

## Phoenix

Sample Type: Adhesive (contains urethane amine)

Summary:

This method describes the determination of ash content in adhesives using a Microwave Muffle Furnace, PHOENIX OR MAS-7000.

Required Equipment:

PHOENIX OR MAS-7000 quartz fiber ashing crucibles, gloves, balance capable of weighing to  $\pm 0.1$  mg.

Method

1. Program the PHOENIX OR MAS-7000 for 15-30 minutes and 600 °C. Allow the muffle furnace to reach the set temperature.
2. Weigh a crucible to the nearest  $\pm 0.1$  mg. Record the weight as Figure A. See note 1 below.
3. Weigh 3.0 gram(s) of sample to the nearest  $\pm 0.1$  mg. into the crucible. Record the weight as Figure B.
4. Place the crucible with sample in the furnace and ash for 15-30 minutes. Remove the crucible and allow it to cool in a desiccator for 1 minute.
5. Reweigh the crucible containing the ash to the nearest  $\pm 0.1$  mg. Record the weight as Figure C.
6. Calculate the percent ash using the following equation:

$$\% \text{ Ash} = \frac{C - A}{B} \times 100$$

A=Weight of crucible

B=Weight of sample

C=Weight of ashed sample; crucible

Note 1: Quartz fiber ashing crucibles should be pre-ashed for 10 minutes before they are used for sample ashing to insure results are accurate to  $\pm 0.001\%$ .

Note 2: Quartz fiber ashing crucibles may be reused until small holes or cracks begin to appear. The crucibles should then be discarded. Used quartz fiber ashing crucibles should be cleaned before reusing by brushing out all ash particles with a soft, bristle brush.

## MICROWAVE APPLICATION DATA

Sample: Adhesive

### Standard Ashing Procedure

<u>Time</u> (mins)	<u>Temperature</u> (°C)	<u>Ash</u> (%)
Sample #1 120	600	~30.0
Sample #2 120	600	~34.0

### Microwave Ashing Procedure

<u>Time</u> (mins)	<u>Temperature</u> (°C)	<u>Ash</u> (%)
30	600	30.42 30.21 30.20 30.31
15	600	32.55 32.68 32.57 32.53