

Environment, Geology

Digestion of Aqueous samples

Summary Aqueous samples are digested in accordance with EPA 3015A with a Berghof microwave digestion system

Method

Equipment

	Type	Manufacturer
	Speedwave Xpert DAP-100	Berghof Products + Instruments GmbH Berghof Products + Instruments GmbH

Reagents

	Acid	Volume
	HNO ₃ (65%)	5.0 mL

Procedure

Put 45mL of the sample into the digestion vessel. Add 5.0 mL of HNO₃. Shake the mixture carefully or stir with a clean Teflon or glass bar. Wait at least 10 min before closing the vessel. Heat in the microwave with the following program.

Temperature Program	Step	T [°C]	P [bar]	Ta [min]	Time [min]	Power [%]*
	1	170	30	10	10	90
	2	50	25	1	10	0
	3					
	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

Clear solution

Several elements (Al, Sb, Ba, Be, Fe, Mg, Ag, V) need addition of HCl for optimum recovery. In this case perform digestion with 4.0mL of HNO₃ + 1.0 mL of HCl.

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

*This application is outlined for 12 samples. Increase or decrease the power by 10% per sample, when using more or less sample. Minimum is 40% independent of the sample number.

