Graphene and Related 2D Materials

Technical Work Area 41

VAMAS

Project 15

The sheet resistivity measurement of the Flexible Fabric Composited by GR2M

Objectives

This project aims to ensure accuracy and consistency of sheet resistivity measurements on flexible fabrics comprised of GR2M across different laboratories. Interlaboratory comparisons will seek to validate measurement methods, assess uncertainties, and develop new measurement standards to promote international trade and enhanced reliability of scientific data.

Background

Flexible fabrics comprised of graphene and related 2D materials (GR2M) are often composite material. Due to the unique physical, chemical, and electrical properties of GR2M, such fabrics are widely applied across fields such as flexible electronics, smart textiles, and wearable devices. Sheet resistivity, i.e., the electrical resistance of a material per unit area, is a key material property for these applications, which has led to a need for accurate and comparable measurement methods specific for these materials.

Standardization Needs

There are currently no internationally recognized standards for sheet resistivity measurements on flexible fabrics composited with GR2M. Confidence in determined values and intercomparability of measurements are crucial for achieving commercialization.

Due to the multiple production routes and producers of graphene similar materials, *e.g.*, GaN wafers, reliable, accurate, and repeatable measurement methods are essential to maintain manufacturing quality and promote international business. If methods are determined to produce consistent and repeatable data, they can be considered for future international standardization.

Work Programme

Composite flexible fabrics containing GR2M and measurement methods will be provided for determining sheet resistivity through a combination of electrical measurements.

Homogenous samples will be centrally prepared and distributed to each participant. Data analysis will be conducted by participants, as well as providing raw data for central analysis.

Call for Participation

Deliverables and Dissemination

Planned dissemination of developed experimental methods includes production of a VAMAS technical report and publication of results in a scientific journal. An additional intention is to inform potential international standardisation efforts (*via* ISO TC 229)

International Participation

Current participation includes institutes from Australia, Asia and Europe. More participants are welcome.

Funding

Participants fund their own involvement in the project.

Project Status

Approved by the VAMAS Steering Committee for start-up.

For more information on participation, please contact:

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