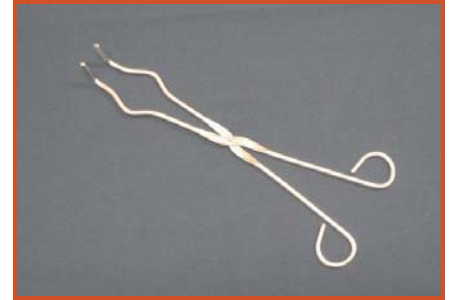




# QAsh 1800

Questron's New Microwave Ashing System



## Introduction

Microwave ashing is an innovative analytical sample preparation method that replaces the traditional ashing technique using a resistively heated muffle furnace. While maintaining the basic tried and tested principles of ashing, replacing the resistive heating with microwave heating offers distinct advantages, chief among them being speed, reduced energy cost, high sample throughput, better reproducibility, cleaner working environment and increased operator safety.

As opposed to acid digestion, measuring ash content is inherently a simpler process that is performed in laboratories worldwide on a daily basis – mainly for process and quality control applications. It is a routine procedure in such diverse fields as petroleum industry, pharmaceutical applications, food products, plastics manufacturing applications and waste management industry.

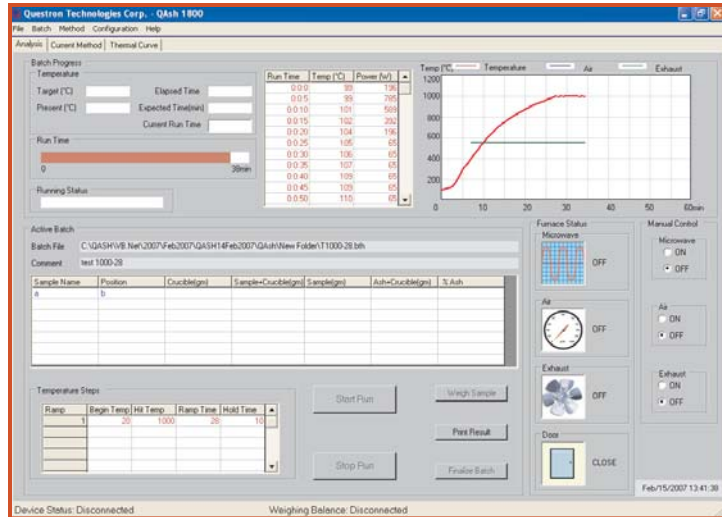
As a manufacturer of microwave digestion products, Questron Technologies Corporation has applied its

considerable expertise in employing microwave ovens in the analytical laboratory to the ashing process. The result is our QAsh 1800 Microwave Ashing System. QAsh 1800 is an excellent and highly efficient alternative to conventional muffle furnaces. Employing the same crucibles that are used in conventional ashing systems, the QAsh 1800 is able to offer a better way of performing the old quantification procedure of ashing, all under the control of our custom QAsh software running in Windows® XP™ and Windows® 2000™ operating systems.

By using microwaves as a source of heat in our QAsh 1800, ashing times for many sample types are reduced by over 90 percent, resulting in drastically higher throughput rate and more efficient use of operator time. Our QAsh 1800 employs a robust 1800 watts of microwave energy under QAsh software batch file control that can easily heat up 10 samples to 1200°C in under one hour.

## QAsh 1800 software

Our custom designed QAsh software allows the user to make batch files that control all aspects of an ashing process. The samples are ramped or held steady at specific temperatures in multiple steps as a function of time according to easy-to-make batch file program. Further, the blower motor and flow of air to the sample are both under the control of software. This way, precise, reproducible ashing of samples is possible from day to day. All sample ashing data is collected and stored in hard disk for archiving or future viewing in graphical or tabular formats. Several different batch files may be made in order to accommodate the varying types of user sample types. If desired, the sample program can be modified at any time, even during running.



## Specifications

### Oven

Microwave power (delivered)	1800 Watts
Magnetron frequency	2450 MHz
Utilities	208 VAC, 60 Hz, 20 Amps 220 VAC, 50 Hz, 20 Amps
Furnace Temperature Range	20°C – 1200°C
Measurement accuracy	± 5°C
Modular Exhaust System	150 CFM
Operating ambient temperature	5°C – 40°C
Operating ambient humidity	10% – 80%

### Dimensions (width x depth x height)

Oven	
Exterior	55 x 63 x 46 cm (22 x 25 x 18 in.)
Interior	36 x 41 x 27 cm (14 x 16 x 10.5 in.)
Ceramic Muffle Furnace	
Exterior	32 x 27 x 20 cm (12.5 x 10.5 x 8 in.)
Interior	22 x 14 x 10 cm (8.6 x 5.5 x 4 in.)
Weight (including furnace)	35 kg. (77 lbs.)

### Temperature sensor

Type	R-type thermocouple
Scan time	0.16 sec.
Data sampling interval	5 sec.

## QAsh 1800 – Some advantages

### More comfortable working conditions

Primarily, our QAsh 1800 heats your samples, not your lab. Our QAsh 1800 ceramic muffle furnace is an excellent heat insulator. So it easily allows the microwave energy to enter the samples contained within, but keeps the heated samples from losing their heat to the oven or the laboratory. This, of course, saves on air conditioning costs and makes more comfortable working conditions.

### Faster, cleaner ashing

Many samples can produce a large amount of soot and gaseous by-products as they are being ashed. If leaked into the laboratory, these can create unpleasant and even noxious odours. Working under QAsh software, the built-in powerful exhaust blower of the QAsh 1800 directs these gaseous components of the sample through a gas hose to safe disposal such as a fume hood. Furthermore, a source of compressed air or Nitrogen gas can be introduced into the chamber, which draws out the fumes and soot and results in a cleaner oven interior.

## Ashing times (comparison)

Material	Conventional (Hr:Mn)	Microwave (Hr:Mn)	Time Saved
Butyl Rubber	1:30	0:20	78%
Carbon Black	16:00	1:20	92%
Coal	4:00	0:30	88%
Coke	4:00	0:50	79%
Egg Yolks	4:00	0:15	94%
Feed	2:10	0:10	93%
Graphite Powder	4:00	0:35	85%
Kaolin	2:00	0:30	75%
Lactose	16:00	0:30	97%
Oil Sludge	1:00	0:30	50%
Paper	1:00	0:10	83%
Pet Food (canned)	5:20	0:08	98%
Pet Food (dry)	1:30	0:25	72%
Polyester	8:00	0:15	97%
Polyethylene	1:15	0:15	80%
Pulp	3:00	0:10	94%
Waste Sludge	1:00	0:15	75%

Your local distributor:

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