



Dielectric material platform

Insulating materials expertise for MV / HV product development

We can design, prototype and characterise any dielectric material for the insulation of high or medium voltage equipment, delivering fast results and helping our clients bring their products to market.

OVERVIEW

The properties of insulating materials are fundamental in designing equipment used for low to high voltages, subject to high levels of electric fields.

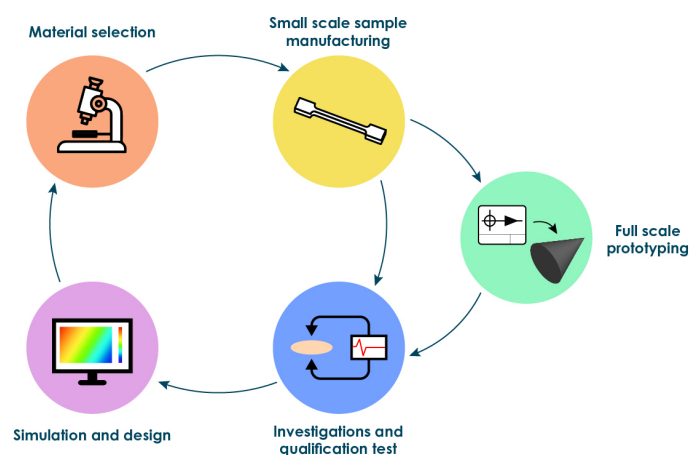
SuperGrid Institute's material testing department has developed an expertise in dielectric materials, with a core competency of analysing material ageing under thermoelectric stress.

As a part of MV / HV product development, we offer services that focus on our customer's specific material needs, according to their specifications.

AVAILABLE SERVICES

- Support customer in writing material specification including all material properties
- Recommend suitable materials for your applications
- Formulation of composite materials for optimised performance
- Material benchmarking
- Comprehensive characterisation measurements based on a material specification
- Investigation tests & thermoelectrical ageing
- In-house prototyping
- Validation of a dielectric material based on a functional specification

This list is not exhaustive. Please contact us to express your needs so we can offer you a personalised service.



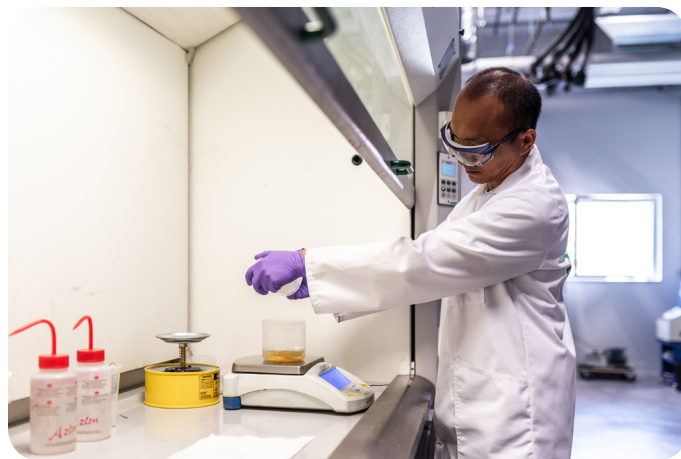
DESCRIPTION

We perform dielectric material casting for sampling and prototyping in our chemical laboratory.

In our characterisation laboratory we measure standard chemical, thermal and mechanical properties.

We can provide key parameters for AC and DC electrical equipment design for your applications thanks to our specific platform dedicated to electrical characterisation.

We tailor thermoelectrical tests, from the test bench to the test procedure, to guarantee that a dielectric material can be used throughout the whole lifecycle of a given electrical equipment.

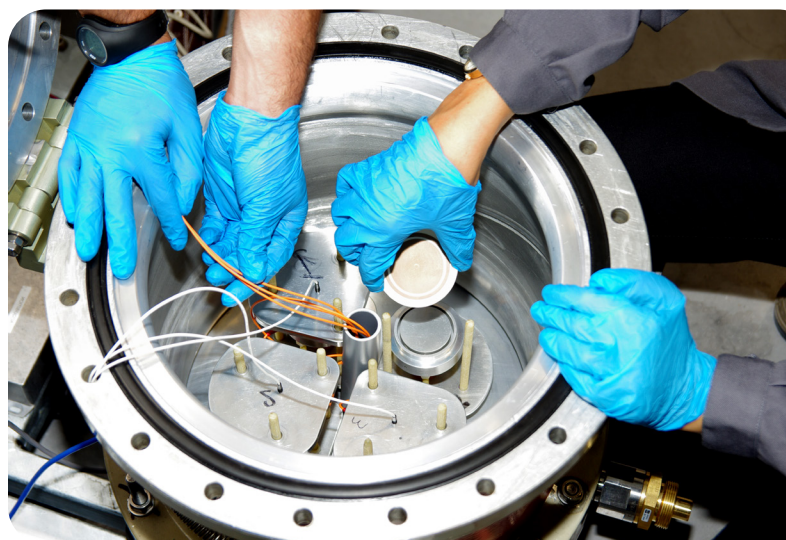


MATERIAL PROTOTYPING & SAMPLING

- Sample design
 - CAD
 - Thermoelectrical simulation
- Casting of thermoset polymers through
 - Gravitational injection
 - APG molding (up to 500 x 500 x 500 mm)

THERMOELECTRICAL AGEING CAMPAIGNS

- Design of specific testing chambers, compatible with all of our dielectric platforms
- On line monitoring: leakage current, space charge (PEA), partial discharge, etc.
- Physicochemical analysis follow-up: FTIR mapping, etc.



ELECTRICAL CHARACTERISATION

| Technique | Test parameters | Controlled atmosphere* | Standards |
|-------------------------------------|---|------------------------|--|
| Dielectric spectroscopy | Frequency: from $2 \cdot 10^{-3}$ to 10^6 Hz Temperature: -190 °C to +200 °C | | IEC62631-2-1 |
| DC conductivity (bulk & surface) | Temperature: up to 100 °C Voltage: up to 40 kV | ✓ | IEC 62631-3 |
| Material breakdown strength | Temperature: up to 70 °C Voltage: AC/DC up to 420 kV | ✓ | IEC60112 IEC60243 IEC60343 IEC61251 |
| Partial discharge | Noise: down to 0.5 pC | ✓ | IEC60270 |
| Space charge (PEA) | Temperature: up to 70 °C Voltage: up to 40 kV | | |
| Surface erosion | Airflow and corona controlled | | IEC60587 |

* Neutral gas / SF₆ and alternative to SF₆ / Dry air / Humidity controlled



CONTACT

For additional information or to ask for a quote, please contact:

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