



CHEMISTRY

NCERT - NCERT CHEMISTRY (GUJRATI)

DETECTION AND ESTIMATION OF ELEMENTS

Example

1. 0.30 g of a substance gives 0.88 g of carbon dioxide and 0.54 g water. Calculate the

percentage of carbon and hydrogen in it.



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2. 0.2004 g of glucose gave on combustion 0.2940 g of CO_2 and 0.1202 g of H_2O . Find the percentage composition.



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3. The ammonia evolved from 0.21 g of an organic compound by Kjeldahl method

neutralised 15 ml of N/20 sulphuric acid solution. Calculate the percentage of nitrogen.



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4. 0.35 g of an organic substance was Kjeldahlised and the ammonia obtained was passed into 100 ml of N/5 H_2SO_4 . The excess acid required 154 ml of N/10 $NaOH$ for neutralisation. Calculate the percentage of nitrogen in the compound.



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5. 0.316 g of an organic compound, after heating with fuming nitric acid and barium nitrate crystals in a sealed tube gave 0.466 g of the precipitate of barium sulphate. Determine the percentage of sulphur in the compound.

(Atomic masses : Ba = 137, S = 32, O = 16, C = 12, H = 1).



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6. 0.15 g of iodoform gave 0.2682 g of AgI.

Calculate the percentage of iodine.



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Problems Estimation Of Carbon And Hydrogen

1. 0.12 g of an organic compound gave on combustion 0.18 g of water and 0.11 g of CO_2 .

Calculate the percentage of C and H in the organic compound.



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2. An organic compound contains C, H and O. 0.2475 g of the organic compound yielded on combustion 0.4950 g of CO_2 and 0.2025 g of H_2O . Find the percentage composition of the organic compound.



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3. 0.2004 g of glucose gave on combustion 0.2940 g of CO_2 and 0.1202 g of H_2O . Find

the percentage composition.



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4. 0.2056 g of an organic compound gave on combustion 0.114 g of H_2O and 0.880 g of CO_2 . Find the percentage of hydrogen and carbon in the organic compound.



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5. On complete combustion, 0.246 g of an organic compound gave 0.198 g of CO_2 and 0.1014 g of H_2O . Find the percentage composition of the organic compound.



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Problems Estimation Of Nitrogen

1. 1.15 g of an organic compound was analysed by Kjeldahl's method and the ammonia

produced was collected in 30 mL of normal HCl solution. The excess of acid consumed 18.4 mL of normal sodium hydroxide solution for back titration. Calculate the percentage of nitrogen in the substance.



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2. 0.80 g of a substance was digested with sulphuric acid and then distilled with an excess of caustic soda. The ammonia gas evolved was passed through 100 ml of

$1NH_2SO_4$. The excess of the acid required 80 ml of 1N caustic soda solution for its complete neutralisation. Calculate the percentage of nitrogen in the organic compound.



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3. 0.36 g of a nitrogeous organic compound was Kejldahilised and the ammonia liberated was exactly neutralised by 20 ml of 0.3 N H_2SO_4 . Calculate the percentage of nitrogen in the compound.



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4. 0.257 g of an organic substance was Kjeldahlised and ammonia evolved was absorbed in 50 mL of N/10 HCl which required 23.2 ml of N/10 NaOH for neutralization. Determine the percentage of nitrogen in the compound.



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5. During nitrogen estimation present in an organic compound by Kjeldahl's method, the ammonia evolved from 0.5 g of the compound in Kjeldahl's estimation of nitrogen neutralised 10 ml of 1 M H_2SO_4 . Find the percentage of nitrogen in the compound.



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Problems Estimation Of Sulphur

1. 0.4037 g of an organic substance containing sulphur was heated with conc. nitric acid in a carius tube. On precipitation with $BaCl_2$, 0.1963 g of $BaSO_4$ was produced. Determine the percentage of sulphur in the compound.



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2. 0.316 g of an organic compound gives 0.466 g of barium sulphate by carius method. Calculate the percentage of sulphur?





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3. 0.530 g of an organic compound gave 0.90 g of $BaSO_4$ in carius determination of sulphur. Calculate the percentage of sulphur.



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Problems Estimation Of Halogens

1. 0.24 g of an organic compound gave 0.287 g of $AgCl$ in the carius method. Calculate the

percentage of chlorine in the compound.



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2. In carious method of estimation of halogen 0.15 g of an organic compound gave 0.12 g of AgBr. Find the percentage of bromine in the compound.



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3. 0.301 g of an organic compound gave 0.282 g of silver bromide by carius method. Find the percentage of bromine.



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4. 0.196 g of an organic compound gave 0.22 g of CO_2 and 0.0675 g of H_2O . In carius determination, 0.3925 g of the substance gave 0.717 g of dry AgCl. Find the percentage composition of the substance.





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5. 0.25 g of an organic compound was found to produce 0.35 g of AgCl after heating with fuming HNO_3 and AgNO_3 in a sealed carius method. Determine the percentage of chlorine in the compound.



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