

# Limiting $\equiv$ Excess Reactants

Limiting Reactant - the reactant that is completely used up 1<sup>st</sup> in a reaction. Controls how much product can be made b/c you cannot make more product when you run out of a reactant

Excess Reactant - reactants you do not run out of 1<sup>st</sup> in a reaction.

Ex)

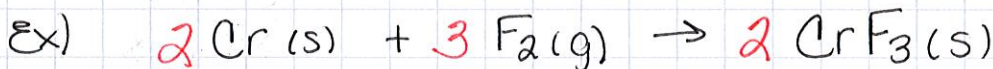


If you have: 20 Pb  
22 J  
38 B

How many PbJB<sub>2</sub> can you make? 19

What is Limiting Reactant? B

## Solving Limiting Reactant Problems



If <sup>GIVEN # 1</sup> 25.0g of chromium reacts with <sup>GIVEN # 2</sup> 25.0g of fluorine, determine the theoretical yield of chromium (III) fluoride  $\equiv$  the limiting reactant.

$$\frac{25.0\text{g Cr}}{\text{ER}} \times \frac{1\text{mol Cr}}{52.00\text{g Cr}} \times \frac{2\text{mol CrF}_3}{2\text{mol Cr}} \times \frac{109.00\text{g CrF}_3}{1\text{mol CrF}_3} = 52.4\text{g CrF}_3$$

$$\frac{25.0\text{g F}_2}{\text{LR}} \times \frac{1\text{mol F}_2}{38.00\text{g F}_2} \times \frac{2\text{mol CrF}_3}{3\text{mol F}_2} \times \frac{109.00\text{g CrF}_3}{1\text{mol CrF}_3} = 47.8\text{g CrF}_3$$

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