SPG course MJ2405 - Exercise 1 (a)

Combustion Task: "Mushroom compost"

A small power plant in Ireland wishes to burn "mushroom compost", which is a residue product from local mushroom processing industry.

Composition of the compost fuel in %-mass per **dry** fuel:

C	30.2 %
O_2	24.3%
N_2	2.3%
H_2	3.5%
S	2.7%
A	37.0%.

The higher heating value (HHV) for the **dry** fuel is 12.19 MJ/kg.

The fuel has a high moisture content M = 61.8 % of total mass!

The mushroom compost will be combusted with an air excess of 30% (m=1.3).

a) How much normalized air is needed (m_n^3) per kg of fuel for the combustion process?

b) How much flue gases (m_n^3) per kg of fuel are produced?

c) Calculate the lower heating value (LHV) for the total (wet) fuel.