

Performing Stoichiometric Calculations



Queries: L excess, L excess, L produced, g produced

Parsing

```
FormulaS = [[['C'], 1], [['H'], 4], [['O'], 2], [['C'], 1], [['O'], 2],  
            [['H'], 2], [['O'], 1]]  
QtyS = [[['20', 2], 'L']], [['10', 2], 'L'], nil, nil]  
QueryS = [[['W', '_'], 'L'], excess], [['X', '_'], 'L'], excess], [['Y',  
_'], 'L'], actual], [['Z', '_'], g], actual]]
```

Convert to Moles

```
QtyS = [[['0.8923', 2], mol]], [['0.4462', 2], mol], nil, nil]
```

Only One Reactant Quantity:

More Than One Reactant Quantity:

QtyIn = ...
FormulaIn = ...

Determine Limiting Reactant

```
FormulaLim = [['O'], 2]  
QtyLim = [['0.4462', 2], mol]]
```

Convert to Result Units

$W = 15.0$, $X = 0.0$, $Y = 5.0$, $Z = 8.0375$

Reverse Parsing

Results: 20 L CH_4 + $10 \text{ L O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$
 $= 15 \text{ L excess}$ $= 0 \text{ L excess}$ $= 5 \text{ L produced}$ $= 8 \text{ g produced}$