# Answer on Question #55235 – Chemistry – Other

**Question:**

Calcium oxide reacts with water in a combination reaction to produce calcium hydroxide:

$CaO + H_2O >> Ca(OH)_2$

A 3.50 g sample of CaO is reacted with 3.38 g of $H_2O$.

Calculate how many moles of CaO and $H_2O$. Identify the limiting reagent. How many grams of water remain after completion of reaction?

**Answer:**

$$v = \frac{m}{M}$$

$v(CaO)=v(H_2O)=v(Ca(OH)_2)$

$M(CaO)=56$ g/mol

$M(H_2O)=18$ g/mol

$M(Ca(OH)_2)=74$ g/mol

$$\mathrm{v(CaO)} = \frac{3.50}{56.07} = 0.06\,moles$$

$$v(\mathrm{H_2O}) = \frac{3.38}{18.01} = 0.19\,moles$$

The limiting agent in this reaction is CaO. Its amount is less, so that it is used faster.

After the reaction the amount of water left is:

$$v(\mathrm{H_2O})_{\mathrm{left}} = 0.19 - 0.06 = 0.13\,moles$$