EXPERIMENT NUMBER	***2***
THE NAME OF THE EXPERIMENT	***LEAD(II) IODIDE***
FORMULA	***PbI_2***

REACTION EQUATION

$Pb(NO_3)_2 + 2KI \rightarrow 2PbI_2 + 2KNO_3$

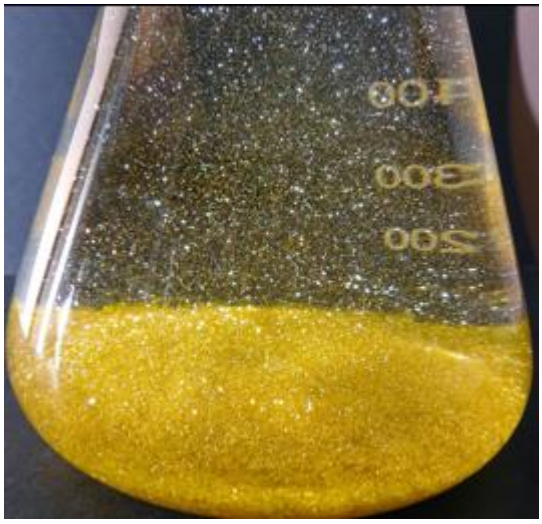
EXPERIMENTAL PROCEDURE

Lead (II) nitrate ($Pb(NO_3)_2$) (1.0 g) in dissolved in 20 mL water is poured into a beaker containing potassium iodide (KI) (1.0 g) dissolved in 20 mL water. Water is added to the solution until the yellow precipitate dissolves and heated. (Because this process requires a lot of water, it should be worked in a large beaker). The hot solution is filtered into another beaker with a funnel with crushed filter paper. Before filtering, the funnel must be heated by holding it to the steam of boiling water. The collected filtrates are crystallized by cooling in ice. The filtered crystals are dried. The crystals are yellow and hexagonal, and insoluble in alcohol. Its water solubility at 20 ^oC is 0.063 g/100 mL.

QUESTIONS

1. *What is the geometry of PbI_2? Explain according to Valence shell electron pair repulsion (VSEPR) theory.*
2. *What is the reason why the funnel is heated before the filtration process?*
3. *Why is the heated solution filtered? Explain.*
4. *What is the solubility constant? How to calculate the solubility of low water soluble salts?*

Working rate: 1/2



GENERAL INFORMATION

The force that holds atoms together to balance the pushing and pulling forces is called the chemical bond.

CHEMICAL BONDING

CHEMICAL BONDS IN MOLECULES

1. *Ionic bonds*
2. *Covalent bonds*
   - *2.1. Apolar covalent bonds*
   - *2.2. Polar covalent bonds*
   - *2.3. Coordinate covalent bonds*
3. *Metallic bonds*
4. *Hydrogen bonds*

CHEMICAL BONDS BETWEN MOLECULES

1. *Ion dipole bonds*
2. *Dipole dipole bonds*
3. *Ion induced dipole bonds*
4. *Dipole induced dipole bonds*

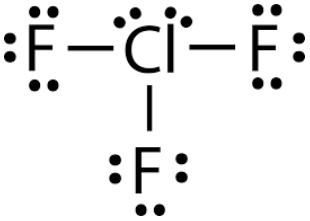
van der Waals

5. *Instantaneous dipole induced dipole bonds (London)*
6. *Hydrogen bonds*

How to draw a Lewis structure?

1. *Determine the total number of valence electrons in a molecule.*
2. *Draw a skeleton for the molecule which connects all atoms using only single bonds.*
3. *Generally, the most electropositive atom in the molecule is the central atom. The atom with the most available sites for bonding is usually placed centrally.*
4. *The electrons that make up the single bond in the skeleton structure are subtracted from the total number of valence electrons. The remaining valence electrons are placed around the atoms as a lone pair of electrons.*
5. *If total valence electrons are missing, double or triple bonds are created instead of a single bond.*
6. *If the total valence electrons are excessive, electrons are placed around the central atom.*

ClF_3: 7 + 3x7=28e^-



XeF_2: 8 + 2x7=22e^-