

## Project 5 Cryogenic Thermal Analysis

### Objectives

- Identify active facilities for thermal analysis of solids at cryogenic temperatures from 300 K down to 4 K
- Identify strengths and constraints of the available methods/instruments (uncertainty, sample throughput rate, sample dimensions etc.)
- Exchange knowledge and create connections within the community

### Background

Cryogenic thermal analysis is receiving rising interest due to the increasing application of cryogenics in the energy sector (High-temperature superconductors, Liquid hydrogen applications). However, data on material properties and intercomparability of methods at deep cryogenic temperatures are scarce, especially for advanced materials. This deficiency hinders implementation and optimization of novel materials into applications.

- This call seeks to identify organizations interested in cryogenic material property data and their measurement capabilities.
- A second goal is to identify current (in use) calibrants, reference materials and methods for reducing uncertainty and improving measurement intercomparability.

### Measurands

- Thermal expansion
- Thermal conductivity
- Specific heat
- Thermal diffusivity

### Work Programme

Participants must be able to perform one or multiple of the above measurements to temperatures as low as 4 K. A range of various methods and instruments will be involved.

Test materials will be chosen based on their thermophysical properties and availability of reference data. They will be provided in the required geometry. As the measurement uncertainty in thermal analysis is usually linked to the material under investigation, the programme will involve the study of up to two materials per measurement type.

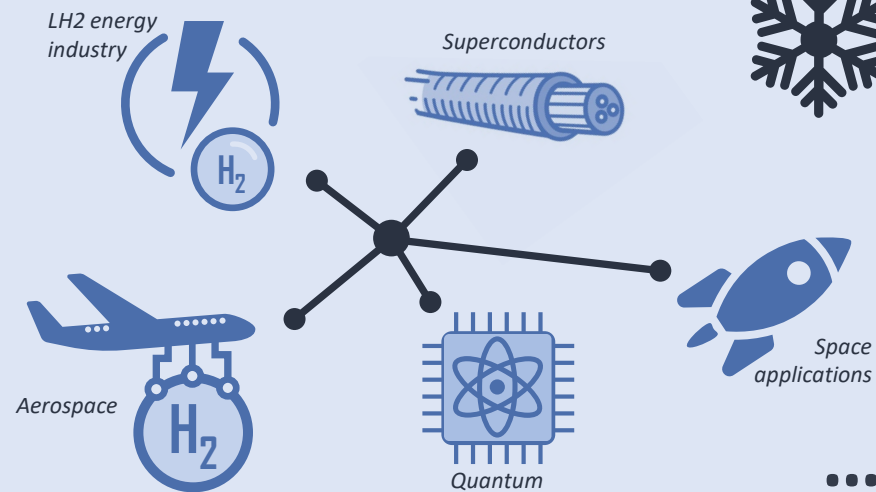
### Deliverables and Dissemination

The data from the study will be used to develop best practice guides for the four measurands.

The international collaborative partnerships that VAMAS fosters, paves the way to enable future standardisation initiatives.

## Call for Expressions of Interest

### Application of cryogenics



### Funding

Participants fund their own involvement in the study.

### International Participation

Expressions of Interest are sought for international participation. We are aiming for global representation.

[Register your interest](#)  
to join the working group



### For more information:

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