

Answer on Question #53099 – Chemistry – Inorganic Chemistry

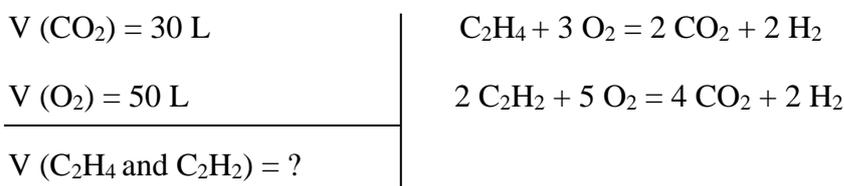
Task

A mixture contains ethene and ethyne gave 30L of CO₂ consuming 50L of O₂ under similar conditions of temperature and pressure. The total volume of the mixture in litres is

- a)5
- b)10
- c) 15
- d)20

Solution

Data



According to Law of combining volumes and chemical reactions there is further proportions of gases volumes:

$$\frac{V (C_2H_4)}{V(CO_2)} = \frac{1}{2}$$

$$\frac{V (C_2H_2)}{V (CO_2)} = \frac{2}{4}$$

Three volumes of gases are equal to six volumes of carbon dioxide:

$$\frac{3 V (\text{mixture of gases})}{6 V (CO_2)} = \frac{1}{2}$$

If V (CO₂) = 30 L

$$\text{then } V (\text{mixture of gases}) = \frac{V (CO_2)}{2} = \frac{30 L}{2} = 15 L.$$

Answer: V (C₂H₄ and C₂H₂) = 15 L (c)