NAME: JAIME VIEIRA RUIZ (F19015Z)

SAMPLE: Magnesium subcarbonate

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)***:**

- No changes
- Melting to colourless liquid, which acquires the original colour after cooling down
- Change of the colour
- Releasing vapours
- Sublimation

ORGANIC/INORGANIC/ORGANIC-INORGANIC COMPOUND

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

Inorganic compound

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

Practically insoluble in water. It dissolves in dilute acids with effervescence

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

Basic

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")***:**

Unknown compound → Inorganic compound → solubility in water → no → solubility in HCl → Yes → reaction with ammonium oxalate solution II → NEGATIVE → reaction with titanium yellow II → POSITIVE → Magnesium subcarbonate or magnesium peroxide

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

B) *Introduce into a test-tube 0.1 g of the substance to be examined and suspend in 2 mL of water R or use 2 mL of the prescribed solution. Add 3 mL of dilute acetic acid R. Close the tube immediately using a stopper fitted with a glass tube bent twice at right angles. The solution or the suspension becomes*

effervescent and gives off a colourless and odourless gas. Heat gently and collect the gas in 5 mL of barium hydroxide solution R. A white precipitate is formed that dissolves on addition of an excess of hydrochloric acid R1.

1) $CaCO_3 + 2CH_3COOH \rightarrow Ca(CH_3COO)_2 + \mathbf{CO_2}$ (Effervescent + odourless + colourless) + H_2O

2) $\mathbf{CO_2} + Ba(OH)_2 \rightarrow \mathbf{BaCO_3} + H2O$ (White precipitate)

3) $\mathbf{BaCO_3} + 2HCl \rightarrow BaCl_2 + H_2PO_3$ (Dissolves the precipitate)

C) *Dissolve about 15 mg in 2 mL of dilute nitric acid R and neutralise with dilute sodium hydroxide solution R. The solution gives the reaction of magnesium.*

$MgCO_3 + HNO_3$ --> $Mg(NO_3)_2 + CO_2 + H_2O$

$Mg(NO_3)_2 + NaOH$ --> $\mathbf{Mg(OH)_2} + 2NaNO_3$

MAGNESIUM: *Dissolve about 15 mg of the substance to be examined in 2 mL of water R or use 2 mL of the prescribed solution. Add 1 mL of dilute ammonia R1. A white precipitate is formed that dissolves on addition of 1 mL of ammonium chloride solution R. Add 1 mL of disodium hydrogen phosphate solution R. A white crystalline precipitate is formed.*

1) $Mg^{2+} + 2OH^- \rightarrow \mathbf{Mg(OH)_2}$ (white precipitate) + $NH_4Cl \rightarrow$ dissolves

2) $Mg^{2+} + NH4^+ + HPO_4^{2-} \rightarrow NH_4MgPO_4 + H^+$ (White crystalline precipitate is formed)