



# Mole Ratio

Video Workbook with Dr. B

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We get the *mole ratio* from balanced chemical equations.  
That is a big reason we balance equations!

The coefficients represent the ratios of substances.  
We often think of the coefficients as *moles*.

The mole ratio is the only time we use the coefficients from a balanced equation in stoichiometry.

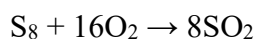
Watch this video for all you need to learn how to use the mole ratio!

[Understanding and Using the Mole Ratio](#)

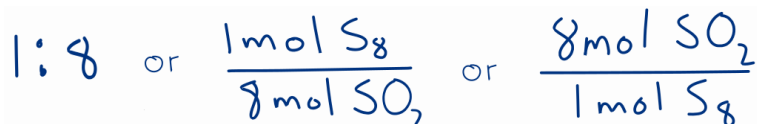
The mole ratio is needed for reaction stoichiometry problems.

We can write the mole ratios several ways.

For example, for the balanced equation:



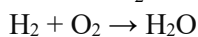
the mole ratio for  $\text{S}_8$  to  $\text{SO}_2$  can be written:



You could also say that for every one mol of  $\text{S}_8$  that reacts there will be 8 mol of  $\text{SO}_2$  produced.

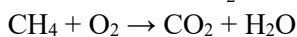
## Practice with Video Explanations

Mole Ratio  $\text{O}_2$  to  $\text{H}_2\text{O}$



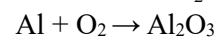
<https://youtu.be/pABeHtosDNs>

Mole Ratio for  $\text{O}_2$  to  $\text{CO}_2$



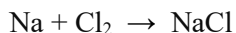
<https://youtu.be/4f20OXjnx-c>

Mole Ratio for  $\text{Al}_2\text{O}_3$  to  $\text{Al}$



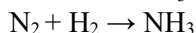
<https://youtu.be/aGbTh7ivlYM>

Mole Ratio for  $\text{Na}$  to  $\text{Cl}_2$



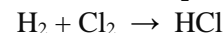
<https://youtu.be/-sGoQM0ers>

Mole Ratio for  $\text{NH}_3$  to  $\text{H}_2$



<https://youtu.be/fn0Lnj2vuvA>

Mole Ratio for  $\text{H}_2$  to  $\text{HCl}$



<https://youtu.be/n7Z3hZuKKhQ>

## Answers

1 mol  $\text{O}_2$  : 2 mol  $\text{H}_2\text{O}$  or  
1 mol  $\text{O}_2$  / 2 mol  $\text{H}_2\text{O}$  or  
2 mol  $\text{H}_2\text{O}$  / 1 mol  $\text{O}_2$   
2 mol  $\text{Na}$  : 1 mol  $\text{Cl}_2$  or  
2 mol  $\text{Na}$  / 1 mol  $\text{Cl}_2$  or  
1 mol  $\text{Cl}_2$  / 2 mol  $\text{Na}$

2 mol  $\text{O}_2$  : 1 mol  $\text{CO}_2$  or  
2 mol  $\text{O}_2$  / 1 mol  $\text{CO}_2$  or  
1 mol  $\text{CO}_2$  / 2 mol  $\text{O}_2$   
2 mol  $\text{NH}_3$  : 3 mol  $\text{H}_2$  or  
2 mol  $\text{NH}_3$  / 3 mol  $\text{H}_2$  or  
3 mol  $\text{H}_2$  / 2 mol  $\text{NH}_3$

2 mol  $\text{Al}_2\text{O}_3$  : 4 mol  $\text{Al}$  or  
2 mol  $\text{Al}_2\text{O}_3$  / 4 mol  $\text{Al}$  or  
4 mol  $\text{Al}$  / 2 mol  $\text{Al}_2\text{O}_3$   
1 mol  $\text{H}_2$  : 2 mol  $\text{HCl}$  or  
1 mol  $\text{H}_2$  / 2 mol  $\text{HCl}$  or  
2 mol  $\text{HCl}$  / 1 mol  $\text{H}_2$

Report errors and suggestions to [DrB@breslyn.org](mailto:DrB@breslyn.org)

