
**Nanotechnologies — Characterization of
volatile components in single-wall carbon
nanotube samples using evolved gas
analysis/gas chromatograph-mass
spectrometry**

*Nanotechnologies — Caractérisation des composants volatiles dans les
nanotubes de carbone à paroi simple (SWCNT) utilisant l'analyse des
gaz émis par chromatographie en phase gazeuse/spectrométrie de
masse*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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ISO/TS 11251 was prepared by Technical Committee ISO/TC 229, *Nanotechnologies*.

Nanotechnologies — Characterization of volatile components in single-wall carbon nanotube samples using evolved gas analysis/gas chromatograph-mass spectrometry

1 Scope

This Technical Specification specifies a method for the characterization of volatile components in single-wall carbon nanotubes (SWCNTs) samples using evolved gas analysis/gas chromatograph mass spectrometry (EGA/GCMS).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/TS 27687, *Nanotechnologies — Terminology and definitions for nano-objects — Nanoparticle, nanofibre and nanoplate*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 27687 and the following apply.

3.1

evolved gas analysis

EGA

technique in which the nature and/or amount of volatile product(s) released by a substance subjected to a controlled temperature program is(are) determined

NOTE The method of analysis should always be clearly stated (Reference [1] in the Bibliography).

3.2

evolved gas analysis/mass spectrometry

EGA/MS

technique using mass spectrometry to analyse gaseous components evolved from a sample as a function of temperature

NOTE Although the gases evolved at any particular temperature are detected simultaneously, it might not be possible to uniquely identify the different components using MS alone.

3.3

evolved gas analysis/gas chromatograph mass spectrometry

EGA/GCMS

technique combining a gas chromatograph and a mass spectrometer to identify the chemical composition of gases evolved from a sample as a function of temperature

NOTE The evolved gases are passed through a gas chromatograph (GC) to separate each component so that it can be identified in the MS unit.