CRC for Premium Quality Wool

Regain & Oven-dry Weight

Produced for the CRC for Premium Quality Wool undergraduate program by;
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Definitions

- $\text{regain} = \frac{\text{wt. of moisture}}{\text{oven-dry weight}} \times 100\%$

- Yield, WB, VM base
  - oven-dry weight
- Invoice Mass
  - standard regains applied

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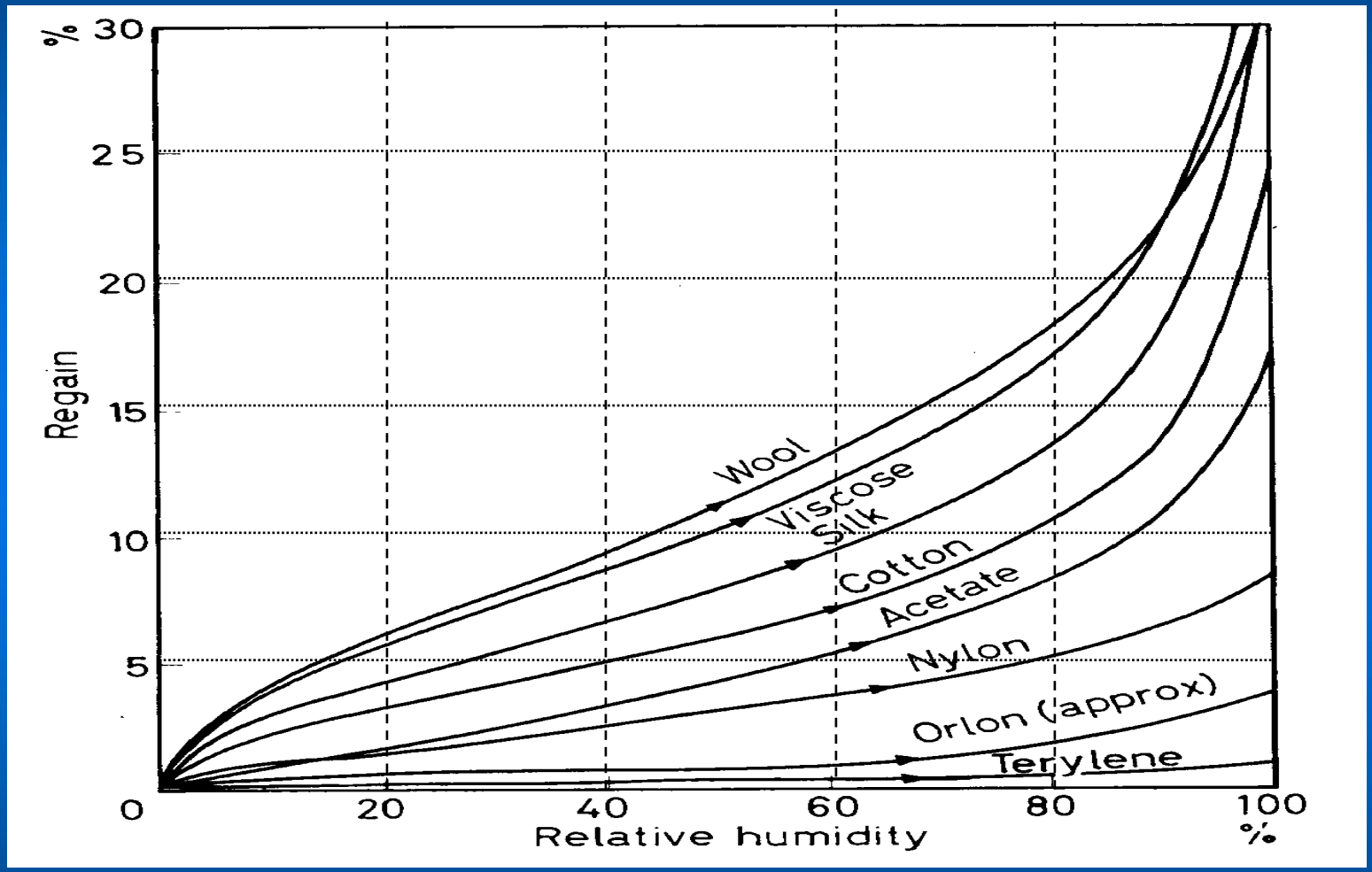
Regain vs. Humidity



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Source:Morton and Hearle (1962)

Derivation of Conditioned Weight

$$\text{Regain (R\%)} = \frac{\text{wt. of moisture (M)}}{\text{oven-dry weight (D)}} \times 100\%$$

$$M = \frac{R\%}{100} \times D$$

$$\text{Conditioned Weight (C)} = D + M$$

$$= D + \frac{R\%}{100} \times D$$

$$C = D\left(1 + \frac{R\%}{100}\right)$$

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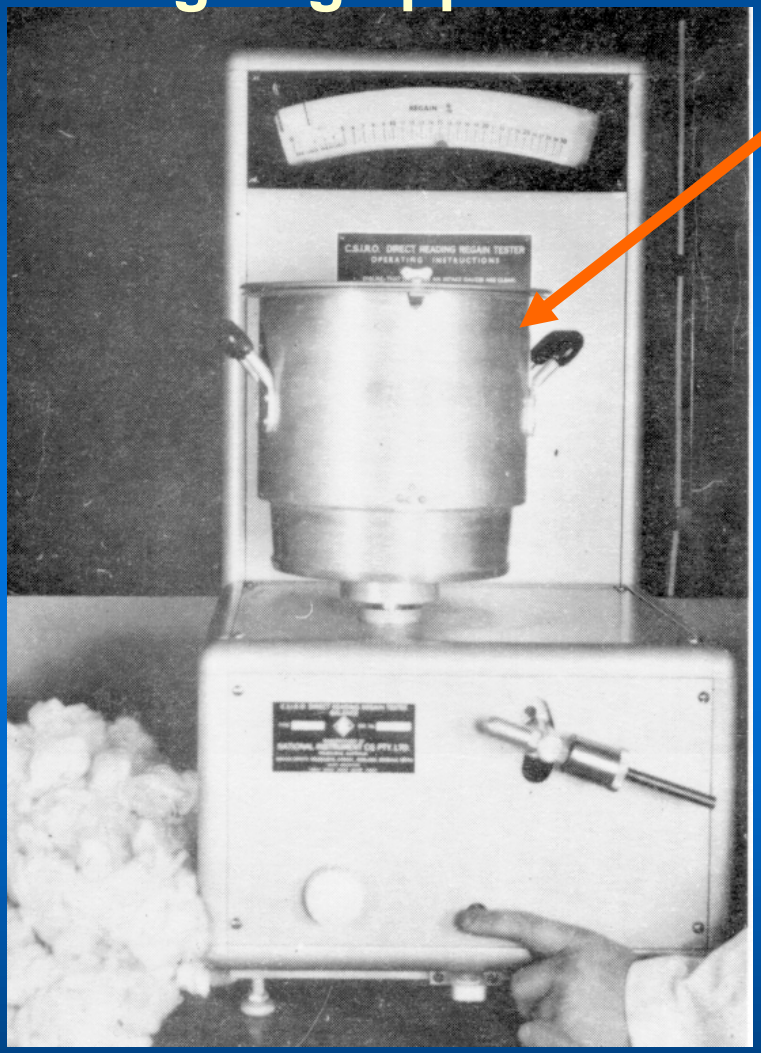
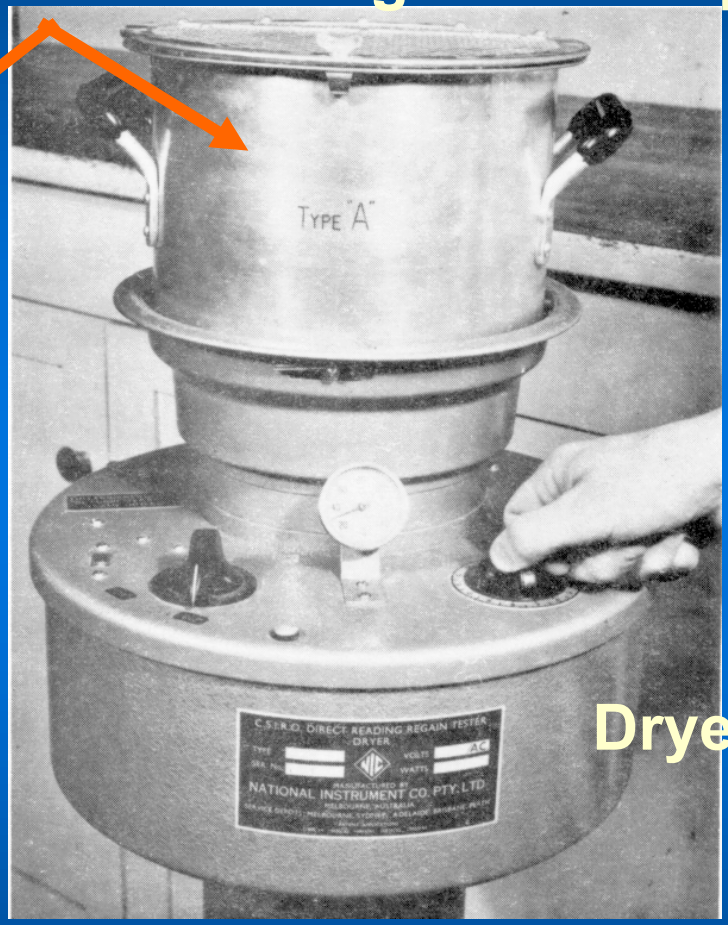
Direct Reading Regain Tester

Weighing apparatus



Can containing wool sample



Dryer

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Source: 'The Direct Reading Regain Tester' manual

Latest Devlopments

- Near Infra-Red Sensing
  - NIRS
- Principle
  - Near IR energy absorbed
    - O-H “stretching”
  - signal proportional to moisture content
    - calibration required
- Application
  - scour technology
  - at-line sensing

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Standards

- ITWO-19-95
  - Determination of wool base and vegetable matter base of core samples of raw wool
- IWTO-33-88
  - Method for the determination of oven-dry mass & calculated invoice mass of scoured or carbonised wool
- IWTO-34-85
  - Determination of oven-dry mass, calculated invoice mass & calculated merchant mass of wool tops

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