

## TUBE FURNACE COMBUSTION MASS-LOSS EXPERIMENT

This simple experiment is used in a variety of ways to study polymer systems, to establish the burning behaviour close to the limits of flammability. It has been used to study char formation, to look for changes in scaling up from microgram quantities used in thermogravimetric analysis (TGA) where a protective barrier may hinder decomposition, and as a means of generating volatile pyrolysis products. It has been used to study the behaviour of aluminium oxide trihydrate (ATH) filled LDPE and EVA materials, showing that although ATH is an efficient fire retardant for LDPE, the inherent fire retardancy of the EVA is lost on addition of ATH.



Control of the following parameters is possible:

- Temperature
- Isothermal or linear temperature rise
- Air flow rate/sample mass
- Gas composition (0 - 21% oxygen)