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SAMPLE: Ascorbic Acid

BEHAVIOUR OF COMPOUND DURING HEATING AND BURNING *(describe what you should see during the heating of your sample in burner and choose one of possibility)***:**

turning black, carbonization- EVERY TIME!

- increasing of volume
- melting
- releasing vapours that are flammable
- sublimation

An organic compound will be burnt without a rest (it can leave a black coating on inner sides of a fusion tube, because of insufficient access of the air).

-------ORGANIC----/INORGANIC/ORGANIC-INORGANIC COMPOUND

ELEMENTARY ANALYSIS *(write down the reactions of tests you should do and mark which of them should be positive)***:**

HALOGENS (HALIDES)
Acidify a portion (5 mL) of the filtrate with dilute nitric acid, and if nitrogen and/or sulphur are present, boil for 1 - 2 minutes. Cool and add aqueous silver nitrate.
Formation of a heavy, white, yellowish or yellow precipitate of silver halide indicates halogen.

Should be negative

1. NITROGEN (CYANIDES)
To a portion (5 mL) of the filtrate add a few drops of ferrous sulphate solution and a few drops of ferric chloride solution. Boil the mixture for half a minute, cool and acidify by adding dilute hydrochloric acid drop wise. Formation of a bluish-green precipitate (Prussian blue) or a blue solution indicates that the original substance contains nitrogen. If no precipitate appears, allow to stand for 15 minutes, filter and inspect filter paper.

$C_{org.} + N_{org.} \rightarrow CN^-$

$6\ CN^- + Fe^{2+} \rightarrow [Fe(CN)_6]^{4-}$

$[Fe(CN)_6]^{4-} + Fe^{3+} \rightarrow \{Fe^{III}[Fe^{II}(CN)_6]\}^-$

Should be negative

2. SULPHUR (SULPHIDE)
To the cold filtrate (5 mL) add a few drops of lead acetate solution.
Production of a black solution or a black precipitate indicates that the original substance contains sulphur.
Sorg. S^{2-}
$S^{2-} + Pb^{2+} \rightarrow PbS$

Should be negative

No Sulphur no halides and no halogens present.

SOLUBILITY *(decide according to the information in Ph. Eur.)***:**

- **Freely soluble in water, sparingly soluble in ethanol**

pH of solution/suspension *(decide according to nature of your sample)***:**

- **2.1-2.6 solution**

REACTIONS FROM THE FLOWCHARTS *(write down your "flowcharts pathway"; describe results of your hypothetical analysis – reactions from the flowcharts you can find in material called "Identification of an unknown drug")***:**

Identification of an organic compound containing C, H, O
It is soluble in water and Is acidic .
Ascorbic acid or Citric acid or Tartaric acid

IDENTIFICATION REACTIONS *(from your monography choose the tests necessary for identification of your substance and describe them)***:**

First identification: B, C

Second identification: A, C, D

A. **Ultraviolet and visible absorption spectrophotometry**

Test solution: Dissolve 0,10g in water R and dilute immediately to 100.0ml with the same solvent. Add 1.0ml of the solution to 10ml of a 10.3g/L solution of HCL R and dilute to 100.0ml with water R.

B. Infrared absorption spectrophotometry

C. pH (2.2.3): 2.1 to 2.6 for solution S

Solution S : dissolve 1,0g in carbon dioxide free water R and dilute to 20 ml with the same solvent.

D. To 1ml of solution S add 0.2ml of dilute nitric acid R and 0.2ml of silver nitrate solution R2. A grey precipitate is formed.