

# Graphene Standardization – Status update and future

---

## **Norbert Fabricius**

Werner Bergholz, Gerd Weking

ISC - International Standards Consulting GmbH & Co. KG, Verdistr. 15A, 30989 Gehrden, Germany

[isc-office@isc-team-eu](mailto:isc-office@isc-team-eu)

---

During the autumn 2012 meeting of IEC/TC 113 in Milpitas (CA) the potential of graphene for electrotechnical products and systems was discussed in detail for the first time under the aspect of electrotechnical standardization. The starting point of the discussion was, of course, the extraordinary electrical properties of the material. However, the materials available on the market under the trade name graphene often had little to nothing to do with real graphene. It was therefore clear from the beginning that the availability of technical specifications and standardized measurement procedures for the properties (Key Control Characteristics, KCCs) specified therein is an indispensable prerequisite for the technical use of graphene. In addition to direct electrical properties, such as electrical conductivity, the list of KCCs to be specified also includes structural, chemical, and mechanical properties, as these significantly determine the performance of the electrotechnical end products.

Ten years later, after a decade of intensive research and development, graphene is increasingly finding its way into the industrial production of new and/or improved products. This process is supported by the development of standards demanded by the industry. This lecture will report on the current status of graphene standardization:

Where do we stand? Where will the focus for standardization activities be in the coming years?

In any case, the need to develop new standards remains high and participation in standardization is becoming increasingly important for the competitive situation of companies.