Tableau 11.3 Air et gaz de combustion d'une combustion complète ($\lambda \geq 1$).

Combustible solide ou liquide		**Combustible gazeux**	
Composition du combustible			
$c_C^F + c_{H_2}^F + c_S^F + c_{O_2}^F + c_{N_2}^F + c_{H_2O}^F + c_{cendres}^F = 1$		$\tilde{c}_{H_2}^F + \tilde{c}_{O_2}^F + \tilde{c}_{N_2}^F + \tilde{c}_{CO}^F + \tilde{c}_{CO_2}^F + \tilde{c}_{CH_4}^F + \tilde{c}_{C_2H_4}^F = 1$	
Oxygène stœchiométrique			
$\frac{N_{O_2st}}{M_F} = \frac{c_C^F}{\tilde{m}_C} + 0.5\frac{c_{H_2}^F}{\tilde{m}_{H_2}} + \frac{c_S^F}{\tilde{m}_S} - \frac{c_{O_2}^F}{\tilde{m}_{O_2}}$	$\frac{\text{kmol } O_2}{\text{kg } F}$	$\frac{N_{O_2st}}{N_F} = 0.5\tilde{c}_{H_2}^F + 0.5\tilde{c}_{CO}^F + 2\tilde{c}_{CH_4}^F + 3\tilde{c}_{C_2H_4}^F - \tilde{c}_{O_2}^F$	$\frac{\text{kmol } O_2}{\text{kmol } F}$
Air de combustion (air sec, $\tilde{c}_{O_2}^A = 0.21$, $\tilde{c}_{N_2}^A = 0.79$)			
$\frac{N_A}{M_F} = \frac{\lambda\, N_{O_2st}}{0.21 M_F} = \frac{\lambda}{0.21}\left(\frac{c_C^F}{\tilde{m}_C} + 0.5\frac{c_{H_2}^F}{\tilde{m}_{H_2}} + \frac{c_S^F}{\tilde{m}_S} - \frac{c_{O_2}^F}{\tilde{m}_{O_2}}\right)$	$\frac{\text{kmol } A}{\text{kg } F}$	$\frac{N_A}{N_F} = \frac{\lambda\, N_{O_2st}}{0.21 N_F} = \frac{\lambda}{0.21}\left(0.5\tilde{c}_{H_2}^F + 0.5\tilde{c}_{CO}^F + 2\tilde{c}_{CH_4}^F + 3\tilde{c}_{C_2H_4}^F - \tilde{c}_{O_2}^F\right)$	$\frac{\text{kmol } A}{\text{kmol } F}$
Gaz de combustion complète (air sec, $\tilde{c}_{O_2}^A = 0.21$, $\tilde{c}_{N_2}^A = 0.79$)			
$\frac{N_{Gc}}{M_F} = \frac{c_C^F}{\tilde{m}_C} + \frac{c_{H_2}^F}{\tilde{m}_{H_2}} + \frac{c_S^F}{\tilde{m}_S} + \frac{c_{N_2}^F}{\tilde{m}_{N_2}} + \frac{c_{H_2O}^F}{\tilde{m}_{H_2O}} + \frac{N_A}{M_F} - \frac{N_{O_2st}}{M_F}$	$\frac{\text{kmol } Gc}{\text{kg } F}$	$\frac{N_{Gc}}{N_F} = \tilde{c}_{H_2}^F + \tilde{c}_{N_2}^F + \tilde{c}_{CO}^F + \tilde{c}_{CO_2}^F + 3\tilde{c}_{CH_4}^F + 4\tilde{c}_{C_2H_4}^F + \frac{N_A}{N_F} - \frac{N_{O_2st}}{N_F}$	$\frac{\text{kmol } Gc}{\text{kmol } F}$
$\frac{N_{Gc}}{M_F} = 0.5\frac{c_{H_2}^F}{\tilde{m}_{H_2}} + \frac{c_{O_2}^F}{\tilde{m}_{O_2}} + \frac{c_{N_2}^F}{\tilde{m}_{N_2}} + \frac{c_{H_2O}^F}{\tilde{m}_{H_2O}} + \frac{N_A}{M_F}$	$\frac{\text{kmol } Gc}{\text{kg } F}$	$\frac{N_{Gc}}{N_F} = 0.5\tilde{c}_{H_2}^F + \tilde{c}_{O_2}^F + \tilde{c}_{N_2}^F + 0.5\tilde{c}_{CO}^F + \tilde{c}_{CO_2}^F + \tilde{c}_{CH_4}^F + \tilde{c}_{C_2H_4}^F + \frac{N_A}{N_F}$	$\frac{\text{kmol } Gc}{\text{kmol } F}$
$\frac{N_{H_2O}}{M_F} = \frac{c_{H_2}^F}{\tilde{m}_{H_2}} + \frac{c_{H_2O}^F}{\tilde{m}_{H_2O}}$	$\frac{\text{kmol } H_2O}{\text{kg } F}$	$\frac{N_{H_2O}}{N_F} = \tilde{c}_{H_2}^F + 2\tilde{c}_{CH_4}^F + 2\tilde{c}_{C_2H_4}^F$	$\frac{\text{kmol } H_2O}{\text{kmol } F}$
$\tilde{c}_{H_2O}^{Gc} = \frac{N_{H_2O}/M_F}{N_{Gc}/M_F}$	$\frac{\text{kmol } H_2O}{\text{kmol } Gc}$	$\tilde{c}_{H_2O}^{Gc} = \frac{N_{H_2O}/N_F}{N_{Gc}/N_F}$	$\frac{\text{kmol } H_2O}{\text{kmol } Gc}$