

Optimizing the sample weight and accelerator for analyses with the inductar CS cube

This data bulletin shows typical sample weights and accelerator amounts for analyses with the inductar® CS cube (see table), some general remarks and how to handle different or even unknown samples.

- The sample diameter should be < 1 cm to fit into the sample crucibles.
- Crucibles should be preheated at > 900°C and the sample, accelerator and crucible should only be handled with a tong and tweezers.
- Due to the fast heating rate, liquid samples cannot be analyzed.
- If the sample contains F or Cl the halogen trap (intrap-F or intrap-Cl) should be used and the sample mass should be reduced.

SAMPLE	SAMPLE WEIGHT	Fe	WSn
metallic samples (iron, copper, nickel based)	500 -1000 mg		2 scoops
other metallic samples (or if combustion is not satisfying)	100 - 500 mg	1 scoop	2 scoops
other	adjust to lowest of: 1-3 mg S or 1-15 mg C total mass < 100 -200 mg	2 scoops	2 scoops

- It is always better to start the analysis of an unknown material with a low sample mass.
- For measurement close to the detection limit it could be useful to weigh in 500 mg Fe accelerator. It is recommended to first add the Fe accelerator, then the sample and at last the WSn accelerator, so that all powder is covered with WSn.
- Metals with a low melting point (such as Hg) or metals which form volatile species (from organic impurities) can damage the system. They can also form intermediates which are not fully combusted to CO₂ or SO₂. Reduce the sample mass to 5-10 mg.
- Highly reactive metals (Al, Li, magnets) can splash and might damage the system. Reduce the sample mass to 50 mg and watch the tubes.
- Some metals (e.g. Pt, Au, Ag, Pb, Mn) can trap sulfur and form compounds that do not combust. Furthermore, samples which form water (like hydroxides) can trap sulfur. For these kinds of samples it is not possible to detect S properly.

INSTRUMENT:

inductar® CS cube, inductar® EL cube

DETAILS:

mode: CS

sample: 5 - 1000 mg metal



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