Discover® SP-D 80

Automated Microwave Digestion System

Method Note Compendium

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Microwave Digestion of
Alfalfa

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 Program

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.

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.

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 Program

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.

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.

Microwave Digestion of
Tobacco

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

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

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz
80 mL Quartz with Teflon liner

Reagents

HNO_3

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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 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.

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.

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 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.

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.

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 Weight	Sample Type / Vent Program	Control Type
1.0 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	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.

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.

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 Program

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.

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.

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 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.

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.

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

Heating Program

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.

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.

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_3BO_3 (4%)

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

Heating Program

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.

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

Microwave Digestion of
Cotton

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL of HNO_3. 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
0.5 g	Organic	Ramp to Temperature

Heating Program

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.

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

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 HCl. 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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
HCl

Max Sample Weight

0.2 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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 HNO_3

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

Heating Program

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.

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

Microwave Digestion of
Shampoo

Procedure

Add 1 mL 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

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
1 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.

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

Microwave Digestion of
Suppository

Procedure

Weigh 1 Capsule (approx. 1 g) of the sample into the digestion vessel. Add 12 mL of HNO_3. 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
1 Capsule	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.

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

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 Program

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.

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 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 HNO_3 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	HNO_3 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	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.

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

Microwave Digestion of
Wax (Candle)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL of HNO_3 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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
HF

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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

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 Program

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.

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.

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 HNO_3. 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 Program

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.

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.

Microwave Digestion of
NPDES

Procedure

Add 50 mL of the sample into the digestion vessel. Add 3 mL of HNO_3 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.

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.

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_2O	Inorganic	Ramp to Temperature

Heating Program

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.

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.

Microwave Digestion of
Pine Needles

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL HNO_3 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_2O_2

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	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.

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.

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_2SO_4

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

Heating Program

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.

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.

Microwave Digestion of

Sediment - Buffalo River (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	HNO_3

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.

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.

Microwave Digestion of
Sediment (Leach)

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

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

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	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.

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.

Microwave Digestion of
Sludge (Industrial)

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

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz
80 mL Quartz with Teflon liner

Reagents

HNO_3

Max Sample Weight

5 mL

Sample Type / Vent Program

Organic

Control Type

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.

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.

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	HNO_3

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.

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.

Microwave Digestion of
TCLP

Procedure

Add 25 mL of H_2O into the digestion vessel. Add 5 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
25 mL H_2O	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.

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.

Microwave Digestion of
US EPA 3015a (Aqueous Sample)

Procedure

Add 45 mL of the sample into the digestion vessel. Add 5 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
45 mL	Inorganic	Ramp to Temperature

Heating Program

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.

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.

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 Program

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.

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.

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 HNO_3 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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
HF

Max Sample Weight

0.5 g

Sample Type / Vent Program

Inorganic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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 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.

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.

Food Testing

Microwave Digestion of
Apple

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

Microwave Digestion of
Asparagus

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
DIH_2O

Max Sample Weight

1.0 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Beer (Light)

Procedure

Add 4 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
4 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.

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.

Microwave Digestion of
Blueberry

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

Microwave Digestion of
Boost Drink

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 Weight	Sample Type / Vent Program	Control Type
1 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.

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.

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 Program

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.

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.

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 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.

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.

Microwave Digestion of
Caramel Color

Procedure

Add 2 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
2 mL	Organic	Ramp to Temperature

Heating Program

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.

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.

Microwave Digestion of
Carrot

Procedure

Weigh 2.5 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 Weight	Sample Type / Vent Program	Control Type
2.5 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	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.

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.

Microwave Digestion of
Celery

Procedure

Weigh 5 g 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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
5.0 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.

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.

Microwave Digestion of
Cereal (Krispies)

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 Program

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.

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.

Microwave Digestion of
Cheese

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 Program

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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

Microwave Digestion of
Chicken (Boneless)

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
5.0 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	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.

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.

Microwave Digestion of
Chili Candy (Mexican)

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 Program

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.

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.

Microwave Digestion of
Chips (Potato)

Procedure

Weigh 1.5 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
1.5 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	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.

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.

Microwave Digestion of
Coffee

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 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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 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.

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.

Microwave Digestion of
Cracker (Saltine)

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 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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

Microwave Digestion of
Dog Food (Hard)

Procedure

Weigh 1.5 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
1.5 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	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.

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.

Microwave Digestion of
Dressing (Ranch)

Procedure

Weigh 1.5 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
1.5 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.

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.

Microwave Digestion of
Flour

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 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.

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.

Microwave Digestion of
Food Coloring

Procedure

Add 0.5 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
0.5 mL	Organic	Ramp to Temperature

Heating Program

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.

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.

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.

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.

Microwave Digestion of
Grape

Procedure

Weigh 4 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_3

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.

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.

Microwave Digestion of
Grapefruit

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

General Precaution

Microwave Digestion of
Ground Beef

Procedure

Weigh 1 g (wet weight) 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 Program

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.

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.

Microwave Digestion of
Ham

Procedure

Weigh 1.0 g (wet weight) 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 Program

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.

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.

Microwave Digestion of
Infant Formula (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 Weight	Sample Type / Vent Program	Control Type
1.0 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.

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.

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 Program

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.

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.

Microwave Digestion of
Mayonnaise

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 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.

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.

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 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	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.

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.

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 Weight	Sample Type / Vent Program	Control Type
1.0 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.

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.

Microwave Digestion of
Olive Oil

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 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.

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.

Microwave Digestion of
Orange

Procedure

Weigh 2.5 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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.5 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	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.

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.

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 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.

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.

Microwave Digestion of
Peanut Butter

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

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 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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

Microwave Digestion of
Pepper (Green, Bell)

Procedure

Weigh 2.5 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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.5 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	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.

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.

Microwave Digestion of
Pizza (Frozen, Ground)

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 Program

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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

Microwave Digestion of
Pork (Raw)

Procedure

Weigh 2.5 g (wet weight) 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
2.5 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.

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.

Microwave Digestion of
Pork Gelatin

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 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.

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.

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 Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

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 Weight	Sample Type / Vent Program	Control Type
2.0 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	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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
5.0 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.

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.

Microwave Digestion of
Rice (White)

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 Weight	Sample Type / Vent Program	Control Type
2.0 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.

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.

Microwave Digestion of
Safflower Oil

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 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.

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.

Microwave Digestion of
Soda (Diet)

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 Weight	Sample Type / Vent Program	Control Type
1 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.

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.

Microwave Digestion of
Soybean

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 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.

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.

Microwave Digestion of
Spinach

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 Program

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.

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.

Microwave Digestion of
Strawberry

Procedure

Weigh 2.5 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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
2.5 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	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.

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.

Microwave Digestion of
Sugar

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 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.

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.

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 Program

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.

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.

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_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 DI H_2O 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	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.

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.

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 Program

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.

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.

Microwave Digestion of
Walnut

Procedure

Weigh 1 g of 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 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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
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	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.

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.

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 Weight	Sample Type / Vent Program	Control Type
2 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	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.

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.

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 Weight	Sample Type / Vent Program	Control Type
1.0 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	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.

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.

Microwave Digestion of
Yogurt (Plain)

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 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.

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.

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_3BO_3 (4%)

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

Heating Program

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.

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.

Microwave Digestion of
Coal

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 10 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	HNO_3, HCl

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

Heating Program

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.

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.

Microwave Digestion of
Rock

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 5 mL HNO_3, 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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
HCl
HF

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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 Program

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.

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.

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 HNO_3 and 10 mL DIH_2O. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
DIH_2O

Max Sample Weight

1 filter (approx 0.3 g)

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Filter Paper - Polyethersulfone

Procedure

Weigh 1 filter (approx 0.1 g) of the sample into the digestion vessel. Add 10 mL HNO_3 and 10 mL H_2SO_4. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2SO_4

Max Sample Weight

1 filter (approx 0.1 g)

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.4 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.

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.

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 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.

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.

Microwave Digestion of
Glass

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 2 mL HNO_3, 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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
HCL
HF

Max Sample Weight

0.1 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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 Program

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.

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.

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

Heating Program

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.

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.

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 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
0.75 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.

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.

Microwave Digestion of
Glass

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 2 mL HNO_3, 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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
HCL
HF

Max Sample Weight

0.1 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HCl
DIH_2O

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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	H_3PO_4 H_2SO_4

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

Heating Program

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.

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.

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 Program

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.

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.

Microwave Digestion of
Copper

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 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.

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.

Microwave Digestion of
Nickel

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 5 mL HNO_3 and 5 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	HNO_3 DIH_2O

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.

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.

Microwave Digestion of
Steel (Stainless)

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 3 mL HNO_3 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 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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
HF

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

Microwave Digestion of
Zinc Oxide

Procedure

Weigh 0.2 g of the sample into the digestion vessel. Add 5 mL HNO_3 and 5 mL H_2SO_4 Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2SO_4

Max Sample Weight

0.2 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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	HNO_3 HF

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 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	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.

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.

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 Program

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.

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.

Microwave Digestion of
Citrus Leaves

Procedure

Weigh 1.0 g of the sample into the digestion vessel. Add 6 mL HNO_3, 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_2O HF

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 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	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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 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.

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.

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 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	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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

1 Pill (approx 1.0 g)

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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	HNO_3 HF

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 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	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.

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.

Microwave Digestion of
Pine Needles

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 8 mL HNO_3 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_2O_2

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	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.

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.

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	HNO_3 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.

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.

Microwave Digestion of
Rice Flour

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
1.0 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.

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.

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 Program

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.

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.

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_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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
DI H_2O
HF

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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 Program

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.

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.

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 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.

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.

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_3BO_3 (4%)

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

Heating Program

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.

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.

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 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.

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.

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_3BO_3 (4%)

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

Heating Program

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.

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.

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 HNO_3 and 10 mL DIH_2O. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
DIH_2O

Max Sample Weight

1 filter (approx 0.3 g)

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Filter Paper - Polyethersulfone

Procedure

Weigh 1 filter (approx 0.1 g) of the sample into the digestion vessel. Add 10 mL HNO_3 and 10 mL H_2SO_4. Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2SO_4

Max Sample Weight

1 filter (approx 0.1 g)

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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_3

Max Sample Weight	Sample Type / Vent Program	Control Type
1 filter (approx 0.4 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.

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.

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 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.

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.

Microwave Digestion of
Pulp (Paper)

Procedure

Weigh 2.0 g of the sample into the digestion vessel. Add 20 mL HNO_3 and 5 mL H_2SO_4. 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_2SO_4

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

Heating Program

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

0.25 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

1 pill (approx 1.0 g)

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Antioxidant (Ground)

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
HCl

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

1 pill (approx 1.5 g)

Sample Type / Vent Program

Organic

Control Type

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.

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.

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_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

0.25 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Aspirin (Whole)

Procedure

Weigh 1 pill (approx 1.0 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 pill (approx 1.0 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.

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.

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 Program

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.

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.

Microwave Digestion of
Calpan Pantothenic Acid

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	HNO_3, 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.

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.

Microwave Digestion of
Capsule (Empty)

Procedure

Weigh 1 capsule (approx 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
1 capsule (approx 0.1 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.

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.

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

Heating Program

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.

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.

Microwave Digestion of
Chromium Chelate

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	HNO_3

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

0.75 mL

Sample Type / Vent Program

Organic

Control Type

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.

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.

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_2O_2 (30%) Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Fish Oil (No Capsule)

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 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.

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.

Microwave Digestion of
Folic Acid

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
HCl

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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 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	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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

1 Pill (approx 1.0 g)

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz with Teflon liner

Reagents

HNO_3
HF

Max Sample Weight

0.3 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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 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 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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
HCl

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Magnesium Oxide

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	HNO_3 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.

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.

Microwave Digestion of
Manganese Carbonate

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
HCl

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

1 pill (approx 2.5 g)

Sample Type / Vent Program

Organic

Control Type

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.

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.

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 Program

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.

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.

Microwave Digestion of
Thiamine

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

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
HCl

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
USP 232/233

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 9 mL of HNO_3 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	HNO_3 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	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.

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.

Microwave Digestion of
Vitamin C (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 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	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.

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.

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_2O_2 (30%). Gently swirl the mixture and wait approximately 15 minutes before capping the vessel.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2O_2 (30%)

Max Sample Weight

1 pill (approx 1.5 g)

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Vitamin D3 (Ground)

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	HNO_3 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.

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.

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	HNO_3 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.

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.

Plastics, Polymers, & Oils

Microwave Digestion of
Acrylamide

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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 Program

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.

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.

Microwave Digestion of
Bunker Oil

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

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 Program

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.

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.

Microwave Digestion of
Char - Sulfuric Acid

Procedure

Add 5 mL H_2SO_4 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 HNO_3 can be run, usually at around 200C.

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

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

Heating Program

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.

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.

Microwave Digestion of
Crude Oil

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3

Max Sample Weight

0.25 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

Microwave Digestion of
Epoxy Hardener

Procedure

Weigh 1.0 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 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.

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.

Microwave Digestion of
Fatty Alcohol

Procedure

Weigh 0.1 g of the sample into the digestion vessel. Add 2 mL HNO_3 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	HNO_3 HCl

Max Sample Weight	Sample Type / Vent Program	Control Type
0.1 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.

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.

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 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.

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.

Microwave Digestion of
HDPE

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

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 Program

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.

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.

Microwave Digestion of
Lube Oil

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

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 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.

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.

Microwave Digestion of
Mineral Oil

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3

Max Sample Weight

0.25 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

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

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	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.

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.

Microwave Digestion of
Nylon

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL DI H_2O.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
DI H_2O

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
PET

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3 and 2 mL H_2SO_4.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3
H_2SO_4

Max Sample Weight

0.25 g

Sample Type / Vent Program

Organic

Control Type

Ramp to Temperature

Heating Program

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.

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.

Microwave Digestion of
Plastic

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3

Max Sample Weight

0.5 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Polycarbonate Resin

Procedure

Weigh 0.5 g of the sample into the digestion vessel. Add 10 mL HNO_3.

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 Program

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.

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.

Microwave Digestion of
Polypropylene

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

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 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.

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.

Microwave Digestion of
Polyurethane

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

Notes

Recommended Equipment

Discover SP-D 80

Recommended Vessels

80 mL Quartz

Reagents

HNO_3

Max Sample Weight

0.25 g

Sample Type / Vent Program

Organic

Control Type

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.

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.

Microwave Digestion of
Rubber (Synthetic)

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

Notes

Sulfuric Char must be run prior to this method.

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 Program

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.

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.

Microwave Digestion of
Rubber (Tire)

Procedure

Weigh 0.25 g of the sample into the digestion vessel. Add 10 mL HNO_3.

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 Program

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.

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.

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 Program

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.

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.

Water & Wastewater

Microwave Digestion of
NPDES

Procedure

Add 50 mL of the sample into the digestion vessel. Add 3 mL of HNO_3 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.

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.

Microwave Digestion of
TCLP

Procedure

Add 25 mL of H_2O into the digestion vessel. Add 5 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
25 mL H_2O	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.

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.