Answer on Question #40464, Chemistry, Other

Question

The combustion of propane may be described by the chemical equation,
$C_3H_{8(g)} + 5O_{2(g)} \rightarrow 3CO_{2(g)} + 4H_2O_{(g)}$
How many grams of $O_{2(g)}$ are needed to completely burn 97.3 g of $C_3H_{8(g)}$?

Answer

$M(C_3H_8) = 44$ g/mol
$n(C_3H_8) = m(C_3H_8)/M(C_3H_8) = 97.3$ g / 44 g/mol = 2.21 mol
$n(O_2) = 5*n(C_3H_8) = 5*2.21 = 11.05$ mol
$M(O_2) = 32$ g/mol
$m(O_2) = n(O_2)*M(O_2) = 11.05$ mol*32 g/mol = 353.6 g
Answer: 353.6 g