OLI Engine usage of Scalechem OIL data:

$let\ i = [1 \rightarrow n]\ be\ the\ number\ of\ Oil(s)$

$let\ j = [1 \rightarrow m]\ be\ the\ number\ of\ Comp(s)\ in\ the\ sample\ Oil_{(i)}$

$Flow_{(i)} = Total\ flow\ of\ Oil_{(i)}\ \left[\frac{bbl}{day}\right]$

$SPG_{(i)} = Specific\ gravity\ of\ Oil_{(i)}\ [unitless]$

$AMWOil_{(i)} = Average\ molecular\ weight\ of\ Oil_{(i)}\ \left[\frac{g}{mol}\right]$

$$SumOil_{(i)} = \sum_{j=1}^{m} Comp_{(j)} \quad [mol\ \%]$$

$Then\ Fac_{(i)}\ is\ the\ factor\ of\ scaling\ the\ flow\ of\ Oil_{(i)}\ given\ by$

$$Fac_{(i)} = Flow_{(i)} * 6.244 * SPG_{(i)} * \left(\frac{1000}{AMWOil_{(i)}}\right) \left[\frac{mol}{hr}\right] \quad where\ \frac{bbl}{day} \rightarrow \frac{6.624L}{hr}$$

$and\ each\ molar\ component, Comp\_molar\_flow_{(j)}\ of\ Oil_{(i)}\ is\ then\ calculated\ as$

$$Comp\_molar\_flow_{(j)} = \left(\frac{Comp_{(j)}}{SumOil_{(i)}}\right) * Fac_{(i)} \quad \left[\frac{mol}{hr}\right]$$

$where\ Comp_{(j)}\ is\ expressed\ as\ mol\ \%$

OLI Engine usage of Scalechem GAS data:

$let\ i = [1 \rightarrow n]\ be\ the\ number\ of\ Gas(s)$

$let\ j = [1 \rightarrow m]\ be\ the\ number\ of\ Comp(s)\ in\ the\ sample\ Gas_{(i)}$

$Flow_{(i)} = Total\ flow\ of\ Gas_{(i)}\ \left[\frac{kscf}{day}\right]$

$MFGR_{(i)}\ is\ the\ total\ Gas\ Flow\ rate\ given\ by$

$$MFGR_{(i)} = Flow_{(i)} * 1000 * \frac{28.32}{24 * 22.4} \left[\frac{mol}{hr}\right] where\ \frac{kscf}{day} = \left(\frac{1}{24} * \frac{1}{hr}\right) * (0.0283 * m^3) * \left(\frac{1000}{22.4} * \frac{mol}{m^3}\right)$$

$$SumGas_{(i)} = \sum_{j=1}^{m} Comp_{(j)} \quad \left[\frac{mol}{Volume}\ \%\right]$$

$and\ each\ molar\ component, Comp\_molar\_flow_{(j)}\ of\ Gas_{(i)}\ is\ then\ calculated\ as$

$$Comp\_molar\_flow_{(j)} = \left(\frac{Comp_{(j)}}{SumGas_{(i)}}\right) * MFGR_{(i)} \quad \left[\frac{mol}{hr}\right]$$

$where\ Comp_{(j)}\ is\ expressed\ as\ \frac{mol}{Volume}\ \%$