

LabSEAL

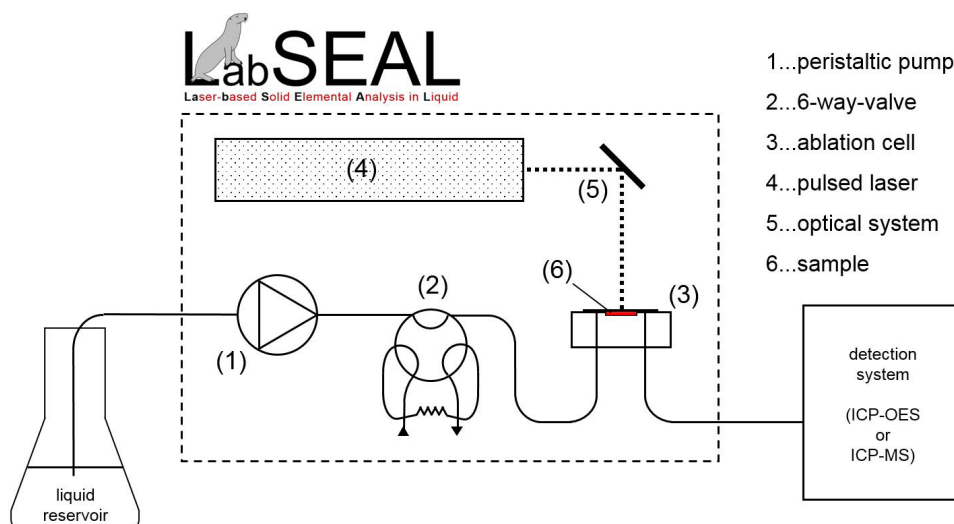
A simple way for determining the chemical composition of solid samples

BACKGROUND

Advanced materials are nowadays used in a wide range of research applications, as well as for industrial purposes. Particularly in the form of thin films, they offer promising perspectives. Chemical composition essentially influences their physical properties (e.g., electric conductivity, corrosion resistance) of the material which makes correct assessment necessary - in most cases a non-trivial task. Commonly applied techniques either lack in ease of use, accessibility, or adequately accurate quantification.

TECHNOLOGY

LabSEAL helps to mitigate current limitations by combining simple quantification without requiring excessive sample preparation. The sample of interest is placed inside a liquid-purged compartment, the ablation cell. Subsequently,



a highly energetic pulsed laser beam is used to convert parts of the sample into nanoparticles, which are then transported towards a spectroscopic detection device using the liquid carrier flow (setup illustrated in figure above). Accurate determination of the sample composition can be easily performed using aqueous standard solutions which are injected using a sample loop. Besides bulk analysis, also depth profiling and laterally resolved measurements are planned in future designs of the LabSEAL system.

BENEFITS

- Quick and accurate chemical analysis
- Near-to-no sample preparation
- No hazardous and toxic reagents required
- Easy to implement to existing infrastructure

REFERENCE:
M029/ 2016

APPLICATIONS:

- Coatings
- Solid state electrolytes
- Material analysis

DEVELOPMENT STATUS:
Prototype

KEYWORDS:

- Advanced materials
- Chemical analysis
- Solid sampling
- Quantification

IPR:

Austrian patent application submitted

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