



## Method 1.4 - Official Methods: prepared cane and bagasse moisture

### 1. Rationale

This method is applicable to prepared cane samples and is used to obtain data for cane payment purposes.

### 2. Principle

The drying oven dries a sample of prepared cane by drawing a stream of hot air through it. Weighed samples are dried to constant mass and the moisture content of the sample is found by difference.

### 3. Apparatus

- 3.1 Spencer type oven (105°C)
- 3.2 Light duty balance
- 3.3 Moisture tray with gauze base (pore openings 0.25 mm, 200 mm  $\phi$  or 250 mm  $\phi$  as applicable)
- 3.4 Paint brush (50mm)

### 4. Procedure

Clean the moisture tray with the brush to remove all cane/bagasse particles. Place the clean dry tray on the balance and record the mass.

Add the requisite amount of sample to the tray in accordance with the following requirements. Note that only single compartment ovens are used for bagasse.

Cane	Labotec multi-compartment oven - <i>ca.</i> 200 g Labotec single-compartment oven - <i>ca.</i> 300 g
Bagasse	Labotec multi-compartment oven - <i>ca.</i> 100 g Labotec single-compartment oven - <i>ca.</i> 200 g

Weigh the full tray and record the mass.

Place the tray in the oven and dry at 105°C for 60 minutes.

After the required drying time has elapsed, weigh the tray and sample while still hot. This step must be done as rapidly as possible to avoid errors due to the absorption of moisture by the hot dry sample. At the same time care must be taken that small particles of dry fibre are not blown away.

Discard the dried sample and clean the tray by brushing.

### 5. Calculations

The following example relates to the determination of moisture % cane

$$\text{Moisture \% cane} = \frac{(M_2 - M_3)}{(M_2 - M_1)} \times 100$$

where  $M_1$    ≡    mass of tray (g)  
       $M_2$    ≡    mass of tray and sample before drying (g)  
       $M_3$    ≡    mass of tray and sample after drying (g)

## 6. Example

If

mass of tray	=	350.2 g
mass of tray and sample	=	650.2 g
mass of tray and dried sample	=	440.0 g

then

$$\begin{aligned}\text{Moisture \% cane} &= \frac{(650.2 - 440.0)}{(650.2 - 350.2)} \times 100 \\ &= 70.07\%\end{aligned}$$

## 7. References

SASTA (1985). *Laboratory Manual for South African Sugar Factories*. 3<sup>rd</sup> Edition: 229 – 230.