

# Job Title: Materials' Physics and Chemistry Engineer

Req ID 9847 - Posted 17/03/2020



## EUROPEAN SPACE AGENCY

Vacancy in the Directorate of Technology, Engineering and Quality.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. Applications from women are encouraged.

### Post

#### Materials' Physics and Chemistry Engineer

This post is classified A2-A4 on the Coordinated Organisations' salary scale.

### Location

ESTEC, Noordwijk, The Netherlands

### Description

Materials Physics & Chemistry Engineer in the Materials Physics & Chemistry Section, Technical Reliability & Quality Division, Product Assurance & Safety Department, Directorate of Technology, Engineering & Quality.

The Section provides functional support to ESA projects and carries out technological research (R&D) in the fields of materials physics and chemistry (MPC), associated processes and environmental effects.

It supports project specific-activities in the selection, characterisation, verification, approval and application of metallic/ non-metallic materials and processes for ESA programmes with a focus on MPC and environmental effects, the latter covering both ground and space.

### Duties

Reporting to the Head of Section and within the technical fields described above, your main tasks and responsibilities include:

- providing expert technical support and consultancy to ESA projects, programmes and general studies in the MPC field throughout all project phases, focusing on cleanliness and contamination control;
- ensuring materials, processes and sub-assemblies are compatible with mission requirements in terms of space and ground environmental effects (vacuum, temperature, contamination) and with storage and launcher requirements;
- participating in feasibility studies, project reviews and evaluation of procurement proposals;
- providing contamination control engineering support to space projects, developing and analysing cleanliness requirements, reviewing and drafting control plans, test reports, analysis reports and procedures for sampling, monitoring and hardware cleaning;
- supporting project-specific activities in the selection, characterisation, verification, approval and application of metallic/non-metallic materials and processes for ESA programmes, focusing on MPC and cleanliness and contamination control;
- identifying critical development problems, assisting in their resolution via e.g. NRBs;

- coordinating and supporting non-conformance investigations and failure analysis in the required fields of competence above;
- developing and implementing procedures for new laboratory test methods and materials analysis techniques, focusing on cleanliness and contamination analysis and testing, which includes analysing future mission requirements, preparing appropriate evaluation techniques and contamination modelling;
- contributing to definition and implementation of technology development requirements and work plans for ESA technology programmes;
- defining, initiating and managing R&D activities covering long- and short-term needs;
- contributing to implementation of Agency-wide initiatives such as CleanSpace, Space & Energy, focusing on MPC, associated processes and environmental effects;
- supporting and contributing to the establishment and implementation of requirements, handbooks and standards regarding space materials (Q-70 series) in the field of competence;
- maintaining and developing ESA's competence in MPC, associated processes and environmental effects, promoting achievements and concepts through conferences, workshops and training;
- monitoring applicable scientific and technological trends, maintaining state-of-the-art expertise;
- contributing to the dissemination of the results of activities performed and the transfer of knowledge across the Agency.

Duties may also include supporting other activities within your field of competence.

## Technical competencies

General background and specific experience in the technical domains covered by the position

Project support experience in technical domains covered by the position

Spacecraft systems knowledge and materials engineering aspects for space missions

Hands-on laboratory experience with characterisation techniques to evaluate environmental effects on materials and related processes, with specific focus on cleanliness and contamination

Experience in preparation of procurement activities for technology development and innovation (statements of work, proposal evaluation)

Experience in managing and monitoring industrial activities, participation in reviews

Experience with materials and process engineering, quality standards, possibly including their preparation and implementation

## Behavioural competencies

Communication

Teamwork

Customer Focus

Innovation & Creativity

Problem Solving

Planning & Organisation

## Education

Master's degree or equivalent qualification in materials science or engineering, materials physics or chemistry, applied physics or any other field related to the job position.

## Additional requirements

Understanding of how materials and their associated processes are affected by the environment (ground and space) and how test methods are developed to characterise such effects.

Familiarity with and knowledge of environmental modelling software like SPENVIS is an asset.

## Other information

For behavioural competencies expected from ESA staff in general, please refer to the ESA Competency Framework.

The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset.

The Agency may require applicants to undergo selection tests.

**The closing date for applications is 14 April 2020.**

If you require support with your application due to a disability, please email [contact.human.resources@esa.int](mailto:contact.human.resources@esa.int).

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Please note that applications are only considered from nationals of one of the following States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Canada and Slovenia.

According to the ESA Convention the recruitment of staff must take into account an adequate distribution of posts among nationals of the ESA Member States. When short-listing for an interview, priority will first be given to internal candidates and secondly to external candidates from under-represented Member States.

<http://esamultimedia.esa.int/docs/careers/NationalityTargets.pdf>

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment.

Recruitment will normally be at the first grade in the band (A2); however, if the candidate selected has little or no experience, the position may be filled at A1 level.