Combustion of Gaseous Fuels

11/10/2026

Project: combustion-gas

Input Parameters

Methane (CH4)	95.000 %
Ethane (C2H6)	2.5000 %
Propane (C3H8)	0.20000 %
Butane (C4H10)	0 %
Pentane (C5H12)	0 %
Ethylene (C2H4)	0 %
Propylene (C3H6)	0 %
Benzene (C6H6)	0 %
Hydrogen (H2)	0 %
Carbon monoxide (CO)	0 %
Hydrogen sulphide (H2S)	0 %
Water vapour (H2O)	0 %
Carbon dioxide (CO2)	0.60000 %
Nitrogen (N2)	1.7000 %
Oxygen (O2)	0 %
Sulphur dioxide (SO2)	0 %
Excess air	10.000 %
Air humidity (kg water per kg dry air)	0.013000 kg/kg

Calculated Results

Molar mass of the fuel gas	16.821 kg/kmol
Fuel gas density (normal)	0.75047 kg/m³
Gross calorific value per Nm³	39,686 kJ/Nm³
Net calorific value per Nm³	35,795 kJ/Nm³
Gross calorific value per kg	52,882 kJ/kg
Net calorific value per kg	47,696 kJ/kg
Stoichiometric oxygen	1.9975 Nm³/Nm³
Theoretical dry air	9.5346 Nm³/Nm³
Actual wet air	10.707 Nm³/Nm³
Wet flue gas	11.722 Nm³/Nm³
Dry flue gas	9.5196 Nm³/Nm³
Actual wet air	18.295 kg/kg
Wet flue gas	19.295 kg/kg

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Dry flue gas	16.937 kg/kg
CO_2 in wet flue gas	8.6693 %
H_2O in wet flue gas	18.787 %
N_2 in wet flue gas	70.007 %
Ar in wet flue gas	0.83212 %
O_2 in wet flue gas	1.7041 %
SO_2 in wet flue gas	0 %
O_2 in dry flue gas (analyser reading)	2.0983 %