**MT XXX** **Discharge Rate of Trigger Sprayers**

**Scope**

This method is intended for measuring the discharge rate of trigger sprayers. During spraying process the behaviour of the spray nozzle and spray head is observed visually.

**Outline of Method**

The discharge rate of a trigger sprayer is determined by measuring the weight loss of the trigger sprayer, caused by a defined number of trigger strokes. The discharge rate is calculated by dividing the weight loss by the number of trigger strokes.

**Apparatus**

*Thermometer*

*Spray collection chamber,* located in a fume hood

*Balance,* with an accuracy of at least ± 0.01 g

**Procedure**

1. ***Preparation of test sample***

Equilibrate the trigger sprayer at ambient temperature (25 ± 5 °C). Shake the trigger sprayer according to the instructions for use. If there is no instruction available, shake the trigger sprayer vigorously for at least 10 s. Direct the trigger sprayer into thespray collection chamber. Pull the trigger until spray is expelled. Then, pull the trigger 5 more times.

1. ***Determination of the discharge rate***

Weigh the trigger sprayer and note the weight (m1). Direct the trigger sprayer into the spray collection chamber. Hold the trigger sprayer as indicated in the instructions for use. If no instructions are given, use an upright position for the trigger sprayer. Pull the trigger 10 times (Note 1). Afterwards, weigh the trigger sprayer (m2a).

The spraying process will be repeated twice. The weight of the trigger sprayer after the second spraying will be m2b. The weight of the trigger sprayer after the third spraying will be m2c.

During each spraying process, observe the spray cone of the trigger sprayer. Note disturbances of the spray cone as well as any observations of crystallized material on the nozzle, nozzle blockage or leaks ofthe trigger head.

1. ***Trigger sprayerswith more than one setting***

If the trigger sprayer has more than one setting, test anarrow and a wide spray pattern.

**Calculation**

The ‘Discharge Rate’ (D)x per trigger sprayer is calculated as follows:







m1 = Weight of trigger sprayer before spraying [g]
m2a = Weight of trigger sprayer after the first 10 trigger strokes [g]
m2b = Weight of trigger sprayer after the second 10 trigger strokes [g]

m2c = Weight of trigger sprayer after the third 10 trigger strokes [g]

The mean per trigger sprayer: 

**REPORTING**

Report the three discharge rates (D, D2, D3) of the trigger sprayer in g/stroke, as well as the mean (Dmean) of the three determinations to the nearest 0.01 g.

Report also disturbances of the spray cone, as well as any observations of crystallized material on the nozzle, nozzle blockage or leaks from the trigger head.

**Notes**

*Note 1* In order to expel the required amount of spray mix, the trigger needs to be completely pulled.