

Thermogravimetric analysis (TGA)

Principle:

Thermogravimetric analysis uses heat to force reactions and physical changes in materials. Changes of weight of a material is measured under certain temperatures and time under a controlled atmosphere.

TGA is ideal for characterising the thermal properties of materials such as plastics, elastomers and thermosets, mineral compounds and ceramics as well as for chemical and pharmaceutical products.

Process:

- A sample is thermally heated by an inert gas passing over it while the weight of the sample is continually being measured.
- If the thermal heating involves a loss of volatile components, a reduction in sample weight is detected.
- Loss of mass could also be a reduction of chemical reactions such as combustion. Other chemical reactions such as melting has no effect on the mass.

Current Model



Figure: TGA

Video link: <https://www.youtube.com/watch?v=TjxWGN0s2fY>
https://resources.perkinelmer.com/lab-solutions/resources/docs/faq_beginners-guide-to-thermogravimetric-analysis_009380c_01.pdf



Instrument Description

Sub Folder: Thermal Analysis



Typical samples:

Materials analysed by TGA include polymers, plastics, composites, laminates, adhesives, and coatings.

Standards:

Samples are assessed using current international standards.

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