

Discover® SP-D 80

Automated Microwave Digestion System

Method Note Compendium

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Agriculture

Microwave Digestion of **Alfalfa**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	180	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Tobacco**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL of HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO_3

80 mL Quartz with Tetion liner

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Wheat**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL of HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program Control Type

0.5 g Organic Ramp to Temperature

Heating Pro	ogram					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Whey

Procedure

Weigh 0.5~g of the sample into the digestion vessel. Add 10~mL of HNO_3 . Gently swirl the mixture and wait approximately 15~minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 0.5 g
 Organic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Yeast**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 10 mL of HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Clinical & Biological

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H_3BO_3 (4%)

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 Varies
 Inorganic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Bovine Liver**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 10 mL of HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of

Lobster Hepatopancreas (Tort-2 CRM)

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 10 mL of HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	6:00	6:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Consumer Products

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum

Microwave Digestion of **Cotton**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL of HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The use of HF may be required to digest any silicates found in the sample.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz 80 mL Quartz with Teflon liner	HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type0.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum

Microwave Digestion of **Deodorant (Powder)**

Procedure

Weigh 0.2 g of the sample into the digestion vessel. Add 2 mL of HNO_3 and 6 mL of HCI. Gently swirl the mixture and wait approximately 15 minutes before closing the vessel.

Notes

The addition of Conc. HCl (0-4 mL) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.2 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Eye Shadow**

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 7 mL of HNO_3 and 3 mL of HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the method note entitled "Boric Acid HF Neutralization".

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HF HNO₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.1 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum

Microwave Digestion of **Shampoo**

Procedure

Add 1 mL of the sample into the digestion vessel. Add 10 mL of HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The use of HF may be required to digest any silicates found in the sample.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz 80 mL Quartz with Teflon liner	HNO_3

Max Sample Weight Sample Type / Vent Program Control Type

Ramp to Temperature

300

Med

400

Organic

5:00

Heating Program

Stage Temp (°C) *Ramp (mm:ss) Hold (mm:ss) Pressure (psi) * Power (W) Stirring

3:00

Results

1

1 mL

Sample was clear, colorless, and particle free upon dilution to 50 mL.

General Precaution

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum

200

^{*} Ramp times and power may vary depending on the type and number of vessels.

Microwave Digestion of Suppository

Procedure

Weigh 1 Capsule (approx. 1 g) of the sample into the digestion vessel. Add 12 mL of HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The use of HF may be required to digest any silicates found in the sample.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Toflon lines	HNO ₃

80 mL Quartz with Tetlon liner

Max Sample Weight Sample Type / Vent Program **Control Type** 1 Capsule Organic Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum

Microwave Digestion of **Toothpaste**

Procedure

Weigh 0.1 g of the sample onto a filter disk and insert into the digestion vessel. Add 8 mL HNO_3 and 2 mL HF. Gently swirl the mixture and wait approximately 15 minutes to pre-digest before closing the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the One Touch Method note entitled "Boric Acid HF Neutralization".

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO ₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	04:00	04:00	400	300	Medium

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using HF, follow restrictions listed in HF Addendum

Microwave Digestion of **Vaseline**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL of HNO₃ and 2 mL of HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additionalbcomplexation step with boric acid should be used. This procedure can be found in the method note entitled "Boric Acid HF Neutralization".

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum

Microwave Digestion of Wax (Candle)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL of HNO₃ and 2 mL of HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the method note entitled "Boric Acid HF Neutralization".

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum

Environmental & Regulatory

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H_3BO_3 (4%)

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 Varies
 Inorganic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of Fertilizer- AOAC 2006.03

Procedure

Weigh 1 g (0.5 g for Organic Matrices) of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 mL) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

This method may not provide a total digest of all fertilizer samples. Hydrofluoric acid will be required to provide complete digestion of some sample matrixes.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	15:00	20:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of NPDES

Procedure

Add 50 mL of the sample into the digestion vessel. Add 3 mL of HNO₃ and 2 mL of HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCI

Max Sample Weight	Sample Type / Vent Program	Control Type
50 mL	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	165	30:00	0:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Phosphorous**

Procedure

Add 50 mL of H_2O into the digestion vessel. Add 0.5 g of $K_2S_2O_8$ and 1 mL of H_2SO_4 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	$K_2S_2O_8$ H_2SO_4

Max Sample Weight	Sample Type / Vent Program	Control Type
50 mL H ₂ O	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	170	5:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Pine Needles**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL HNO₃ and 2 mL of H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz 80 mL Quartz with Teflon liner	HNO ₃ H ₂ O ₂

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of RoHS (For Pb, Hg and Cd Analysis)

Procedure

Weigh 0.2 g of the sample into the digestion vessel. Add 10 mL HNO_3 and 0.02 mL H_2SO_4 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

HF may be required for a total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz 80 mL Quartz with Teflon liner	HNO ₃ H ₂ SO ₄

Max Sample Weight	Sample Type / Vent Program	Control Type
0.2 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	10:00	15:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Sediment - Buffalo River (Leach)**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL of HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

HF may be required for a total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO_3

80 ML Quartz with Tetion liner

Max Sample Weight Sample Type / Vent Program **Control Type** 0.5 g Organic Ramp to Temperature

Heating Program						
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	175	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

This method is intended to be an acid leach, not a total digest.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Sediment (Leach)**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

HF may be required for a total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO_3

80 ML Quartz with Tetion liner

Max Sample Weight Sample Type / Vent Program **Control Type** 0.5 g Organic Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	180	5:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

This method is intended to be an acid leach, not a total digest.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of Sludge (Industrial)

Procedure

Add 5 mL of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This method may not provide a total digest of all samples. Hydrofluoric acid will be required to provide complete digestion of some sample matrixes.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃
	80 mL Quartz with Teflon liner	

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 5 mL
 Organic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of Soil - Montana (Leach)

Procedure

Weigh 0.5~g of the sample into the digestion vessel. Add 10~mL of HNO_3 . Gently swirl the mixture and wait approximately 15~minutes before capping the vessel.

Notes

HF may be required for a total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz 80 mL Quartz with Teflon liner	HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type0.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	175	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

This method is intended to be an acid leach, not a total digest.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **TCLP**

Procedure

Add 25 mL of H_2O into the digestion vessel. Add 5 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
25 mL H ₂ O	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of US EPA 3015a (Aqueous Sample)

Procedure

Add 45 mL of the sample into the digestion vessel. Add 5 mL of HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
45 mL	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	170	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of US EPA 3051 (Solid Sample)

Procedure

Weigh 0.5~g of the sample into the digestion vessel. Add 10~mL of HNO_3 . Gently swirl the mixture and wait approximately 15~minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 0.5 g
 Inorganic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	175	5:30	4:30	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

This method is intended to an acid leach, not a total digest.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of US EPA 3052 (Sludge, Soil, Sediment or Oil)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL of HNO₃ and 3 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the method note entitled "Boric Acid HF Neutralization"

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	180	5:30	9:30	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Wood**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz 80 mL Quartz with Teflon liner	HNO_3

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 0.5 g
 Organic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Food Testing

Microwave Digestion of **Apple**

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Asparagus**

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Bacon**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 8 mL HNO_3 and 2 mL DIH_2O . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ DIH ₂ O

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Beer (Light)**

Procedure

Add 4 mL of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
4 mL	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Blueberry**

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Boost Drink**

Procedure

Add 1 mL of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 1 mL
 Organic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Broccoli**

Procedure

Weigh 2 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Caramel Color

Procedure

Add 2 mL of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 2 mL
 Organic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	6:00	4:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Carrot**

Procedure

Weigh 2.5 g of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type2.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Celery**

Procedure

Weigh 5 g of the sample into the digestion vessel. Add 15 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Max Sample Weight	Sample Type / Vent Program	Control Type
5.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Cereal (Krispies)

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Cheese**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Cherry**

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Chicken (Boneless)**

Procedure

Weigh 5 g (wet weight) of the sample into the digestion vessel. Add 15 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample Weight Sample Type / Vent Program **Control Type** 5.0 g Organic Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Chili Candy (Mexican)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type0.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	220	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Chips (Potato)

Procedure

Weigh 1.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Coffee**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Corn Meal**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Cracker (Saltine)

Procedure

Weigh 2 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program Control Type

Ramp to Temperature

Organic

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

2.0 g

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Cucumber**

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prioir to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO ₂

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Dog Food (Hard)**

Procedure

Weigh 1.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Sideover of 200

Max Sample Weight	Sample Type / Vent Program	Control Type
1.5 g	Organic	Ramp to Temperature

Heating Progra	ım					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Dressing (Ranch)**

Procedure

Weigh 1.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Flour**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Food Coloring**

Procedure

Add 0.5 mL of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program Control Type

0.5 mL Organic Ramp to Temperature

Heating Progra	ım					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Fruit Juice**

Procedure

Add 5 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 5 mL
 Organic
 Ramp to Temperature

Heating Program								
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring		
1	200	5:00	3:00	400	300	Med		

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Grape**

Procedure

Weigh 4 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO ₂

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample Weight Sample Type / Vent Program **Control Type** 4.0 g Organic Ramp to Temperature

Heating Program								
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring		
1	200	5:00	3:00	400	300	Med		

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Grapefruit**

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

Microwave Digestion of **Ground Beef**

Procedure

Weigh 1 g (wet weight) of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Ham**

Procedure

Weigh 1.0 g (wet weight) of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Infant Formula (Powder)**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Kidney Bean**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	180	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Mayonnaise**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Milk (Liquid)

Procedure

Add 5 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type5 mLOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	180	5:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Milk (Powder)

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Olive Oil

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program Control Type

0.5 g Organic Ramp to Temperature

Heating Progra	m					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Orange**

Procedure

Weigh 2.5 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample WeightSample Type / Vent ProgramControl Type2.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Orange Juice**

Procedure

Add 5 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type5 mLOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Peanut Butter**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Ensure that all of the sample is below the reagent level in the vessel and not adhered to the vessel wall.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Pear**

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Pepper (Green, Bell)

Procedure

Weigh 2.5 g (wet weight)of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample Weight Sample Type / Vent Program **Control Type** 2.5 g Organic Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Pizza (Frozen, Ground)

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Plum

Procedure

Weigh 2 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Pork (Raw)**

Procedure

Weigh 2.5 g (wet weight) of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Discover SP-D 80 80 mL Quartz HNO

Max Sample Weight	Sample Type / Vent Program	Control Type
2.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Pork Gelatin**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Potato**

Procedure

Weigh 2 g of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Pro	gram					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Pretzel (Salted)**

Procedure

Weigh 2 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type2.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Raspberry**

Procedure

Weigh 5 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type5.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Rice (White)

Procedure

Weigh 2 g of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Safflower Oil**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type

Ramp to Temperature

Organic

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

0.5 g

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Soda (Diet)**

Procedure

Add 1 mL of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1 mL	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Soybean**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Spinach**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	4:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Strawberry**

Procedure

Weigh 2.5 g (wet weight) of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample WeightSample Type / Vent ProgramControl Type2.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Sugar**

Procedure

Weigh 1 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of

Tea Leaves

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type0.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	6:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Tomato Leaves**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 5 mL HNO $_3$, 2 mL DI H $_2$ O, and 1 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This method may not provide a total digest of all samples. Hydrofluoric acid will be required to provide complete digestion of some sample matrixes.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO_3 DI H_2O HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Tomato Soup**

Procedure

Add 5 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
5 mL	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	4:00	4:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Walnut

Procedure

Weigh 1 g of sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Watermelon

Procedure

Weigh 5 g (wet weight) of the sample into the digestion vessel. Add 15 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO₃

Max Sample WeightSample Type / Vent ProgramControl Type5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Wine

Procedure

Add 2 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 20 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type2 mLOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Yeast**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 10 mL of HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Yogurt (Plain)

Procedure

Weigh 2 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Geoscience & Mining

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of Coal

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 10 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ , HCI

Max Sample Weight	Sample Type / Vent Program	Control Type
0.1 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	220	10:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Rock**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 5 mL HNO₃, 3 mL HCl, and 3 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the One Touch Method note entitled "Boric Acid HF Neutralization".

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HCI HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Industrial Hygiene

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H_3BO_3 (4%)

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 Varies
 Inorganic
 Ramp to Temperature

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of

Filter Paper - 37 mm Mixed Cellulose Ester

Procedure

Weigh 1 filter (approx 0.3 g) of the sample into the digestion vessel. Add 10 mL HNO₃ and 10 mL DIH₂O. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ DIH₂O

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.3 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Filter Paper - Polyethersulfone

Procedure

Weigh 1 filter (approx 0.1 g) of the sample into the digestion vessel. Add 10 mL HNO₃ and 10 mL H₂SO₄. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ SO ₄

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.1 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	230	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of

Filter Paper- 47 mm Polycarbonate

Procedure

Weigh 1 filter (approx 0.4 g) of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO ₂

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.4 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Ghost Wipe**

Procedure

Weigh 1 wipe (approx 2.5 g) into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 30 minutes before capping the vessel.

Notes

Allow any initial reaction to subside before sealing the vessel.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1 wipe (approx 2.5 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Glass

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 2 mL HNO₃, 4 mL HCL, and 3 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the One Touch Method note entitled "Boric Acid HF Neutralization".

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HCL HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.1 q	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	230	10:00	30:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Materials Science

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H_3BO_3 (4%)

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 Varies
 Inorganic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of Carbon Nanotubes

Procedure

Weigh 0.1~g of the sample into the digestion vessel. Add 10~mL HNO $_3$. Gently swirl the mixture and wait approximately 15~minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type0.1 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	220	10:00	30:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Circuit Board

Procedure

Weigh 0.75 g of the sample into the digestion vessel. Add 3 mL HNO_3 and 9 mL HCI. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.75 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Glass**

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 2 mL HNO₃, 4 mL HCL, and 3 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the One Touch Method note entitled "Boric Acid HF Neutralization".

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HCL HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.1 q	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	230	10:00	30:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Metals & Alloys

Microwave Digestion of **Aluminum**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HCl and 3 mL DIH_2O . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

HCl should be added slowly and carefully to the sample. Allow any initial reaction to subside before sealing vessel.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HCI DIH ₂ O

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Aluminum Oxide**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 6.5 mL H_3PO_4 and 3.5 mL H_2SO_4 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Reducing the particle size increases the efficiency of digestion and may decrease the digestion time.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	H₃PO₄ H₂SO₄

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	260	10:00	20:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H_3BO_3 (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Copper**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Nickel**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 5 mL HNO₃ and 5 mL DIH₂O. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

HCl should be added slowly and carefully to the sample. Allow any initial reaction to subside before sealing vessel.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ DIH₂O

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Steel (Stainless)**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 3 mL HNO₃ and 9 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

HCl should be added slowly and carefully to the sample. Allow any initial reaction to subside before sealing vessel.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Titanium Dioxide**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO $_3$ and 2 mL HF Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Zinc Oxide**

Procedure

Weigh 0.2 g of the sample into the digestion vessel. Add 5 mL HNO₃ and 5 mL H₂SO₄ Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ SO ₄

Max Sample Weight	Sample Type / Vent Program	Control Type
0.2 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Nutraceuticals

Microwave Digestion of **Banana Leaves**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 10 mL HNO_3 and 1 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H_3BO_3 (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of Citrus Leaves

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 6 mL HNO₃, 3 mL DI H_2O , and 1 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO ₃ DI H ₂ O HF

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Corn Meal**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 12 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Ginkgo (Ground)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Ginkgo (Whole)**

Procedure

Weigh 1 pill (approx 1.0 g) of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
1 Pill (approx 1.0 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Palm Leaves**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Pine Needles**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL HNO₃ and 2 mL of H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz 80 mL Quartz with Teflon liner	HNO ₃ H ₂ O ₂

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Pine Straw**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10-20 mL HNO $_3$ (enough to completely cover the pine straw) and 1 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Some plant tissues contain silicates which would require HF for total dissolution.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Program								
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring		
1	200	5:00	5:00	400	300	Med		

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Rice Flour**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 12 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO

Discover SP-D 80 80 mL Quartz HNO_3

Max Sample WeightSample Type / Vent ProgramControl Type1.0 gOrganicRamp to Temperature

Heating Program								
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring		
1	200	5:00	3:00	400	300	Med		

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of

Tea Leaves

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	6:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Tomato Leaves**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 5 mL HNO₃, 2 mL DI H_2O , and 1 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This method may not provide a total digest of all samples. Hydrofluoric acid will be required to provide complete digestion of some sample matrixes.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO_3 DIH_2O HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Organic Chemicals

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H_3BO_3 (4%)

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 Varies
 Inorganic
 Ramp to Temperature

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Photoresist**

Procedure

Add 5 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 5 mL
 Organic
 Ramp to Temperature

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Paints & Coatings

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Photoresist**

Procedure

Add 5 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 5 mL
 Organic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Paper & Pulp

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of

Filter Paper - 37 mm Mixed Cellulose Ester

Procedure

Weigh 1 filter (approx 0.3 g) of the sample into the digestion vessel. Add 10 mL HNO₃ and 10 mL DIH₂O. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ DIH ₂ O

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.3 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Filter Paper - Polyethersulfone

Procedure

Weigh 1 filter (approx 0.1 g) of the sample into the digestion vessel. Add 10 mL HNO₃ and 10 mL H₂SO₄. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ SO ₄

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.1 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	230	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of

Filter Paper- 47 mm Polycarbonate

Procedure

Weigh 1 filter (approx 0.4 g) of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 ml. Quartz	HNO ₂

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.4 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Ghost Wipe**

Procedure

Weigh 1 wipe (approx 2.5 g) into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 30 minutes before capping the vessel.

Notes

Allow any initial reaction to subside before sealing the vessel.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1 wipe (approx 2.5 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Pulp (Paper)

Procedure

Weigh 2.0 g of the sample into the digestion vessel. Add 20 mL HNO₃ and 5 mL H₂SO₄. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Sample must be completely covered with acid prior to digestion.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ SO ₄

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	225	6:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Pharmaceutical & Biotech

Microwave Digestion of Allergy Pill (Ground)

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 9 mL HNO_3 and 1 mL H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Allergy Pill (Whole)

Procedure

Weigh 1 pill (approx 1.0 g) into the digestion vessel. Add 10 mL HNO_3 and 2 mL H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
1 pill (approx 1.0 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Antioxidant (Ground)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCI

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Antioxidant (Whole)**

Procedure

Weigh 1 pill (approx 1.45g) of the sample into the digestion vessel. Add 10 mL HNO $_3$ and 2 mL H $_2$ O $_2$ (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
1 pill (approx 1.5 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Aspirin (Ground)**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 9 mL HNO $_3$ and 1 mL H $_2$ O $_2$ (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Aspirin (Whole)**

Procedure

Weigh 1 pill (approx 1.0 g) of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1 pill (approx 1 0 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of Calpan Pantothenic Acid

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ , HCI

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Capsule (Empty)**

Procedure

Weigh 1 capsule (approx 0.1 g) of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program **Control Type** 1 capsule (approx 0.1 g) Organic Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Cephalexin**

Procedure

Add 1 mL of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type1 mLOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Chromium Chelate**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Cold and Flu Medicine (Liquid)

Procedure

Add 0.75 mL of the sample into the digestion vessel. Add 9 mL HNO_3 and 1 mL H_2O_2 (30%) Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
0.75 mL	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Diclofenac K**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO $_3$ and 2 mL H $_2$ O $_2$ (30%) Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Fish Oil (No Capsule)

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type0.25 gOrganicRamp to Temperature

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Folic Acid**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Ginkgo (Ground)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type0.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Ginkgo (Whole)

Procedure

Weigh 1 pill (approx 1.0 g) of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 1 Pill (approx 1.0 g)
 Organic
 Ramp to Temperature

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Ibuprofen (Ground)**

Procedure

Weigh 0.3 g of the sample into the digestion vessel. Add 8 mL HNO $_3$ and 2 mL HF. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

This procedure uses hydrofluoric acid. If it is necessary to complex the residual hydrofluoric acid or redissolve insoluble fluorides formed, an additional complexation step with boric acid should be used. This procedure can be found in the One Touch Method note entitled "Boric Acid HF Neutralization".

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	HNO ₃ HF

Max Sample Weight	Sample Type / Vent Program	Control Type
0.3 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	04:00	04:00	400	300	Medium

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Kelp**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Program							
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring	
1	200	5:00	5:00	400	300	Med	

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Losartan K

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO $_3$ and 2 mL H $_2$ O $_2$ (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 q	Organic	Ramp to Temperature

Heating Program						
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Magnesium Oxide

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Manganese Carbonate

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Metformin**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Multivitamin (Ground)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL H_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Multivitamin (Whole)

Procedure

Weigh 1 pill (approx 2.5 g) of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL H_2O_2 (30%). Gently swirl the mixture and wait approximately 30 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
1 pill (approx 2.5 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Stearic Acid**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Thiamine**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of USP 232/233

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL of HNO₃ and 1 mL of HCl . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCI

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Vitamin C (Ground)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program Control Type

0.5 g Organic Ramp to Temperature

Heating Progra	ım					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Vitamin C (Whole)

Procedure

Weigh 1 pill (approx 1.5 g) of the sample into the digestion vessel. Add 10 mL HNO $_3$ and 2 mL H $_2$ O $_2$ (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ O ₂ (30%)

Max Sample Weight	Sample Type / Vent Program	Control Type
1 pill (approx 1.5 g)	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Vitamin D3 (Ground)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL HNO₃ and 1 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCI

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Zinc Sulfate**

Procedure

Weigh 0.5~g of the sample into the digestion vessel. Add 9~mL HNO $_3$ and 1~mL HCl. Gently swirl the mixture and wait approximately 15~minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCI

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Plastics, Polymers, & Oils

Microwave Digestion of **Acrylamide**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type0.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Boric Acid HF Neutralization**

Procedure

This step is to be run following a sample digestion using HF.

After allowing the vessel to cool add 5-15 ml of 4% Boric Acid. (5 ml per 1 ml of HF).

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz with Teflon liner	H ₃ BO ₃ (4%)

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	4:00	2:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.
- c) If using HF, follow restrictions listed in HF Addendum.

Microwave Digestion of **Bunker Oil**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	10:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Char - Sulfuric Acid

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Add 5 mL H₂SO₄ into the vessel that contains the sample.

Notes

This method is for the pretreatment of large sample sizes or difficult organic samples that are resistant to oxidation. After the char is complete, the vessel is opened and a normal oxidation with HNO₃ can be run, usually at around 200C.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	H ₂ SO ₄

Max Sample Weight	Sample Type / Vent Program	Control Type
Varies by sample	Inorganic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	260	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample will appear black and viscous after the char step.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Crude Oil

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program Control Type

Ramp to Temperature

300

Med

400

Organic

10:00

Heating Progra	m					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring

5:00

Results

1

0.25 g

Sample was clear, colorless, and particle free upon dilution to 50 mL.

210

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

^{*} Ramp times and power may vary depending on the type and number of vessels.

Microwave Digestion of **Epoxy Hardener**

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 10 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Fatty Alcohol

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 2 mL HNO₃ and 4 mL HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.1 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Gasoline**

Procedure

Weigh 0.1~g of the sample into the digestion vessel. Add 10~mL HNO $_3$. Gently swirl the mixture and wait approximately 15~minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.1 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **HDPE**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	4:00	40	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Lube Oil

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Mineral Oil

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Motor Oil (New)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

DISCOVER SP-D 60 OF THE QUARTZ HINO3

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	4:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Nylon**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃ and 2 mL DI H₂O.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ DI H ₂ O

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **PET**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃ and 2 mL H₂SO₄.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ H ₂ SO ₄

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	240	6:00	4:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Plastic**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.5 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Polycarbonate Resin**

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample WeightSample Type / Vent ProgramControl Type0.5 gOrganicRamp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Polypropylene**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight Sample Type / Vent Program Control Type

Ramp to Temperature

Organic

Heating Progr	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

0.25 g

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Polyurethane**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	200	5:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Rubber (Synthetic)

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Sulfuric Char must be run prior to this method.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Discover SP-D 80 80 mL Quartz HNO

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	210	5:00	3:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of Rubber (Tire)

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO₃.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
0.25 g	Organic	Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	230	10:00	5:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **Terephthalic Acid**

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3 . Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

 Max Sample Weight
 Sample Type / Vent Program
 Control Type

 0.25 g
 Organic
 Ramp to Temperature

Heating Progra	am					
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	230	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Water & Wastewater

Microwave Digestion of **NPDES**

Procedure

Add 50 mL of the sample into the digestion vessel. Add 3 mL of HNO₃ and 2 mL of HCl. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

The addition of Conc. HCl (0-4 ml) is appropriate for the stabilization of Ag, Ba and Sb, and high concentrations of Fe and Al in solution. The amount of HCl will vary depending on the matrix and the concentration of the analytes. The addition of HCl may, however, limit the techniques or increase the difficulties of analysis.

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃ HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
50 mL	Inorganic	Ramp to Temperature

Heating Program						
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	165	30:00	0:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.

Microwave Digestion of **TCLP**

Procedure

Add 25 mL of H_2O into the digestion vessel. Add 5 mL HNO₃. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment	Recommended Vessels	Reagents
Discover SP-D 80	80 mL Quartz	HNO ₃

Max Sample Weight	Sample Type / Vent Program	Control Type
25 mL H ₂ O	Inorganic	Ramp to Temperature

Heating Program						
Stage	Temp (°C)	*Ramp (mm:ss)	Hold (mm:ss)	Pressure (psi)	* Power (W)	Stirring
1	160	10:00	10:00	400	300	Med

^{*} Ramp times and power may vary depending on the type and number of vessels.

Results

Sample was clear, colorless, and particle free upon dilution to 50 mL.

- a) This procedure is a reference point for sample digestion using a CEM system and may need to be modified or changed to obtain the required results on your sample.
- b) If using a vessel other than the recommended choice, adjust sample size and pressure limit to values appropriate for the vessel chosen.