

Environment, Geology

Microwave Digestion for Determination of Stationary Source Emissions

Summary Filter samples are digested in an acid solution using a Berghof microwave digestion system. The procedure is in accordance with DIN EN 14385.

Method

Equipment

	Type	Manufacturer
	speedwave Entry DAP-60K	Berghof Products + Instruments GmbH Berghof Products + Instruments GmbH

Reagents

	Acid	Volume
	HNO ₃ (65%)	3 mL
	HF (40%)	2 mL

Procedure

Put a filter into the digestion vessel. Add 3.0 mL of HNO₃ and 2.0 mL of HF. Shake the mixture carefully or stir with a clean Teflon or glass bar. Wait at least 10min before closing the vessel. Heat in the microwave with the following program.

Temperature Program**	Step	T [°C]	Ta [min]	Time [min]	Power [%]*
	1	210	8	10	90
	2	210	0	10	
	3	75	1	10	
	4				
	5				

Note: To avoid foaming and splashing wait until the vessels have cooled to room temperature (about 20 min). Carefully open the digestion vessel in a fume hood wearing hand, eye and body protection since a large amount of gas will be produced during the digestion process.

Results Precipitates.

Note: This application serves only as a guide line and may need to be optimized for your sample.

*This application is outlined for 10 samples. Increase or decrease the power by 10% per sample, when using more or less sample. Minimum is 40% independent of the sample number.

** The program "Emissions, DIN EN 14385" is preinstalled on the controller.

