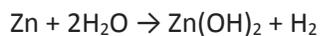


Question #60272, Chemistry / Organic Chemistry |

how many grams of zinc would be required to produce 9.65 of zinc hydroxide

Answer:

Zn(OH)₂ is produced by the equation:



Thus, $v(\text{Zn}) = v(\text{Zn(OH)}_2)$

The amount of Zn(OH)₂ is:

$$v(\text{Zn(OH)}_2) = m(\text{Zn(OH)}_2) / \text{Mr}(\text{Zn(OH)}_2) = 9.65 \text{ g} / 99 \text{ g mol}^{-1} = 0.0975 \text{ mol}$$

$$\text{Since } v(\text{Zn(OH)}_2) = v(\text{Zn}) = m(\text{Zn}) / \text{Mr}(\text{Zn}) = 0.0975 \text{ mol}$$

$$\mathbf{m(\text{Zn}) = v(\text{Zn}) \times \text{Mr}(\text{Zn}) = 0.0975 \text{ mol} \times 65 \text{ g mol}^{-1} = 6.3375 \text{ g}}$$