

### Ash and moisture analysis with prepASH 340 Series for plastics and composites

The ash test of plastic samples is used to determine the anorganic content. Anorganics have a main influence on mechanical specification and the fire behaviour of plastics and the analysis is therefore crucial for quality characteristics. Other as in natural products the anorganic components are added in production so nature and quantity are specified and have to be checked. On the other hand components in recyclats might be unknown. Too high moisture content is harmful in processing the plastic granules.

Automation of the moisture and ash analysis brings efficiency, quality and security into the laboratory.

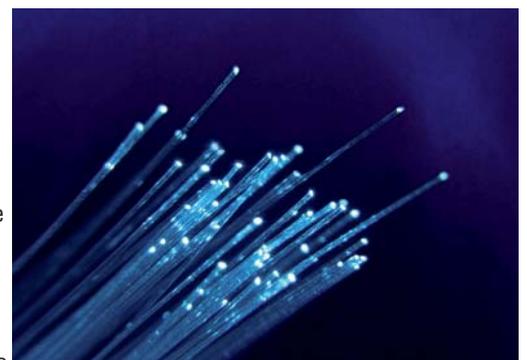
Plastic is the general common term for a wide range of synthetic or semi synthetic organic amorphous solid materials suitable for the manufacture of industrial products. Plastics are typically polymers of high molecular weight, and may contain other substances to improve performance and/or reduce costs. Polymers are often blended with inorganic fillers, manly to enhance the mechanical properties of the plastic (e.g. fibreglass) or dyeing (white colour: Titandioxid). Plastic can contain small organic molecules (polymer plasticiser, internal lubricant....) and Carbon (carbon fibre). An ash test is used to determine the total thermo stable filler content. It cannot identify individual percentages in multi-filled materials without additional test procedures being performed.

#### e.g. Fibreglass

Fiberglass is used as a reinforcing agent for many polymer products; the resulting composite material, properly known as fibre-reinforced polymer (FRP) or glass-reinforced plastic (GRP), is called "fibreglass" in popular usage. As with many other composite materials, the two materials act together, each overcoming the deficits of the other. Whereas the plastic resins are strong in compressive loading and relatively weak in tensile strength, the glass fibres are very strong in tension but have no strength against compression. By combining the two materials, GRP becomes a material that resists both compressive and tensile forces well. The two materials may be used uniformly or the glass may be specifically placed in those portions of the structure that will experience tensile loads.

The fibreglass content of the plastic can easily be determined by ashing. The polymer is burned or decomposed at high temperatures whereas the glass resists to the heat and is measured as ash.

GF20: 20 % fibreglass, GF30: 30% fibreglass



# Precisa APPLICATION



## Applications available from Precisa:

- prepASH 008 PP GF Recyclat
- prepASH 3006 PVC
- prepASH 0708 Polyamid 6 filled with talc
- prepASH 0709 Polypropylen filled with talc
- prepASH 0710 Polypropylen filled with glass fibre
- prepASH 0711 Polypropylen filled with calcium carbonate
- prepASH 6001 Rubber compound

## prepASH – optimal solution to determine ash in plastics

**Reduced time and effort** prepASH is a fully automatic drying and ashing machine, so no multiple weighing back after time consuming cooling down in the dessicator but automatic calculation of results. Working in groups of similar samples in a single run will rise efficiency of and optimise time of analysis.

**Improved safety and efficiency** No more dangerous analysis with the open flame. With prepASH Analyses can be done in time slots unused or hardly ever used so far, e.g. at night.

**Increased quality up to 20%** of each ash determination has to be re-analysed because of faulty/undefined results. prepASH is highly repeatable and reliable!

**Detailed analysis reports** Due to the permanent recording of measurements during the entire process and the automatic saving of the final results, all data are retrievable at any moment.

## Working Steps of moisture and ash determination

Standard Method with oven	vs.	prepASH
Heating out crucibles for constant weight before	Dry matter	Possibility to pre-define a "heating out"
Measuring tare of crucible one by one		AUTOMATICAL PROCEDURE
Sampling		Sampling
Weighing + documentation of each crucible		AUTOMATICAL + entering the sample
Samples in drying oven + START		START PROGRAM
Removing samples from oven + cool down		RESULTS (moisture)
Back weighing Samples, calculation (moisture)	Ash	RESULTS (ash)
Pre-ashing with rapid incinerator or hot plate		
Samples in muffle furnace		
Removing samples + cooling down in exsiccator		
Calculation and documentation (ash)		
Back weighing for stable results (repeat?)		

**Precisa**

■ The Balance of Quality ■

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