CRC for Premium Quality Wool

Wool Base & Vegetable Base

Produced for the CRC for Premium Quality Wool undergraduate program by;
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Wool Base (WB)

- oven-dry mass of clean wool
  - (free from all impurities)
- impurities
  - vegetable matter (VM)
  - non-VM
    - skin flakes, wool pack, dags, string etc.
  - alcohol extractables
  - ash (mineral matter)
  - (water)

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Determination of Wool Base 1

- Sample is prepared
  - take subsamples (i) from core (weight W)
  - weigh greasy wool (Wi)
  - scour and oven-dry greasy wool (Pi)
  - ash & alcohol extract specimens removed and weighed
- Dissolve wool
  - dissolve weighed wool in alkali
  - VM, others in residue
- Consider Residue
  - dry and separate (VM and others)
  - weigh VM residue (Vi) & weigh other residues

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Determination of Wool Base 2

- Adjust Residue Value
  - ash content of residue (separate test)
  - allow for alkali dissolving (correction factors)
- Calculate total alkali insolubles (Ti %)
  - compared to Pi
- Determine Ash content by burning (Ai%)
  - @ 750 degrees C
  - compared to Pi
- Alcohol extractable matter (Ei %)
  - compared to Pi

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Alcohol Extractable Matter

Source : “Testing Your Woolclip”, AWTA customer brochure

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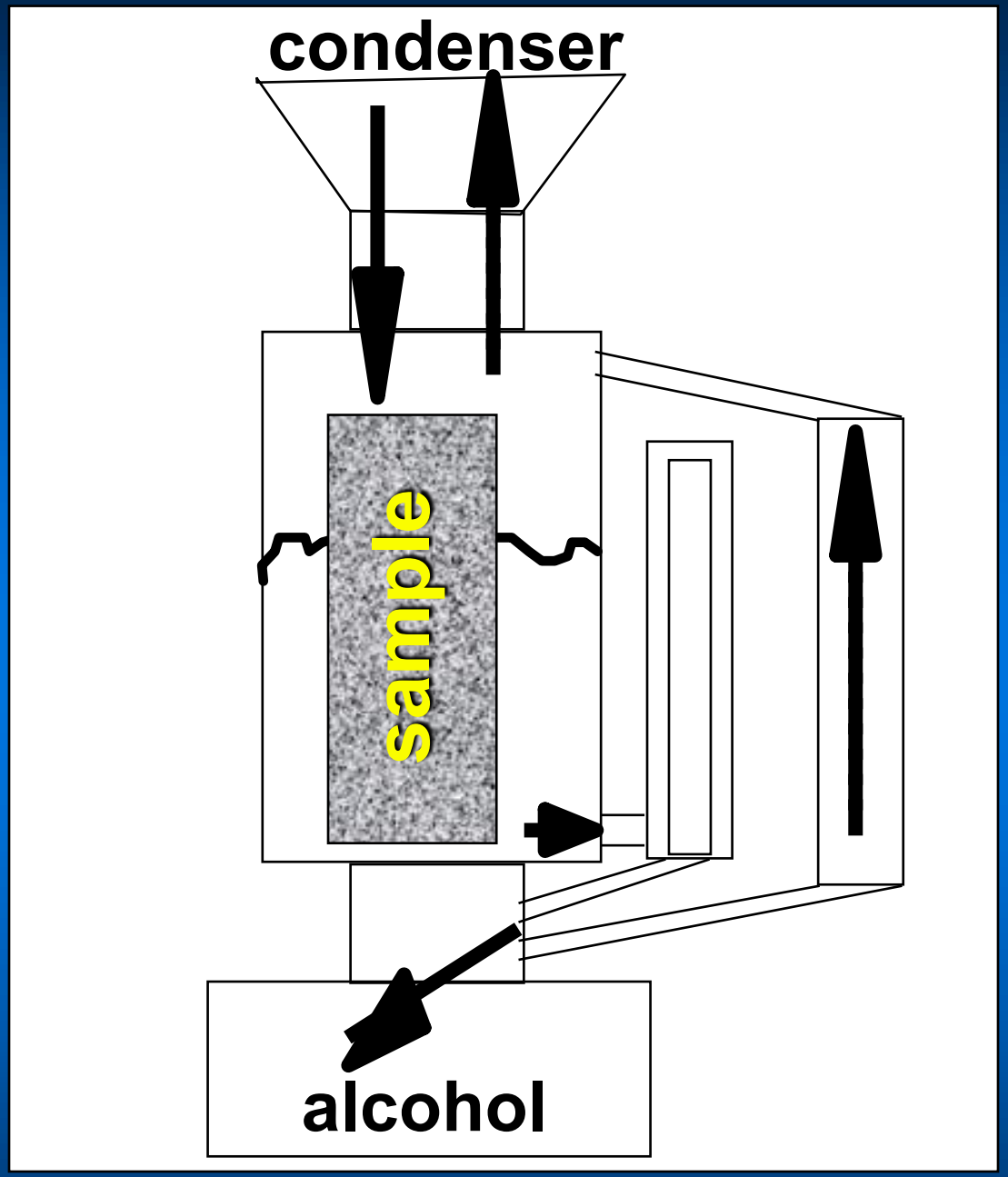
Soxhlet Extraction



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Ash Content

Source : “Testing Your Woolclip”, AWTA customer brochure

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Wool Base Formulae

- Wool Base (Bi) by difference
- for each subsample (i)

$$Bi = Pi \frac{(100 - Ei - Ai - Ti)}{Wi} \%$$

- for whole sample

$$WB = \frac{Wb}{W} \frac{\sum Bi\ Wi}{\sum Wi}$$

  - Wb is total subsamples plus remainder
  - at least 2 subsamples >150g
  - blending factor (Wb/W) allows for weight loss during blending and subsampling

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Vegetable Matter Base

- alkali-insoluble residue sorted
- VM Content (Vi)
  - Hard heads and Twigs (Hi)
  - Spiral Burr
  - Seeds and Shive

$$V = \frac{Wb}{W} \frac{\sum Vi\ Pi}{\sum Wi}$$

$$H = \frac{Wb}{W} \frac{\sum Hi\ Pi}{\sum Wi}$$

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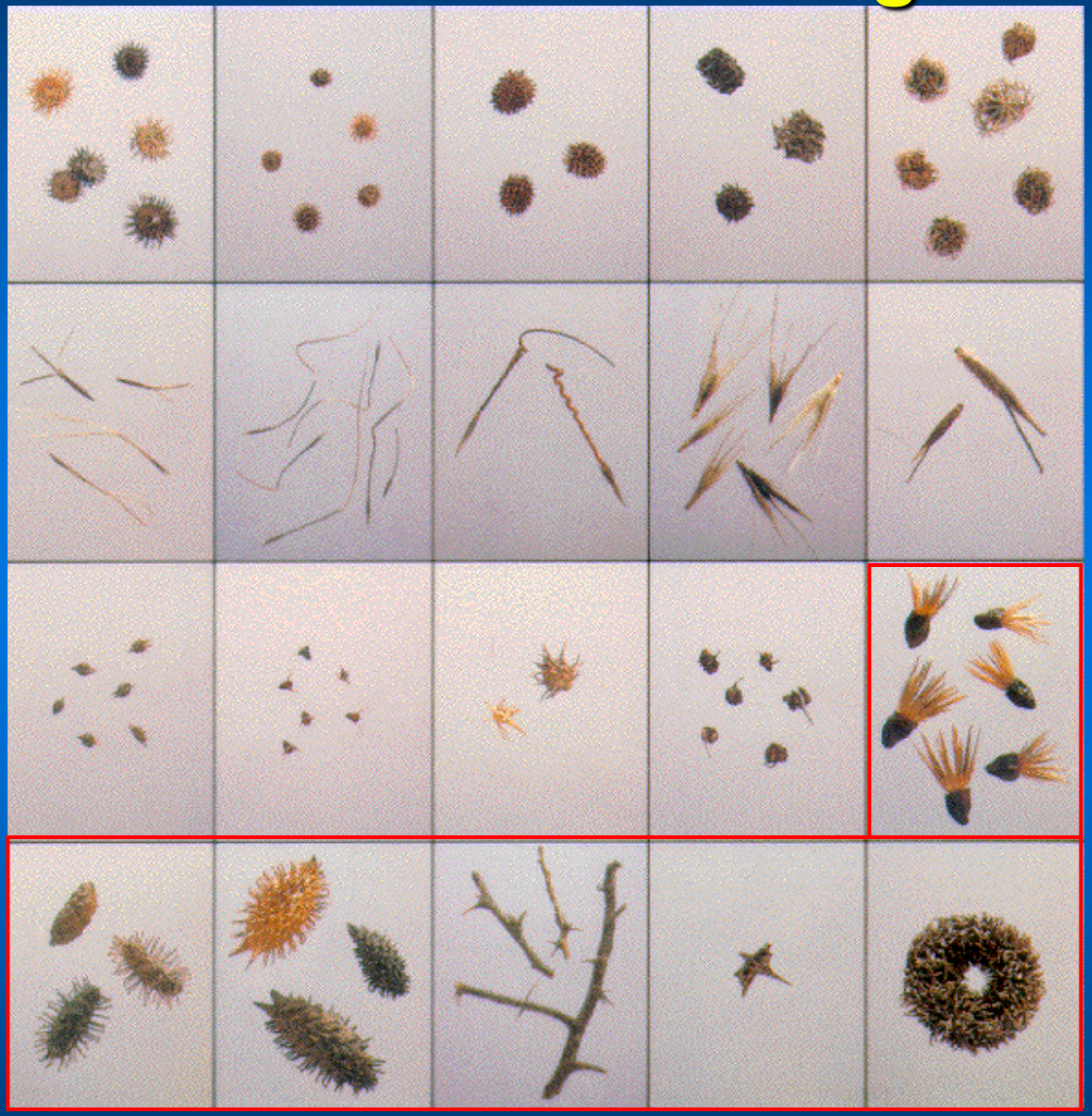
VM in Processing

Hard-to-remove



Easy-to-remove

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www.woolwise.com

Source: AWTA booklet

Standards

- IWTO -19 - 95 (E)
  - Determination of wool base & vegetable matter base of core samples of raw wool.
- AS/NZS 1134 (1997)
  - Determination of wool base and vegetable matter base of core samples of raw wool.
- IWTO Core Test Regulations

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