

AP Chem. Lab

Limiting Reagent

Experimentally Balancing Equation.

Name _____

Class _____

Abstract: Carrying out the following reaction:



Each lab group will mix a different volume ratio of 0.50 M solutions of Lead Nitrate and Sodium Iodide. After mixing thoroughly the two solutions, you will filter and wash the precipitate of Lead Iodide. After drying the precipitate you will mass the precipitate and record its mass on the class data table.

During the initial filtering you will collect a small test tube full of filtrate and place in the appropriate spot in test tube rack for further testing.

On "Logger Pro" you will construct a graph of volume of Lead Nitrate solution vs. Mass of precipitate for analysis of results.

Individual Data:

vol. of Lead Nitrate _(aq)	vol. of Sodium Iodide _(aq)	mass ppt.	L.R.
_____ ml	_____ ml	_____	_____

Individual Calculation

mols Lead nitrate	mols Sodium Iodide	Theoretical Mass ppt.
_____	_____	_____

On Logger Pro, add theoretical yield of ppt onto original graph.

Class Data

Vol. Lead Nitrate

Vol. Sodium Iodide

(g)
Mass ppt.

L.R.

Theoretical Mass ppt.

1 ml — mol

9 ml — mol

2 ml — mol

8 ml — mol

3 ml — mol

7 ml — mol

4 ml — mol

6 ml — mol

5 ml — mol

5 ml — mol

6 ml — mol

4 ml — mol

7 ml — mol

3 ml — mol

8 ml — mol

2 ml — mol

9 ml — mol

1 ml — mol

AP Chem. Lab

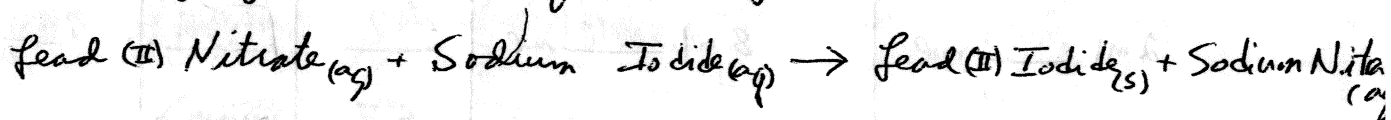
Limiting Reagent

Experimentally Balancing Equation.

Name _____

Class _____

Abstract: Carrying out the following reaction:



Each lab group will mix a different volume ratio of 0.50 M solutions of Lead Nitrate and Sodium Iodide. After mixing thoroughly the two solutions, you will filter and wash the precipitate of Lead Iodide. After drying the precipitate you will mass the precipitate and record its mass on the class data table.

During the initial filtering you will collect a small test tube full of filtrate and place in the appropriate spot in test tube rack for further testing.

On "Logger Pro" you will construct a graph of volume of Lead Nitrate solution vs. Mass of precipitate for analysis of results.

Individual Data:

vol. of Lead Nitrate _(aq)	vol. of Sodium Iodide _(aq)	mass ppt.	L.R.
_____ ml	_____ ml	_____	_____

Individual Calculation

mols Lead nitrate	mols Sodium Iodide	Theoretical Mass ppt.
_____	_____	_____

On Logger Pro, add theoretical yield of ppt onto original graph.

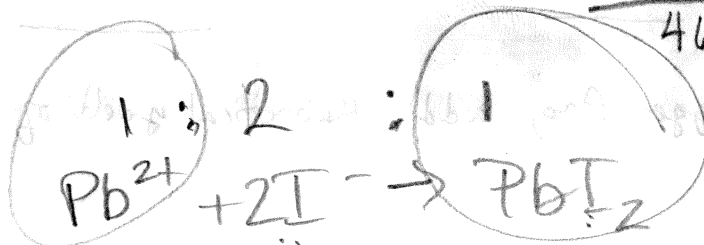
Class Data 1 Vol. Lead Nitrate	2 Vol. Sodium Iodide	PbI ₂ (g) Mass ppt.	L.R.	PbI ₂ MM 461g/mol Theoretical Mass ppt.
M.L. 1 ml $\frac{.0005 \text{ mol}}{1 \text{ mol}}$	9 ml $\frac{.0045 \text{ mol}}{9 \text{ mol}}$	<u>.28</u>	<u>Pb(NO₃)₂</u>	$\frac{.0005 \text{ mol} (461 \text{ g})}{.23 \text{ g}}$
2 ml $\frac{.0010 \text{ mol}}{1}$	8 ml $\frac{.0040 \text{ mol}}{4}$	<u>.48</u>	<u>Pb(NO₃)₂</u>	$\frac{.0010 \text{ mol} (461)}{.46 \text{ g}}$
3 ml $\frac{.0015 \text{ mol}}{1}$	7 ml $\frac{.0035 \text{ mol}}{1.5}$	<u>.57</u>	<u>Pb(NO₃)₂</u>	$\frac{.0015 (461)}{.69 \text{ g}}$
4 ml $\frac{.0020 \text{ mol}}{1}$	6 ml $\frac{.0030 \text{ mol}}{1.5}$	<u>.62</u>	<u>NaI</u>	$\frac{.0015 (461)}{.69 \text{ g}}$
5 ml $\frac{.0025 \text{ mol}}{1}$	5 ml $\frac{.0025 \text{ mol}}{1}$	<u>.58</u>	<u>NaI</u>	$\frac{.00125 (461)}{.576 \text{ g}}$
6 ml $\frac{.0030 \text{ mol}}{1}$	4 ml $\frac{.0020 \text{ mol}}{1}$	<u>.48</u>	<u>NaI</u>	$\frac{.0010 (461)}{.46 \text{ g}}$
7 ml $\frac{.0035 \text{ mol}}{1}$	3 ml $\frac{.0015 \text{ mol}}{1}$	<u>.32</u>	<u>NaI</u>	$\frac{.00075 (461)}{.35}$
8 ml $\frac{.0040 \text{ mol}}{1}$	2 ml $\frac{.0010 \text{ mol}}{1}$	—	<u>NaI</u>	—
9 ml $\frac{.0045 \text{ mol}}{1}$	1 ml $\frac{.0005 \text{ mol}}{1}$	—	<u>NaI</u>	—

graph
on logger pro.

↑
fill in
on board

X
Vol Pb(NO₃)₂ ml

Y
mass PbI₂ g



$$\begin{array}{r}
 207 \\
 + 127 \\
 \hline
 127 \\
 \hline
 461 \text{ g/mol} \\
 \text{PbI}_2
 \end{array}$$