned secondments at FAroGels partner organisations, as specified for the DC project.
- Work collaboratively with academic and non-academic partners across the FAroGels network.
- Prepare scientific reports, project deliverables, presentations, publications and, where relevant, other dissemination or exploitation-related outputs.

Requirements

- **Educational Background**: Master's degree (or equivalent) in relevant field, e.g., pharmaceutical sciences, chemistry, materials science, food science and technology, chemical engineering, biochemistry or biotechnology.
- **Skills**: Strong laboratory and analytical skills in analytical chemistry and food and materials analysis and characterization.
- **Languages**: Proficiency in English (written and spoken) is required.
- Strong motivation to pursue doctoral research in an international and interdisciplinary environment.
- Ability to work independently while contributing effectively to collaborative research activities.
- Good organization, communication and problem-solving skills.
- Willingness to travel for planned secondments, network meetings and training activities.
- Commitment to responsible research conduct, inclusion, collegiality and professional development.

MSCA Doctoral Network Eligibility Criteria

Applicants of any nationality are welcome to apply. At the date of recruitment, applicants must meet the following MSCA Doctoral Network requirements:

- **Doctoral candidate status:** Applicants must not already hold a doctoral degree. Applicants who have successfully defended their doctoral thesis but have not yet been formally awarded the doctoral degree are not eligible.
- **Mobility rule:** Applicants must not have resided or carried out their main activity (work, studies, etc.) in Spain for more than 12 months in the 36 months immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention or EU temporary protection are not taken into account. **Compliance is verified before the start of employment, on the basis of the candidate's passport and, where necessary, other documents.**
- **PhD enrolment:** Doctoral Candidates must be enrolled in a doctoral programme leading to the award of a doctoral degree in at least one EU Member State or Horizon Europe Associated Country. For this position, this is the doctoral programme at USC; applicants must therefore meet its admission requirements.
- **Institution-specific requirements:** https://www.usc.gal/en/admision/doutoramento

→ **Visa and residence permit:** a visa or residence/work permit is not required at the application stage and is not a selection criterion. Where needed, it will be arranged after selection and before the start of employment, with the support of the recruiting organisation. Candidates from non-EU countries are equally welcome to apply.

What FAroGels Offers

- A full-time doctoral position funded through the **FAroGels** MSCA Doctoral Network.
- A fixed-term employment contract for 36 months at USC.
- A competitive salary and employment conditions in accordance with the MSCA Doctoral Networks funding provisions, applicable national legislation and the policies of USC.
- Social-security coverage and other employment-related benefits in accordance with the applicable national and institutional framework.
- A Personal Career Development Plan (PCDP), prepared with the supervisory team and reviewed and updated during the project.
- Access to research facilities, infrastructure, training and support services at the Host Institution and within the FAroGels network.
- Participation in a structured doctoral training programme including scientific and technical training, transferable skills, career development and innovation-oriented activities.
- Planned secondments at FAroGels partner organizations, offering complementary scientific, technical and cross-sectoral experience.
- An international research environment and opportunities to build a professional network across academia and non-academic organizations.

Salary and Financial Package

This position is funded by the FAroGels MSCA Doctoral Network (HORIZON-MSCA-2025-DN-01-01, Grant Agreement No. 101312450). The salary is based on the following monthly MSCA allowances:

- **Living allowance:** EUR 4,010, adjusted **by the country correction coefficient** of the country of the recruiting organisation to ensure equal treatment and comparable purchasing power for all researchers.
- **Mobility allowance:** EUR 710, contributing to mobility-related costs such as relocation and travel.
- **Family allowance (if applicable):** EUR 660, paid for the months in which the Doctoral Candidate has a family during the project, including where family obligations arise after recruitment. 'Family' means persons linked to the researcher by marriage (or a relationship with equivalent status recognised by the legislation of the country where it was formalised) or dependent children actually being maintained by the researcher. The allowance is paid in accordance with the rules of the recruiting organisation, and supporting documents may be requested.

Monthly MSCA allowances for this position

Component	Calculation (per month)
Living allowance	EUR 4,010 × [country correction coefficient = 95.6%] (see guidance below)
Mobility allowance	Fixed amount = EUR 710.00
Total without family allowance	Living + mobility allowance
Total with family allowance	Living + mobility + EUR 660

Please note: *the amounts above represent the total employment cost, from which the employer's and the employee's compulsory social-security contributions and taxes are deducted in accordance with national law. Unless the recruiting organisation provides additional funding, the gross salary paid to the Doctoral Candidate is therefore lower than these amounts, and the net salary depends on personal circumstances.*

Country correction coefficients of the FAroGels beneficiaries

Country	CCC	Living allowance	+ mobility (EUR 710)	+ family (EUR 660)
Türkiye	64.5%	2,586.45	3,296.45	3,956.45
Poland	74.1%	2,971.41	3,681.41	4,341.41
Italy	95.3%	3,821.53	4,531.53	5,191.53
Spain	95.6%	3,833.56	4,543.56	5,203.56
Germany	101.2%	4,058.12	4,768.12	5,428.12
Finland	118.0%	4,731.80	5,441.80	6,101.80
United Kingdom	141.7%	5,682.17	6,392.17	7,052.17

Employment conditions: the Doctoral Candidate will be hired full-time (100%) by the recruiting organisation on a 36-month employment contract, with social-security coverage under national law that continues during secondments.

Funding Duration and PhD Completion

- This Doctoral Candidate position is funded by the FAroGels MSCA Doctoral Network for a maximum period of 36 months.
- The overall period required to complete a PhD degree may, depending on the regulations of the PhD awarding institution and applicable national requirements, extend beyond the 36-month FAroGels funding period.

Please note: *any employment, scholarship or other financial support beyond the 36-month FAroGels funding period is not covered or guaranteed by FAroGels. Any potential continuation of employment or funding would need to be considered separately between the relevant institution and the Doctoral Candidate, subject to institutional regulations and the availability of funds.*

About the Host and PhD Awarding Institution(s)/Organizations

The University of Santiago de Compostela (USC) provides an interdisciplinary environment combining expertise in food science, analytical chemistry, materials science and pharmaceutical technology. The DC12 project will be hosted by the Department of Analytical Chemistry, Nutrition and Food Science, within the FoodChemPack research group, under collaborative supervision with the AerogelsLab from the Department of Pharmacology, Pharmacy and Pharmaceutical Technology.

FoodChemPack has extensive experience in food safety, food contact materials (FCMs) and analytical chemistry, with advanced facilities for chemical identification and characterisation, including LC-MS/MS, P&T-GC-MS, HS-GC-MS, HPLC-DAD-FLD-RI and FTIR, as well as sample preparation equipment such as Nano Spray Dryer, Speed Extractor and Syncore Plus. The group has particular expertise in migration testing and chemical safety assessment of FCMs according to EU regulations. AerogelsLab provides complementary expertise and facilities for aerogel preparation and characterisation, including supercritical CO_2 equipment, batch-scale aerogel production (100 mL–2 L), 3D bioprinting, TGA, DSC, nitrogen adsorption–desorption, helium pycnometry and release testing. The DC will also have access to USC central facilities, including confocal, SEM and TEM microscopy and microCT. This complementary expertise and infrastructure will support the development, characterisation, food application and safety assessment of innovative bio-based aerogels.

The successful candidate must fulfil the admission and enrolment requirements of USC.

Item	Information
Doctoral programme / doctoral school	Doctoral Programme in Innovation in Food Safety and Technology, USC International PhD School

Item	Information
Relevant faculty / department	Faculty of Pharmacy, Department of Analytical Chemistry, Nutrition and Food Science
PhD admission and enrolment requirements	**General requirements** Are those common and minimum requirements at an academic level in order to access doctoral studies. In general, in order to access an official doctoral programme, it will be necessary to have the official Spanish degree titles, or equivalent, and a university Master, or equivalent, as long as it is over, at least, 300 ECTS credits as a whole in these two sectors of education. In addition, there are other possibilities that allow access to the official doctoral studies, which are regulated in artícle 6 of the RD 99/2011. https://www.usc.gal/en/admision/doutoramento **Specific requirements and admission criteria** Are those specifically stated by each doctoral programme. Doctoral Programme in Innovation in Food Safety and Technology.
Official PhD admission / enrolment webpage	https://www.usc.gal/en/studies/doctoral-programme/health-sciences/doctoral-programme-innovation-food-safety-and-technology
Separate PhD application or enrolment procedure	Yes. Once selected, an administrative enrolment procedure at USC will be needed in the **January 28, 2027 - February 3, 2027 period (28.01.2027 - 03.02.2027).**
Recognition of foreign qualifications	https://www.usc.gal/en/admision/doutoramento
Additional requirements	Enrolment fees to the PhD Programme at USC may apply (https://www.usc.gal/en/admision/prezos-titulacions-academicas) Proof of English-language proficiency

Application Documents

Please submit the following documents:

- A detailed curriculum vitae, including education, research experience, technical skills and relevant achievements.
- A motivation letter explaining your interest in this specific DC position, your relevant background and your suitability for the project.
- Copies of Bachelor's and Master's diplomas and academic transcripts, or evidence that the relevant degree will be completed before the recruitment date.
- Contact details for two referees and reference letters, according to the requirements of USC.
- Proof of English-language proficiency, if required by the PhD awarding institution.
- Incomplete applications may not be considered.

How to Apply

Applications for this position must be submitted through **both** of the following channels:

1. Candidates are invited to submit their applications through a direct e-mail to the DC12 supervisor. The application should include the documentation specified in the vacancy announcement, and candidates will be contacted by the supervisor for the subsequent stages of the selection process.
   The FoodChemPack research group recruitment channels, including the group webpage and LinkedIn, will be used. The vacancy will also be advertised through the EURAXESS Jobs Portal and the FAroGels communication channels.
   The final recruitment and appointment will be carried out in accordance with the institutional procedures of the University of Santiago de Compostela (USC) and the applicable MSCA Doctoral Network requirements.
2. **FAroGels online application form** – in addition, please complete the application form at https://farogels.eu/apply/ and upload the same documents there.

Indicative timeline

- **Application deadline:** 09 December 2026, 23:59 (CET)
- **Interviews:** January 2027
- **Evaluation:** January 2027
- **Selection outcome:** January 2027
- **Expected start of employment:** March 2027

Please note: *Applicants should ensure that all required documents are submitted before the stated deadline. Please note that a separate PhD admission and/or enrolment procedure may apply at USC.*

Selection Process

FAroGels follows an open, transparent and merit-based recruitment process in line with the European Charter for Researchers:

- Eligibility check by the FAroGels Project Manager.
- Evaluation of the eligible applications by an Interview Committee (primary supervisor, co-supervisor(s) and a representative of a non-academic partner) with a standardised scoring matrix; the three to five best-ranked candidates are shortlisted.
- Online interview with the shortlisted candidates.
- Approval of the selection by the FAroGels Supervisory Board, after which an offer is made.

All applicants are informed of the outcome and receive feedback on request.

Equal Opportunities and Data Protection

FAroGels and USC are committed to equal opportunities, diversity and inclusion. Applications from all qualified candidates are welcome, irrespective of gender, gender identity or expression, sexual orientation, ethnic or social origin, nationality, disability, age, religion or belief.

Personal data submitted with applications will be processed by USC exclusively for recruitment purposes and in accordance with the applicable data-protection legislation and institutional privacy policies.

Contact Information

- **For scientific questions regarding the DC project, please contact:**

Letricia Barbosa Pereira, Asistant Professor, Main Supervisor DC12 Bio-based Aerogels for Active & Safe Food Packaging
Department of Analytical Chemistry, Nutrition and Food Science, FoodChemPack Research Group USC
Email: letricia.barbosa.pereira@usc.es

- **For questions regarding the application process and/or PhD admission and enrolment, please contact:**

Letricia Barbosa Pereira, Asistant Professor, Main Supervisor DC12 Bio-based Aerogels for Active & Safe Food Packaging
Department of Analytical Chemistry, Nutrition and Food Science, FoodChemPack Research Group USC

- **General questions about FAroGels and the recruitment process:** FAroGels Project Management Team, Middle East Technical University (METU), Ankara, Türkiye – farogels@metu.edu.tr
- **General information on FAroGels:** https://farogels.eu/

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