

## Direct TOC determination in amine and sulfate containing solid electrolytes with the vario TOC cube.

Today the determination of TOC in industrial salt residues is of great interest on behalf of regulations for waste management and/or instructions in industrial production processes. The sample matrix becomes a challenge due to the combination of high salt contents with generally low TOC. This precondition usually inhibits a stronger dilution, which leads on the other hand to problems with salt precipitation. Due to its unique system of complete matrix separation these samples can be analyzed with vario TOC cube as liquids or even more advantageously as solid.

Task

	Instrument		Sample
Device:	vario TOC cube	Volume:	0.2 mL
Mode:	liquid analyses solid analyses	Consistency:	Liquid
Peripherie:	automatic sample feeder for liquids	Preparation:	Dilution for liquid samples

Specification

One part of the samples were weight without any pretreatment into tin boots and directly measured as solids. Another part was solved and measured directly without any acidification as TC. For comparison the result was recalculated to give the solid result.

Procedure varioTOC  
liquid 850°C

TOC [ppm]	varioTOC liquids 850°C		varioTOC solids 950°C	
	mean [%] (10 spls)	RSD, rel. [%]	mean [%] (10 spls)	RSD, rel. [%]
White potash with amine	238.40	9.70	228.47	5.22
White potash without amine	75.20	7.20	69.17	4.50
KCl with indust. impurities	1030,26	10,27	1041.45	11.3
KCl without impurities	242.80	3.46	251.79	2.92
Langveinite with impurities	36.96	5.51	37.62	3.34
Langveinite without impurities	32.87	4.90	32.01	6.12

The results were homogeneous. The method shows that vario TOC cube can handle even most complicated sample matrixes.

Conclusion