Microwave Analytical Chemistry(2)

In recent years, research in microwave about the herbal extract active ingredients more, compared with the traditional extraction (eg cable type, ultrasonic extraction) method. The main advantage of microwave extraction is a fast, high recovery rate, low energy consumption, less solvent, and avoid thermal decomposition, there are polar and thermally labile compounds extracted favor prolonged heating caused.

The most basic principle of choice is the extraction solvent capable of dissolving the measured object, but to carry out extraction, sample or solvent should have at least one of the two in the microwave absorption, so, in order to accelerate the extraction and microwave extraction rate should be in a non-polar solvent some polar solvent is added or (and) by adding some water in a sample. Microwave desorption similar extraction, is generally used in gas chromatography analysis, the upcoming test components such as air samples enriched in the material (such as activated carbon), and then use a solvent or gas on activated carbon under microwave heating analyte adsorption desorption down.

Microwave heating drying is heating to remove the volatile substances in the sample, the volatile substances is usually water. Microwave heating and drying has been used for drying Inaba, coal, tobacco, food, the soil, salt, leather, film, wood, paper samples. Microwave heating and drying method can be used for determination of total solids by weight in water and the suspension, the total milk solids, can also be used in weight method $BaSO_4$, dried AgCl, $CaC_2O_4.Hz0$ other products of constant weight, wherein the microwave drying by weight $BaSO_4$ precipitation method method for the determination of barium content has been written into the experimental undergraduate textbooks.

Microwave heating and drying method to measure the moisture biggest advantage is fast, suitable for online measurement, measurement of coal, food, food, minerals, environmental samples, chemical reagents have been used in the water, can also be measured by microwave technology to measure the dielectric constant change moisture. Microwave technology can also be used for pre-concentration analytes, sample purification, spectrophotometric color reaction promote accelerated reduction and volatile analytes and morphological analysis by microwave heating.

Thermal fogging been used in atomic spectroscopy, microwave thermal fogging is carried out using microwave heating hot fogging, this research has just begun, but already shows some advantages.