DRN-41 High Throughput Rotor

Application Book

INDEX

The following application notes are suitable only for the configuration described in each notes

MILESTONE
HELPING CHEMISTS

Application Note DRN-AG-01

Tea Leaves

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3, 2 ml of H2O2 30%,

Procedure

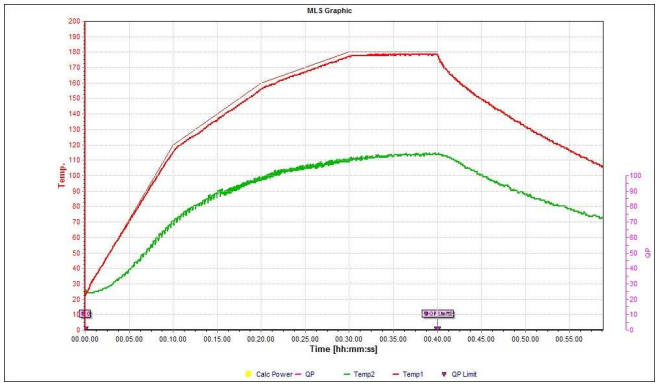
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
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Application Note DRN-AG-02

Beans

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3, 2 ml of H2O2 30%,

Procedure

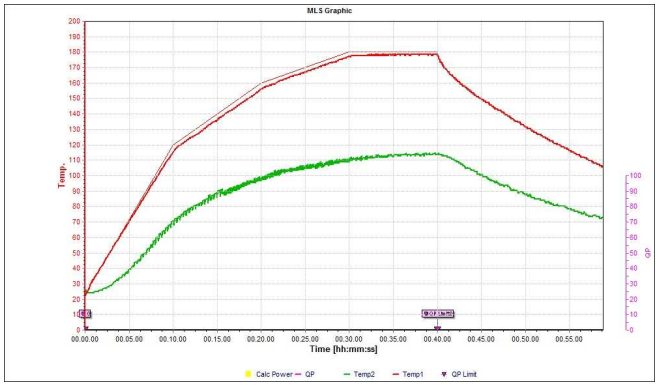
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
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Application Note DRN-AG-03

Vegetables

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3, 2 ml of H2O2 30%,

Procedure

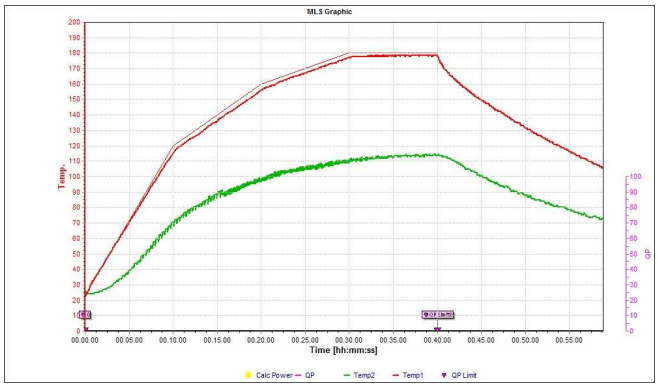
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

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Application Note DRN-AG-04

Grass

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3, 2 ml of H2O2 30%,

Procedure

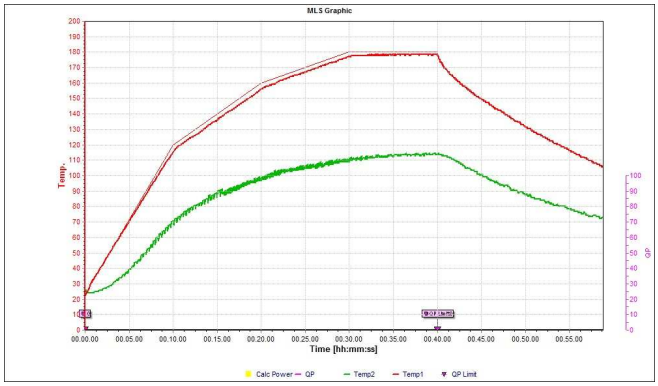
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

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Application Note DRN-AG-05

Fertilizer

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3, 2 ml of H2O2 30%,

Procedure

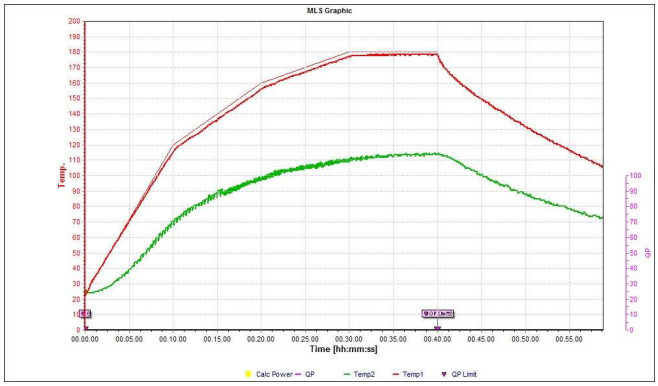
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-EN-01

Soil

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.5 g

Reagents

10 ml of HNO3 65%

Procedure

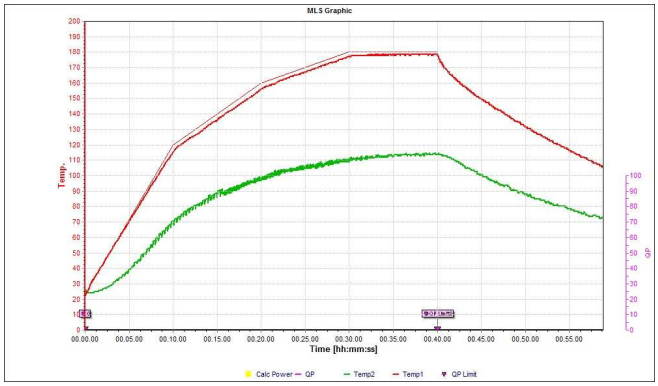
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-EN-02

Sediments

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.5 g

Reagents

10 ml of HNO3 65%

Procedure

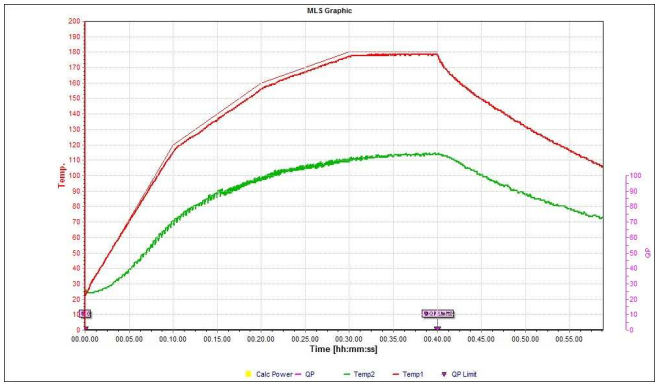
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-EN-03

Leaves

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

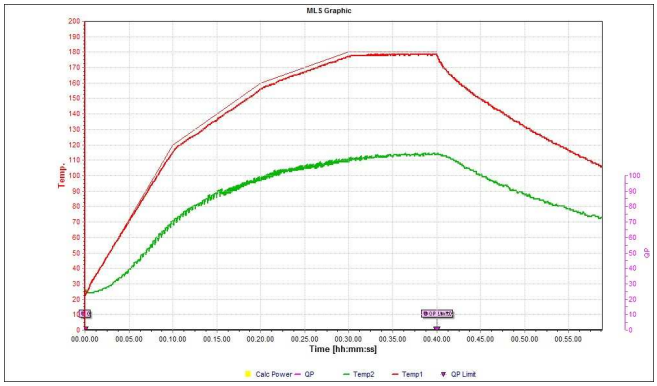
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-EN-04

Green Algae

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

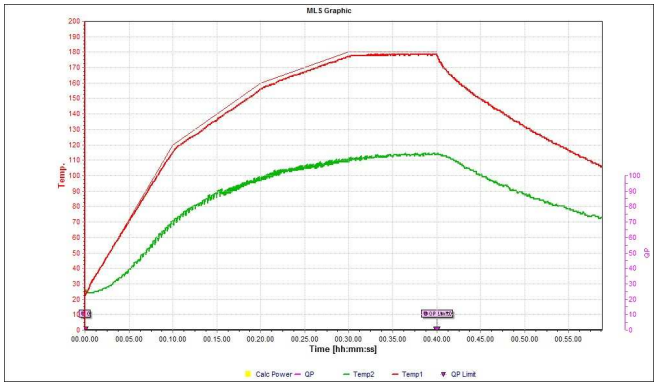
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-EN-05

Sawdust

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

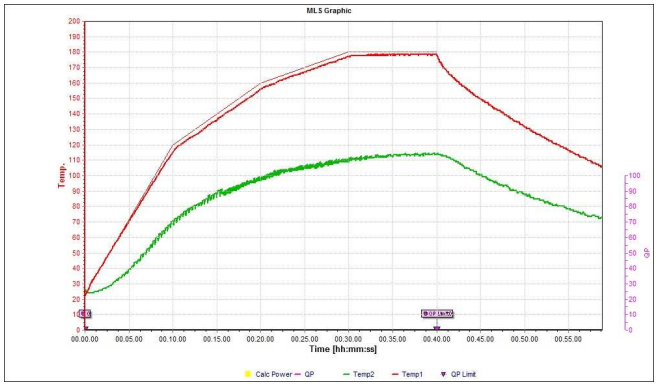
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-EN-06

Sea sediment

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.5 g

Reagents

10 ml of HNO3 65%

Procedure

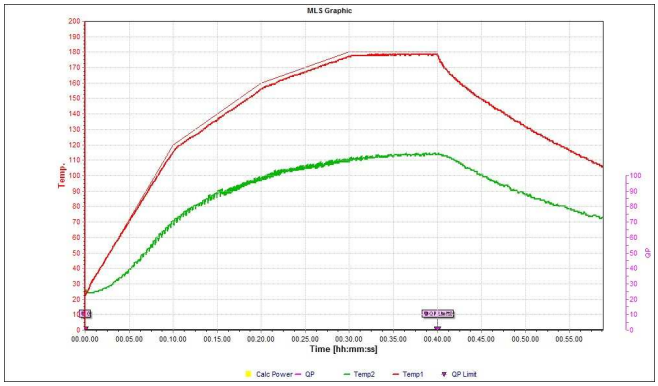
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-EN-07

Wood chips

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

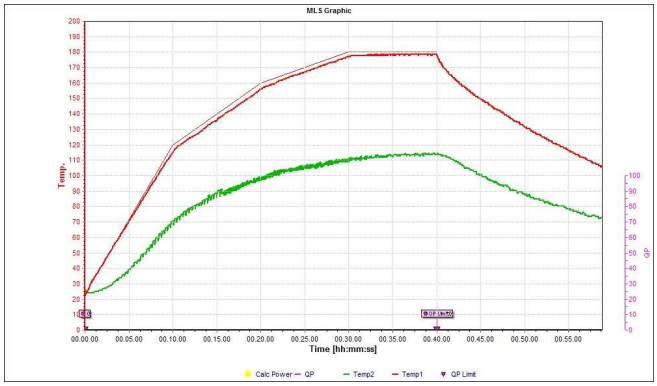
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-01

Bovine liver

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

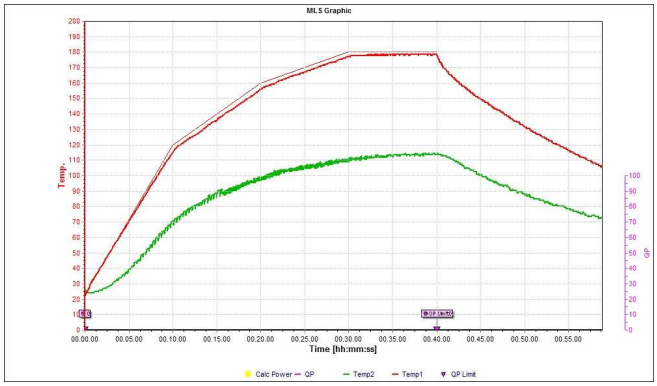
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-02

Infant formula

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

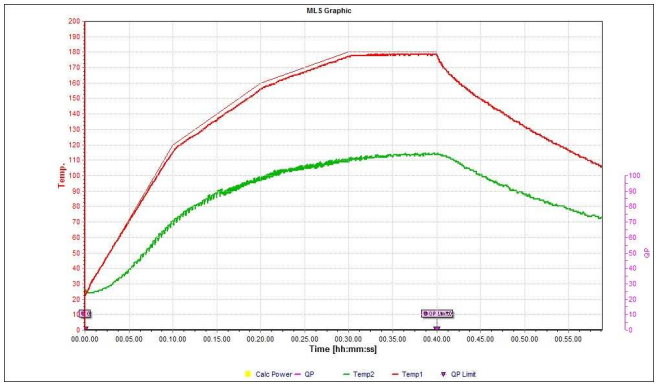
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-03

Tuna fish

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

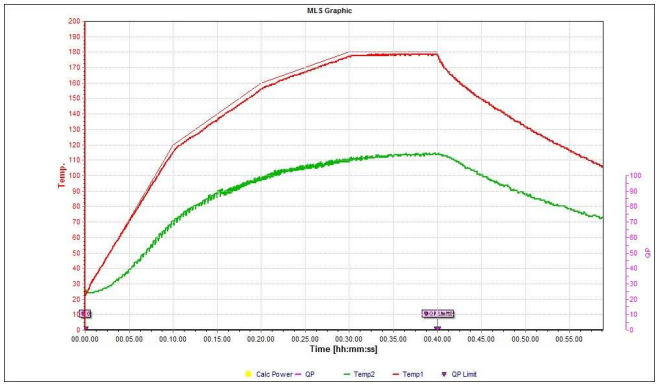
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-04

Mushroom

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

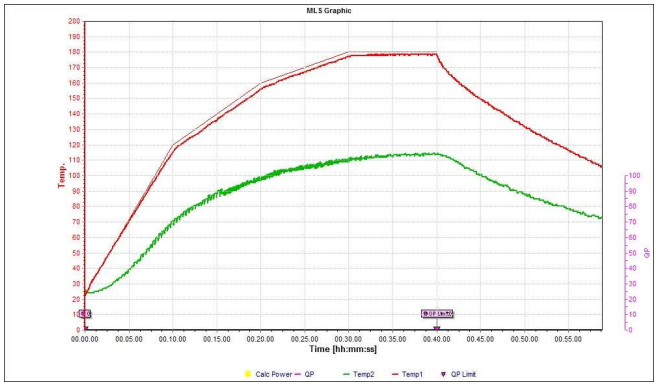
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-05

Salami

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

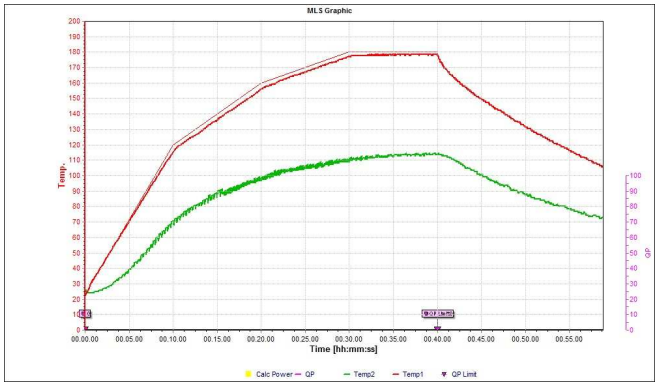
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-06

Milk powder

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

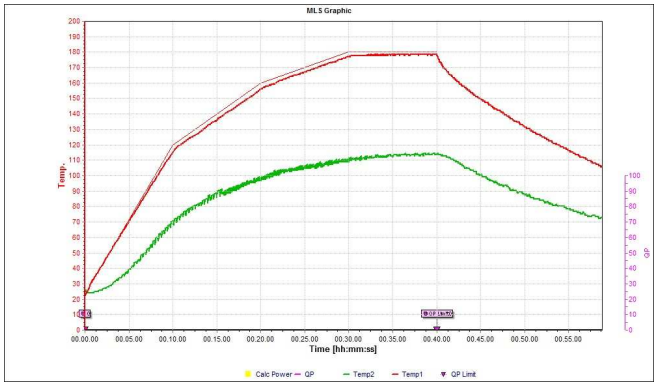
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-07

Meat

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

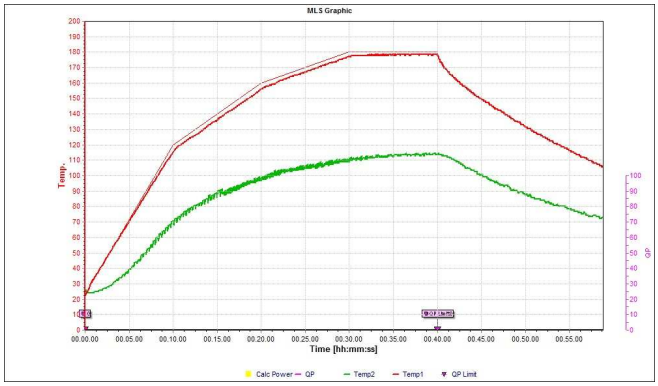
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-08

Corn

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

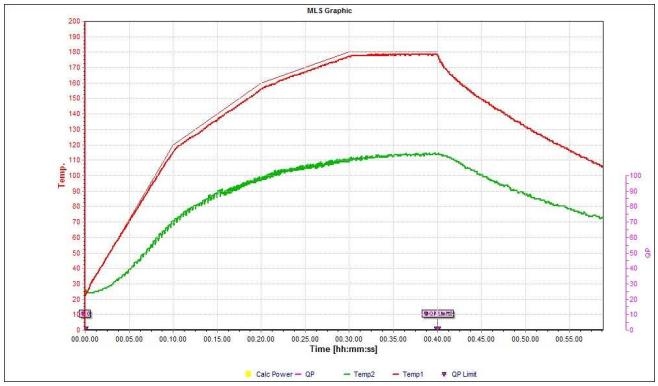
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-09

Rice flour

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

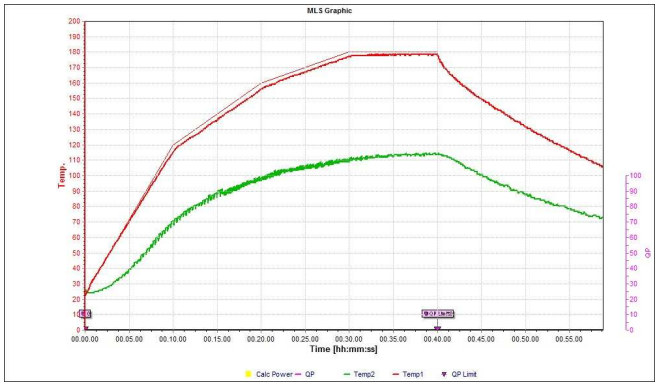
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-10

Animal feed

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

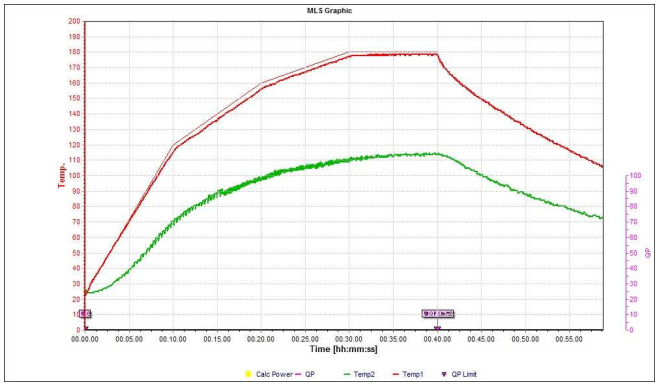
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-11

Milk

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

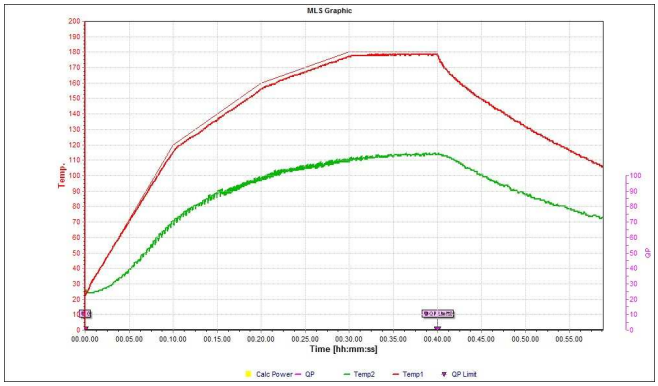
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-12

Cereals

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

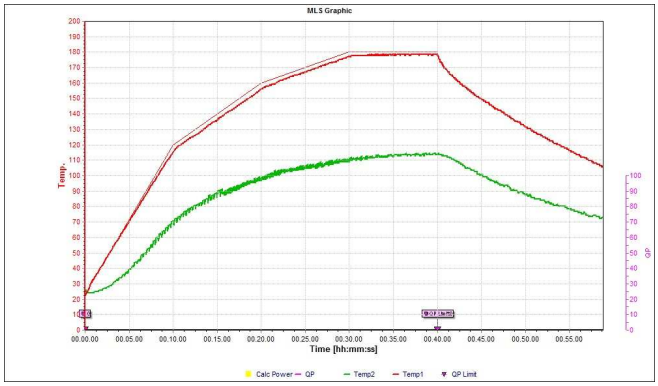
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-13

Wheat

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

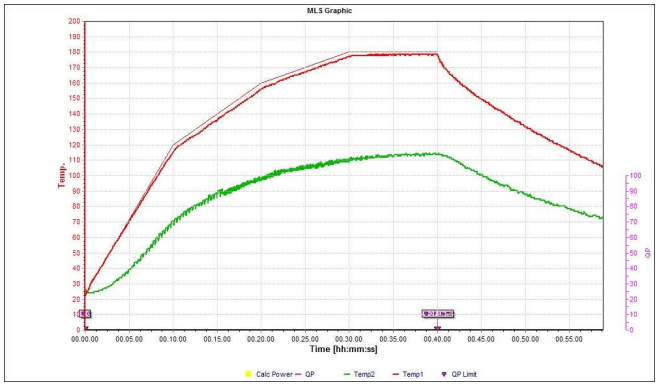
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-14

Coffee

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

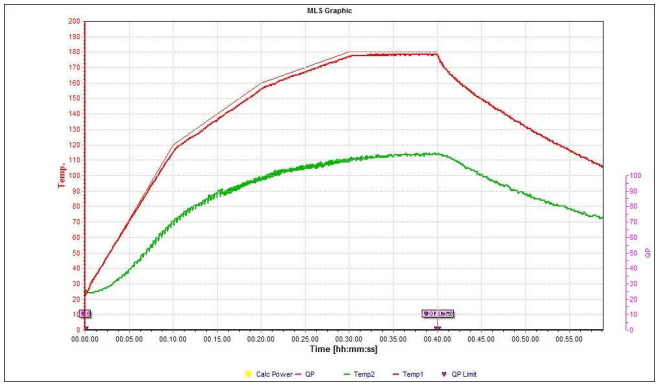
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-15

Spinach

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

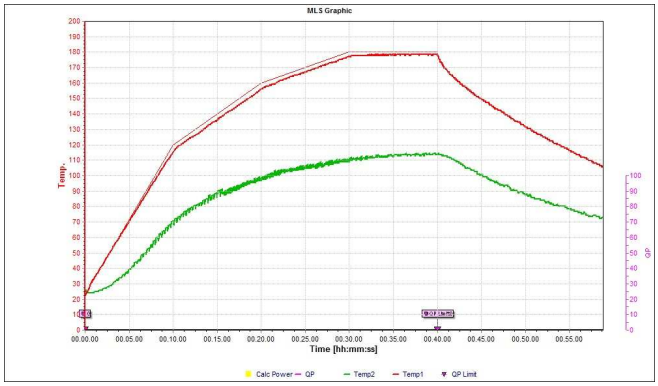
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.

MILESTONE
HELPING CHEMISTS

Application Note DRN-FO-16

General organic samples

Summary

This method provides the acid digestion of the sample in a closed vessel device using temperature control microwave heating for the metal determination by spectroscopic methods.

Instrumentation

Microwave acid digestion apparatus

Milestone Ethos or Start labstation with internal temperature sensor, 640-260 terminal with easyCONTROL software installed and DRN-41 high throughput rotor.

Sample weight

Up to 0.2 g

Reagents

8 ml of HNO3 65%, 2 ml of H2O2 30%

Procedure

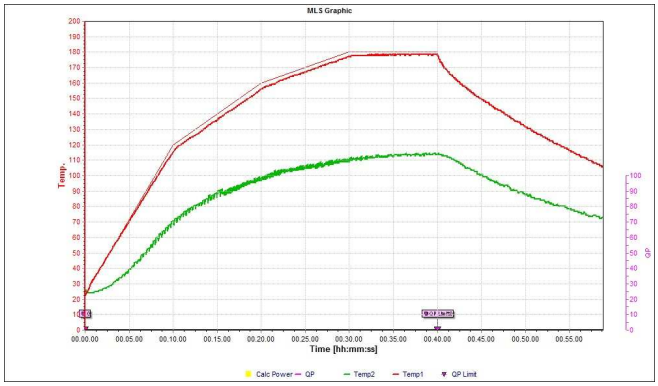
1. Place a vessel on the balance plate, tare it and weigh of the sample.
2. Introduce the vessel into the safety shield.
3. Add the acids; if part of the sample stays on the inner wall of the vessel, wet it by adding acids drop by drop, then gently swirl the solution to homogenize the sample with the acids.
4. Close the vessel and introduce it into the rotor.
5. Connect the temperature sensor in the reference vessel.
6. Run the microwave program to completion.
7. Cool the rotor by air or by water until the solution reaches room temperature.
8. Open the vessel and transfer the solution to a marked flask.

Microwave program

Step	Time	T1	T2 (1)	Power
1	00:10:00	120°C	120°C	Max power*
2	00:20:00	175°C	120°C	Max power*
3	00:10:00	175°C	120°C	Max power*

(1), Optional sensors

Temperature profile



Note

*Max power: 1500W for Ethos and 1200W for Start units.

Use up to 500 Watt for operations with 3 or less vessels simultaneously.

This procedure is only a guideline and it may need to be modified or changed to obtain the required results on your sample.

Always use hand, eye and body protection when operating with the microwave system.