

Limiting Reactant

Chemistry

Identifying which reactant runs out first.

The reliable method.

1

Convert every reactant to moles

From mass, volume or concentration.

2

Divide each by its coefficient

From the balanced equation.

3

The smallest value is limiting

That reactant runs out first.

4

Use it for every product calculation

The excess is irrelevant to the yield.

EXAMPLE



$$4 \text{ mol H}_2 \div 2 = 2$$

$$3 \text{ mol O}_2 \div 1 = 3$$

Hydrogen is limiting; 4 mol of water forms

Comparing raw moles without dividing by the coefficients gives the wrong answer whenever the ratio is not 1:1.