

Project 9

Number of layers of a chemical vapour deposition grown graphene sheet using Transmission Electron Microscopy (TEM) and Selected Area Electron Diffraction (SAED)

Objectives

This project aims to validate the methodology for measuring the number of layers of CVD-grown graphene using TEM/SAED.

The uncertainties associated with the measurement and data analysis will be explored.

Background

Recently, graphene has attracted enormous attention due to its unique properties. CVD-grown graphene has shown it could be disruptive in many areas such as sensors and optoelectronics.

However, no study has been performed to understand the reproducibility of TEM/SAED measurements of graphene sheets. This can be due to issues with the preparation of suitable samples and the level of experience required by the instrument user.

Standardization Needs

As industry uptake of this material increases, international standardisation is critical to enable commercialisation.

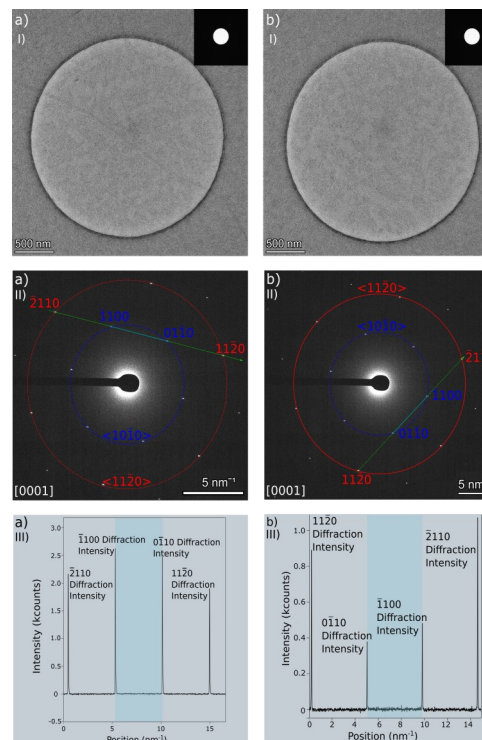
Reliable, accurate and reproducible measurements are important in order to maintain quality, considering that there are multiple production routes and producers of the material.

Several standards are under development within ISO TC 229 and IEC TC 113, focusing on the measurement of key physicochemical or electrical properties of graphene. Measurement of the number of layers of a graphene sheet is an urgent need as one of key physical properties.

Work Programme

The sample will be sourced from an industrial collaborator. The number of layers will be measured. The samples will be prepared and delivered to each

CALL FOR PARTICIPATION



participating laboratory by the project leader.

International Participation

Current participation includes volunteers from UK, Spain, Australia, Brazil, China, Korea, Japan and USA. More participants are welcome.

Funding

Participants will fund their own involvement in the project.

Deliverables and Dissemination

- VAMAS Technical Report
- Publication in peer-reviewed scientific journals
- This study will be used to aid development of standards within ISO TC229 'Nanotechnologies'.

Project Status

Call for international participants.

For more information:

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