Wood Manufacturing & Finishing Percentage of Quantities

Phase 4

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Percentage of Quantities

- The individual amounts of different materials in a mixture are stated in percentage form.
- This is to ensure that when different quantities of a mixture are required they will be identical in composition.
- After calculations the total must be the same as the whole number or add to 100%.

Percentage of Quantities

- E.g. A mixture of paint contains 85% white paint, 9% red paint and the remainder is blue.
- What percentage of the paint is blue?
- 85 + 9 = 94
- 100 – 94 = 6 6% blue paint
- Part 2
- If we were told that the tin of paint weighed 2.5Kgs calculate the weight of each colour
- White 85% of 2.5Kgs = 2.125Kgs 85% x 2.5 = 2.125
- Red 9% of 2.5Kgs = 0.225Kgs 9% x 2.5 = 0.225
- Blue 6% of 2.5Kgs = 0.150Kgs 6% x 2.5 = 0.150
- 2.500Kgs

Percentage of Quantities

- Moisture content in timber is expressed in percentage terms eg 20%MC
- The percentage moisture content in timber is determined by comparing the weight of the moisture in a sample of timber to the dry weight of the same sample when dried
- E.g. If the wet weight of a sample of timber is 35kgs and the dry weight is 29kgs find the moisture content
- $\frac{\text{Wet weight} - \text{dry weight}}{\text{dry weight}} \times 100 = \text{MC\%}$
- $\frac{35 - 29}{29} \times 100 = \frac{6}{29} \times 100 = 20.7\%$
- Answer is 20.7%MC

Answers to Percentage of Quantities

- **Q1.** An alloy contains 58% of zinc by weight and the remainder is copper. Calculate the weight of copper in 23kgs of the alloy.
- 100 – 58 = 42% **copper is 42% of the weight**
- 23 x 42% = 9.66kgs

- **Q2.** A bronze statue contains 70% copper, 20% lead and the rest is tin. Find the weight of each metal in 165.8Kgs of bronze.
- Copper 70% of 165.8Kgs = 116.06Kgs
- Lead 20% of 165.8Kgs = 33.16Kgs
- Tin 10% of 165.8Kgs = 16.58Kgs

Answers to Percentage of Quantities

- **Q3.** An alloy contains 2/5 of zinc by weight and the remainder is copper. Calculate the weight of copper in 70kgs of the alloy
- As fractions copper is 3/5 $\frac{70}{5} \times 3 = 42\text{Kgs}$
- As percentages 60% $70 \times 0.6 = 42\text{kgs}$

Answers to Percentage of Quantities

- **Q4.** If the wet weight of a sample of timber is 36kg and the dry weight is 27kg find the moisture content
- $\frac{36 - 27}{27} \times 100 = \frac{9}{27} \times 100 = 33.3\%$
- 33.3%M.C

- **Q5.** If a wet sample of timber is 6.65kg and after being dried in the oven it weighs 5.35kg. Calculate the moisture content.
- $\frac{6.65 - 5.35}{5.35} \times 100 = \frac{1.3}{5.35} \times 100 = 24.3\%$
- 24.3% M.C.

Answers to Percentage of Quantities

- **Q6.** A dry brick weighs 3.25kg and 4.0kg when totally saturated. Calculate the percentage porosity of the brick.
- $\frac{4.00 - 3.25}{3.25} \times 100 = \frac{0.75}{3.25} \times 100 = 23\%$
- 23% porosity