Physical Properties Physical Properties 6Li + N₂ --> 2Li₃N 4Li + 0₂ --> 2Li₂0 Be & Mg are kinetically inert to 0 & H₂O. Atomic radii/lonic Atomic & Ionic radii: $M + O_2 \longrightarrow MO_2$ radii: Increases with Becl, + Lialh, 2BeH, + LiCI + AICI, Smaller than the Increase in atomic no. corresponding alkali lonization energy: group, increases with Decreases down the $2Na + O_2 \longrightarrow Na_2O_2$ increase in atomic M + 2HCl -- MCl₂ + H₂ member. Density increases · I.E.: I.E., higher then down the group. corresponding Chemical **Chemical Properties** (M = Li to fr) $2M + 2H_2O \longrightarrow 2M + 2OH^2 + H_2$ MO + H₂O --> M(OH)₂ (All basic except BeO) alkali metals. Properties $2M + H_2 \longrightarrow 2MH$ $MO + O_2 \longrightarrow 2MO$ General electronic Density: If decreases configuration: from be to ca & (Noble gas) nst increases from Ca $M + (X + Y)NH_3 \longrightarrow (M(NH_3)_X)^{2+} + 2(e(NH_3)_Y)^{-}$ Belong to group of $M + (x + y)NH_3 \longrightarrow (M(NH_3)_x)^+ + (e(NH_3)_y)^$ to Ra. the periodic table · General electronic configuration (Noble gas) ns2 $M + X_2 \rightarrow MX_2$ $2M + X_2 \longrightarrow 2MX$ Flame colour: Alkali Metals Belong to GP2 of Alkine Earth Metals Li: Crimson red the periodic table. Na: Yellow, K: Violet · Flame colour: Rb: Red violet Ca-Brick red. The S-Block CS: Blue Ra Fr Na Cs 89 crimson. Ba-Apple · hw m.P and B.P · Forms lonic Elements · Higher M.P % B.P COMPOUNDS then corresponding Calcium Sodium Sulphate alkSli metals. Chloride hemihydrate Caso, 1/2H,0 (NaCI) Anamalous behaviour of li is due to: · Obtained from Sea water. (a) Exceptionally Small Size of · Used in the its atom and ion. preparation of SYPSUM at 393 K. Na₂O₂/ Forms Ionic Used as profective (b) Absence of d orbital. Anomalous behaviour of Beriyllium is due to:compounds except(Be) (c) High Polarizing Power. Sodium Calcium (a) Small Size Oxide Importance Importance (NaHCO) Biological importance (Cao) (b) High lowigation enthalpy Compounds of Compounds of of Na and K Calcium Sodium (c) Absence of d orbitals Sodium ions participate in nuclear Prepared by Saturating Prepared by heating Signals transmission, regular flow a Solution of Na₂CO₂ K ions active many enzymes and Used in tire extinguishcement and dye stuff. oxidation of glucose to produce and baking of cake. Biological importance of Mg and Ca Uses . Commonly known as Commonly known as USES Commonly known as Commonly known as caustic soda. washing Soda. Lime Stone. Slaked lime. Prepared by Prepared by Solvay Prepared by Passing · All enzymes that utilise ATP in PO4 · Be is used to manufacture · Li used to make alloys. Prepared by adding electrolysis of Brine process. CO2 through Slaked lime · KCI is used as fertilizer. Solution transfer requires Mg as co-factor water to quick lime. Used to manufacture Used in water for · CS is used in darsing Used in preparation of Used in white washing · Ca in extraction of metals. chlorophyll contains Mg. paper etc. washing, cleaning Soap, paper etc. Photoelectric cell. etc. · Mg-Al alloys are used in Liquid Na metal is used as etc. aircraft · Ca is present in bones and teeth. coolant in construction. Sodium Calcium Calcium Sodium Nuclear reactors. carbonate Ra is used in radio therapy. hydroxide arbonate hydroxide Na₂CO₃-10H₂O (Caco (NaoH) Ca(OH)