

HYDROCARBONS

TEST

Hydrocarbons, General 2

Date:

- Analysis of a gas gives 85.7 % of C and 14.3 % of H elements. If the formula weight of this gas is 42 amu, what are the empirical formula and the molecular formula of this compound?
A) CH; C₄H₄ B) CH₂; C₃H₆ C) CH₃; C₃H₆
D) C₂H₂; C₃H₆ E) C₂H₄; C₃H₆
- 0.1 mole of an organic substance burns in 0.3 mole oxygen to produce 0.2 mole CO₂ and 0.3 mole H₂O. What is the formula of the organic substance?
A) C₂H₆O B) C₃H₈ C) C₂H₄ D) C₂H₆ E) C₂H₆O
- Which is the compound of which 2.24 L is 3 g at STP? (C:12, H:1, O:16).
A) CH₄ B) C₃H₈ C) C₂H₄ D) C₂H₆ E) C₂H₆O
- When an organic compound is burned, it produces CO₂, SO₂, N₂ and H₂O. which element probably does not exist in the structure of this compound?
A) Carbon B) Oxygen C) Nitrogen D) Sulfur E) Hydrogen
- A compound whose molecular weight is 90 g contains 40% carbon, 6.67% hydrogen, and 53.33% oxygen. What is the true formula of the compound? (C:12, H:1, O:16)
A) C₂H₂O₄ B) CH₂O₄ C) C₃H₆O D) C₃HO E) C₃H₆O₃
- In this equation: C_nH_{2n}O + O₂ → CO₂ + H₂O, the coefficient of O₂ in the balanced equation is
A) 2n B) (2n+1)/2 C) (2n-1)/2 D) (3n+1)/2 E) (3n-1)/2
- The atomic structure of the alkane series contains the hybrid orbitales designated as
A) sp B) sp² C) sp³ D) sp²d² E) sp⁴d³
- When 0.1 mole of compound containing C and H is burned, 0.2 mole of CO₂ and 0.1 mole of H₂O are produced. Which of the following is the formula for this compound?
A) CH₄ B) C₂H₆ C) C₂H₄ D) C₂H₂ E) C₃H₄
- 10 cm³ of a gas containing C and H reacts with 50 cm³ of O₂ and forms 30 cm³ of CO₂ gas and a certain amount of water under the same conditions. What is the formula of this compound?
A) C₃H₄ B) C₃H₆ C) C₃H₈ D) C₄H₆ E) C₄H₈
- What is "n" in a gas whose density is 2.5 g/L under STP and which has the general formula C_nH_{2n}?
A) 1 B) 2 C) 3 D) 4 E) 5
- What hybrid form is carbon believed to exhibit in acetylene, C₂H₂?
A) sp B) sp² C) sp³ D) sp²d E) sp³d²
- How many isomers does the compound C₃H₆Cl₂ have?
A) 1 B) 2 C) 3 D) 4 E) 5