Stack Loss: Dry Gas and Moisture Losses

11/10/2026

Project: combustion-heat-loss

Input Parameters

Gross calorific value of the fuel	20,000 kJ/kg
Flue gas temperature at the stack	150.00 °C
Combustion air temperature	30.000 °C
Dry flue gas per kg fuel	12.500 kg/kg
Dry air per kg fuel	11.500 kg/kg
Hydrogen in fuel, as fired	3.5000 %
Moisture in fuel, as fired	10.000 %
Air humidity (kg water per kg dry air)	0.013000 kg/kg
CO_2 in dry flue gas	14.000 %
O_2 in dry flue gas	5.0000 %

Calculated Results

Dry gas loss	1,513.3 kJ/kg
Water from hydrogen loss	831.16 kJ/kg
Fuel moisture loss	265.75 kJ/kg
Air moisture loss	33.851 kJ/kg
Total stack loss	2,644.1 kJ/kg
Dry gas loss	7.5665 %
Water from hydrogen loss	4.1558 %
Fuel moisture loss	1.3287 %
Air moisture loss	0.16926 %
Total stack loss	13.220 %
Mean specific heat of dry gas, air to stack temperature	1.0089 kJ/(kg·K)