MT 10 MATERIAL INSOLUBLE IN WATER

SCOPE

The method is used for the determination of (i) impurities in water-soluble technical pesticides or (ii) insoluble materials in water-soluble formulations which could cause blockage of sieves or jets in spray machinery.

10.1 Hot solution of the sample

OUTLINE OF METHOD

The sample is dissolved in boiling water; any insoluble matter is filtered off, dried, and weighed.

APPARATUS

Weighing bottle
Sintered glass crucible porosity P16 (pore size 10-16 μm)
Oven at 105 to 110 °C
Beaker 250 ml
Measuring cylinder 100 ml
Buchner flask and crucible adapter 500 ml
Glass stirring rod

PROCEDURE

Dry the crucible at 105 °C to constant weight (x g). Weigh (to the nearest 10 mg) the prescribed amount of sample (w g) and rinse with water (100 ml) into the beaker. Heat to boiling and stir until all water-soluble material has dissolved. Filter hot through the crucible and wash with hot distilled water (3 × 25 ml). Dry the crucible and residue to constant weight at 105 °C (y g).

$$\text{Content of material insoluble in water} = \frac{1000\,(y - x)}{w} \text{ g/kg}$$

10.2 Cold solution of the sample

OUTLINE OF METHOD

The sample is dissolved in cold water; any insoluble material is filtered off, dried, and weighed.

APPARATUS As for 10.1 together with:

Stoppered measuring cylinder 200 ml

PROCEDURE

Dry the crucible to constant weight (x g) at 105 °C. Weigh (to the nearest 10 mg) the prescribed amount, or otherwise 20 g of sample (w g), rinse with water (200 ml) into the measuring cylinder, stopper and shake vigorously until all water-soluble material has dissolved. Filter the solution through the crucible, and wash the residue in the crucible with distilled water (3 × 25 ml). Dry the crucible and residue to constant weight at 105 °C (y g).

$$\text{Content of material insoluble in water} = \frac{1000\,(y - x)}{w} \text{ g/kg}$$

10.3 **Coarse material insoluble in water**

10.3A *Procedure A*

OUTLINE OF METHOD

The material is shaken with water for a given time, then the mixture is sieved, and any residue on the sieve is dried and weighed.

APPARATUS

Test sieve 8 cm in diameter 150 μm (Note 1)
Mechanical shaker
Stoppered measuring cylinder 250 ml
Weighing bottle
Small camel hair brush
Oven at 105 °C
Glazed paper

METHOD

Weigh (to the nearest 10 mg) the prescribed amount, or otherwise 20 g of sample (w g), mix with water (200 ml) in the stoppered measuring cylinder and shake the mixture for 10 min. Pour the solution through the sieve, washing out any residue from the measuring cylinder with water on to the sieve. Wash the residue on the sieve several times with distilled water and allow to drain, and dry the sieve at 100 °C. Brush the residue remaining on the sieve on to the glazed paper, and thence to the tared weighing bottle (x g). Dry the weighing bottle and residue at 100 °C, cool, and reweigh (y g).

$$\text{Content of material insoluble in water} = \frac{1000\,(y - x)}{w} \text{ g/kg}$$