

a hydrocarbon is burnt in 175cm³ of oxygen. The mixture is cooled. The volume of the remaining gasses is 125cm³. The carbon is removed. This leaves 25cm³ of unreacted oxygen.

*Determine the volume of oxygen used

* Determine the volume of carbon dioxide formed

*Deduce a possible formula for the hydrocarbon

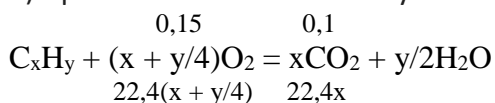
* Write a balanced equation for the reaction of this hydrocarbon with oxygen

Solution

1)The volume of oxygen used is $175 - 25 = 150 \text{ cm}^3$

2)The volume of carbon dioxide formed is $125 - 25 = 100 \text{ cm}^3$

3)A possible formula for the hydrocarbon is C_nH_{2n} (so it is alkene or cycloalkane)

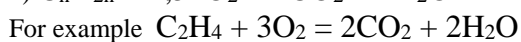
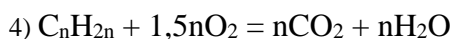


$$22,4 * 0,15 * x = 22,4 * (x + y/4) * 0,1$$

$$0,15x = 0,1x + 0,025y$$

$$0,05x = 0,025y$$

$$y = 2x$$



Answer: b) decreases as the reaction proceeds.