

Technology

Microwave Digestion of Polyethylene Terephthalate

Summary

PET pellets are digested in an acid solution with a Berghof microwave digestion system

Method

Equipment

	Type	Manufacturer
	speedwave Entry DAP-60K	Berghof Products + Instruments GmbH Berghof Products + Instruments GmbH
Reagents	Acid	Volume
	HNO ₃ (65%)	3.0 mL
	H ₂ SO ₄ (95%)	3.0 mL

Procedure

Weigh 150 mg of the sample into the digestion vessel. Add 3.0 mL of HNO₃ and 3.0 mL of H₂SO₄. 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	160	2	5	90
	2	225	2	10	
	3	225	0	10	
	4	225	0	20	
	5	75	1	10	

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 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.

