Boiling point is the temperature at which the vapor pressure

Boiling point is the temperature at which the vapour force per unit area of the liquid is equal to the external force per unit area on the liquid and the liquid changes into a vapour. Melting point is the temperature at which the lattice is prostrations and the solid is converted into liquid. The tendency in construction is from the metallic oxides incorporating elephantine constructions of ions on the left of the period via a elephantine covalent oxide in the center to molecular oxides on the right. Sodium peroxide. Mg oxide and aluminium oxide are metallic oxide which have high thaw and boiling point compared to other period 3 oxide. This is due to their elephantine ionic construction and the strong ionic bond. Strong ionic bond in the molecule need more energy to get the better of it.

Therefore. the more energy required. the higher the thaw and boiling point. Aluminum oxide will hold higher thaw and boiling point than Mg oxide because Al3+ ions holding high charge denseness than Mg2+ . which enable it to polarise the negatron cloud of O2- to give it a high grade of covalent construction in ionic bond. Silicon (IV) oxide has higher thaw and boiling point compared to phosphorus (V) oxide and Cl (I) oxide due to the strong covalent bond and the elephantine covalent construction. More energy is needed to interrupt the strong covalent bond and in bends result the high thaw point of silicon oxide. The tendency of period 3 oxide is fluctuate across the period 3 and the grade of thaw and boiling point is MgO & gt ; Al2O3 & gt ; SiO2 & gt ; Na2O2 & gt ; P4O10 & gt ; Cl2O.

Besides. there are different actions of H2O of period 3 oxide. Sodium peroxide is soluble in H2O. When Na peroxide is put into H2O. it will fade out in the H2O and organize an alkalic solution. This reaction increase the

temperature of the solution. therefore it is an exothermal reaction. The chemical equation for this reaction is Na2O2 + 2H2O ? 2NaOH + H2O2.

Magnesium oxide is partly soluble in H2O. When it is put into H2O. it will somewhat fade out in the H2O and organize a basic solution which the pH is about 9. This reaction increase the temperature of the solution. therefore it is an exothermal reaction. The chemical equation for this reaction is MgO + H2O ? Mg (OH) 2.

Aluminum oxide and Si (IV) oxide will non respond with H2O because they are indissoluble in H2O. Aluminum oxide is an ionic compound with covalent belongingss giving rise to a strong intermediate force. Strong intermediate force and the high charge denseness of aluminium ions give rise to high lattice energy of a compound. The higher the lattice energy. the higher the sum of energy required to interrupt the ionic bond. therefore the lower the solubility in H2O. Silicon (IV) oxide can non fade out in H2O because of its elephantine covalent construction and the strong covalent bond which is hard to interrupt down.

Even though they are indissoluble in H2O. but when they are added into the H2O. heat will let go of and the reaction is exothermal. Phosphorus (V) oxide and Cl (I) oxide is soluble in H2O. When they are added into H2O. they will respond violently and wholly fade out in the H2O. This reaction will do the solution become acidic. This reaction will let go of heat to the environing which is an exothermal reaction. The merchandise of the reaction between H2O and P (V) oxide is phosphorous acid. The merchandise of the

reaction between H2O and Cl (I) oxide is hypochlorous acid. The chemical equation of these two reaction are: P4O10 + 6H2O ? 4H3PO4

Cl2O + H2O ? 2HOCl

Furthermore. the tendency of pH value of the period 3 oxide is decrease from Na peroxide to phosphorus (IV) oxide and the pH value of Cl (I) oxide is somewhat higher than P (IV) oxide which is pH 3. The pH value for Na peroxide. Mg oxide. aluminium oxide. Si (IV) oxide and P (V) oxide are 14. 9. 7. 7. and 1 severally.

The tendency of acid-base nature of period 3 oxide is alteration from basic to amphoteric to acidic. This is due to the atomic figure and the differences in electronegativity between the component and O. When the atomic figure of the element addition across the period. the figure of negatrons besides increase across the period. the differences in electronegativity between the component and O lessening. Ionic oxides are normally basic anhydrides. whereas covalent oxides are normally acidic anhydrides. There are big electronegativity difference of Na and Mg with O. Sodium atom and Mg atom will lose their cornice negatrons to oxygen atom to organize metal ions and basic oxide ions. O2- . Therefore. Na peroxide and Mg oxide are ionic and basic compound.

The electronegativity difference of Si. P and Cl with O is little because Si. P and Cl are non-metal. Non-metal atom will portion negatrons with O atom by organizing covalent bond to organize covalent compound. Since Si (IV) oxide. P (V) oxide and Cl (I) oxide is covalent compound. they will demo acidic belongingss. On the other manus. the electronegativity difference

between aluminium and O is big. this makes aluminium oxide an ionic compound. However. it besides has important covalent character as electron cloud of O2- ions is deformed towards Al3+ due to its high charge denseness. Therefore. aluminium oxide is ionic with partial covalent character which contribute its amphiprotic nature that has both acidic and basic belongingss.

Beside. metallic oxide which is sodium peroxide. Mg oxide and aluminium oxide are good music director of electricity in liquefied province. They will non carry on electricity in solid province due to the absence of free nomadic ions. They can carry on electricity in liquefied province because the free nomadic ions is present. The liquefied metallic oxide are good electrolyte when they are in liquefied province. Silicon (IV) oxide. P (V) oxide and Cl (I) oxide can non carry on electricity either in solid province or in liquefied province. This is because they do non incorporate any free nomadic negatrons and ions.

In add-on. some of the period 3 oxides are soluble in organic dissolver such as hexane. Sodium peroxide. Mg oxide and aluminium oxide is ionic compound which held by ionic bond. These three Attic compound are soluble in H2O but indissoluble in organic dissolver such as hexane. This is because organic dissolver are organic compounds which can non hydrate ions. As a consequence. ionic compounds can non fade out in hexane.

On the other manus. covalent compound such as Si (IV) oxide. P (V) oxide and Cl (I) oxide are soluble in organic dissolver. hexane. This is because the covalent molecules in Si (IV) oxide. P (V) oxide and Cl (I) oxide and

organic molecule in hexane are both held by weak intermolecular forces of attractive force which is Van der Waals forces. As the consequence. the covalent molecules in Si (IV) oxide. P (V) oxide and Cl (I) oxide are easy mixable with the organic molecules in the hexane because they have the same type of weak intermolecular forces of attractive force. Hence. Si (IV) oxide. P (V) oxide and Cl (I) oxide can fade out in hexane.

During the experiment. there are some safety and safeguard stairss that must be done to minimise the danger and mistake that will happen. During the experiment. make non manage the P (V) oxide and Na peroxide with au naturel manus. This is because P (V) oxide is caustic and irritates eyes. tegument and lungs. Sodium peroxide is besides caustic and it is a powerful oxidizer. The first safeguard measure is the visual aspect of the period 3 oxides must be observed before the experiment start.

The mixture is stirred instantly and equally after adding the period 3 oxides by utilizing a glass rod to do certain that the period 3 oxide and distilled H2O is wholly react. The reading of thermometer is taken when the reading is changeless. Furthermore. the oculus must be placed parallel to the graduated table of the thermometer to avoid the parallax mistake when taking the readings. Besides. before taking the pulverization of period 3 oxides. the spatula used must be clean and dry to avoid the soil or H2O bead into the container of period 3 oxides.

Decisions: when traveling across period 3 from left to compensate. the belongingss of the oxides of elements change from basic to acidic ; Na peroxide. Mg oxide. Si (IV) oxide and P (V) oxide are in white pulverization

signifier ; the metallic oxides which are sodium peroxide and Mgoxide have elephantine ionic construction and held by strong ionic bond ; Si (IV) oxide has elephantine covalent construction and held by strong covalent bond ; P (V) oxide has simple molecular construction which held by weak covalent bond. Procedure:

1. The physical province and the coloring material of the period 3 oxide samples at room temperature were examined and recorded in Table 1. 2. Four trial tubings were set up side by side. 3. 5cm3 of distilled H2O was poured into each boiling tubings. 4. A thermometer was placed in the boiling tubing to mensurate the initial temperature of distilled H2O. 5. Half a spatula-tip of Na peroxide was added into the boiling tubing and the mixture was stirred carefully with a glass rod. 6. After 30 seconds. the concluding temperature of the solution was measured and the solution was observed.

7. 3 beads of cosmopolitan index solution was added into the boiling tubing. the coloring material of the solution was observe and compared with the chart provided. The pH value of the solution was recorded. 8. Stairss 4 to 7 were repeated by utilizing Mg oxide. Si (IV) oxide and P (V) oxide to replace sodium peroxide severally. 9. The pH of the distilled H2O in the 5th boiling tubing was measured by adding 3 beads of cosmopolitan index solution for comparing with the above.