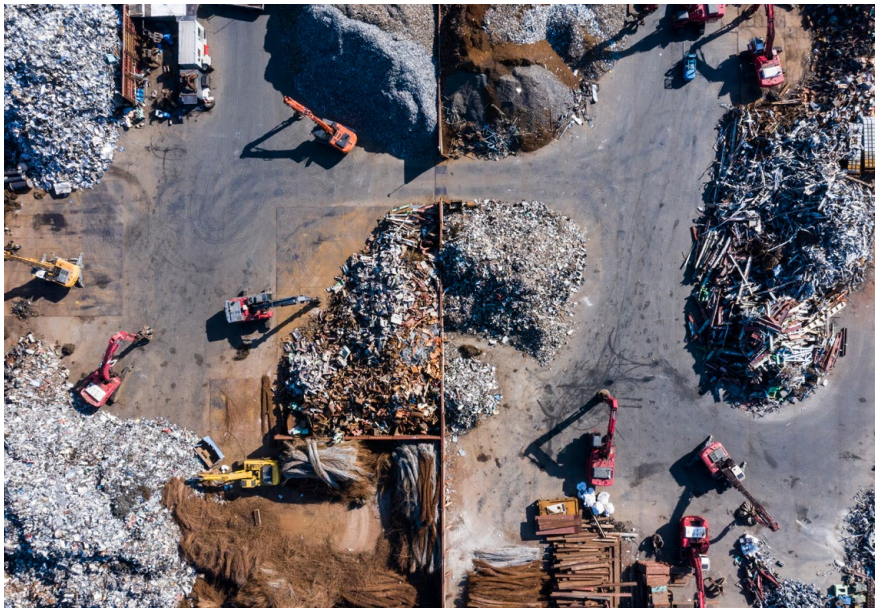
Elemental Analysis in Waste

From Sample Preparation to the Exact Heavy Metal Content

From waste to value –
Highlights at a glance:

- Scalable and tailored waste analysis lab setup
- High performance systems for high and medium throughput
- Reliable and compliant results
- Sample preparation, analysis and handling system from one source
- Safe microwave digestion systems with long lifetime
- Highly sensitive AAS, ICP-OES, and ICP-MS systems for multi-elemental analysis
- Handling systems to optimize your workflows
- Maximum operation safety
- Low maintenance requirements



Waste often contains toxic and ecotoxic elements such as heavy metals, but also valuable materials. Analytical parameters are used to classify the waste for recycling, landfilling, or thermal utilization. Discover Analytik Jena's portfolio for your specific waste analysis solution.

Challenges in waste analysis

Waste samples are high matrix samples with a broad variety of elements in very different concentrations. Measurement technology has to accurately detect elements with low detection limits and while minimizing measurement superimpositions. Analytik Jena's ICP-MS, ICP-OES, or AAS systems are durable and sensitive at the same time. Digestion systems enable fast sample preparation, and handling solutions support high-throughput analysis.

Microwave digestion systems

Microwave-assisted pressure digestion processes hardly soluble samples for measurement. With speedwave XPERT, sample preparation is easy, economic, and safe:

- Reliable digestions thanks to innovative sensor technologies
- Outstanding vessel lifetime
- Continuous safety control by Self Check System

Sample handling systems

With numerous intelligent functions such as automatic dilution, you can make elemental analysis easier and more efficient. Our broad range of autosamplers allows you to tailor your workflows exactly to your needs, and to optimize your routines in terms of time and cost.

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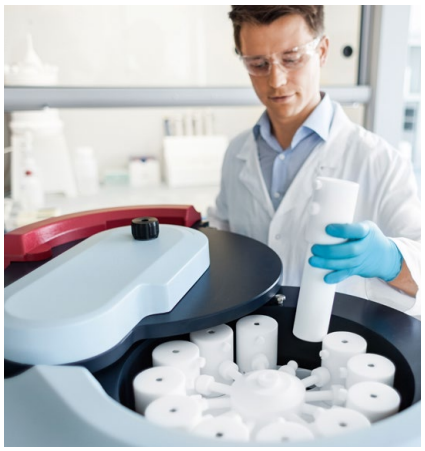
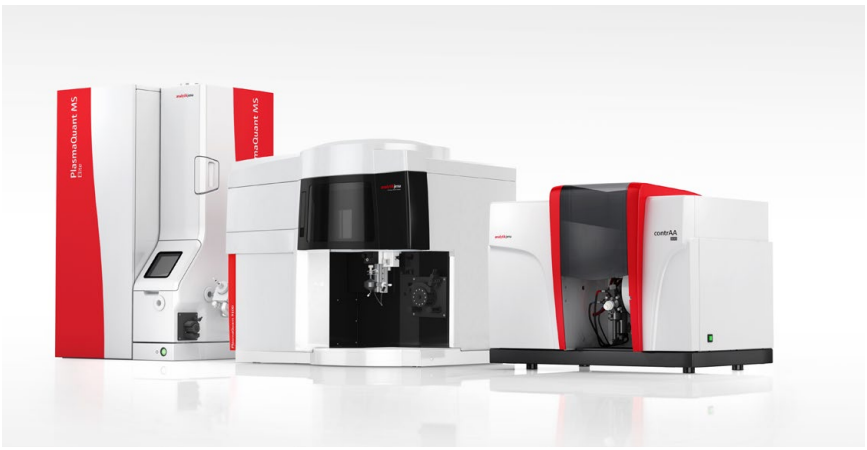


Sample preparation with speedwave XPERT



PlasmaQuant MS, PlasmaQuant 9100, and contrAA 800

ICP-MS with PlasmaQuant MS

For detecting elemental traces in the µg/L to ng/L range, inductively plasma coupled mass spectrometry (ICP-MS) is the method of choice. Due to highest sensitivity and very stable plasma, the PlasmaQuant MS precisely detects elements at very low limits, also in demanding matrices. The PlasmaQuant MS is ideal for the analysis of toxic and ecotoxic elements of landfill leachates, waste eluates, and industrial effluents.

- Up to 1,500 Mcps/ppm at < 2% CeO for lowest limits of detection (LODs)
- Suitable for multi-elemental analysis with demanding matrices
- High sample throughput
- Reduced operating costs due to very low argon consumption

ICP-OES with PlasmaQuant 9100

Inductively coupled plasma-optical emission spectrometry (ICP-OES) is particularly suitable for multi-elemental analysis in the mg/L to µg/l range, and ideal for advanced waste analysis. High resolution optics and exceptional matrix tolerance guarantee efficient and highly accurate analysis of sewage sludge, sludges, soils, biowaste, and electronic waste at all stages of the waste recovery process.

- Sensitive emission lines
- Matrix tolerance for highly concentrated sample aliquots
- Dual View PLUS plasma observation mode for wide working range
- High sensitivity and excellent detection limits

AAS with contrAA 800, novAA 800, and ZEEnit

Atomic absorption spectroscopy (AAS) stands for simple and robust elemental analysis in waste and in recycling products. While the flame technique determines higher element concentrations, graphite furnace technique offers reliable results for trace analysis in challenging matrices. Our variety of accessories enhances the performance of your workflow.

- Fast elemental analysis at lowest detection limits (contrAA 800)
- Trace analysis also in difficult sample matrices thanks to best background correction (ZEEnit series)
- Simple and reliable analysis (novAA 800)
- For all types of combustible waste

www.analytik-jena.com/waste-analysis ▸

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Subject to changes in design and scope of delivery as well as further technical development!

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