

Environment, Geology

Microwave Digestion of Effluents with Aqua Regia

Summary Effluents are digested in aqua regia using a Berghof microwave digestion system. The method is in accordance with DIN EN 15587-1

Method

Equipment

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

Reagents

	Acid	Volume
	HNO ₃ (65%)	2.5 mL
	HCl (37%)	7.5 mL

Procedure

Before heating in the microwave oven 30 mL of the sample are mixed carefully with 2.5 mL of HNO₃ and 7.5 mL of HCl. Allow the mixture to react for a period of at least 20 minutes. Close the vessel and heat in the microwave oven with the following program.

Temperature Program	Step	T [°C]	P [bar]	Ta [min]	Time [min]	Power [%]*
	1	145	35	5	5	70
	2	180	35	3	10	80
	3	50	25	1	10	0
	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

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.

