What volume in L of O_2 at STP is needed to burn 1.00 L (702 g) of octane?
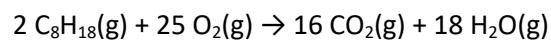
Answer:
2 $C_8H_{18}(g)$ + 25 $O_2(g)$ → 16 $CO_2(g)$ + 18 $H_2O(g)$
PV=nRT
n (O_2) = 702g C_8H_{18} x (1 mol C_8H_{18} / 114.0 g C_8H_{18}) x (25 mol O_2 / 2 mol C_8H_{18}) = 76.97 mol
V = nRT / P
V (O_2) = (76.97 mol x 0.0821 Latm/molK x 291K) / 0.975 atm = 1886 L

Answer provided by www.AssignmentExpert.com