



## S30 Unit B: Chemistry – Testing Solutions Lab

Name: Key!

Date: \_\_\_\_\_

Today you will: design a procedure to identify acidic, basic, neutral ionic and molecular solutions.

Background: Solutions can be classified as being acids, bases, neutral ionic or neutral molecular depending on characteristics they may have. These characteristics include:

- All ionic solutions (acid, base, neutral) are electrolytes and therefore conduct electricity.
- All neutral covalent molecular compounds are non-electrolytes and therefore do not conduct electricity.
- All acids have a pH of less than 7 which can be measured using litmus paper, indicators or a pH meter. Acids turn blue litmus paper red.
- All bases have a pH greater than 7 which can be measured using litmus paper, indicators or a pH meter. Bases turn red litmus paper blue.
- All neutral solutions (ionic or molecular) have a pH of 7.
- Strong acids react with active metals to produce hydrogen gas.
- Bases do not generally react with metals.

Materials: 0.100 mol/L concentration of chemicals listed on page 2 of this lab, spot-dish, litmus paper, magnesium turnings, conductivity meter.

Procedure: (Explain the three tests you will do to classify each solution. Give simple step by step instructions.)

Test 1: Test conductivity using conductivity meter.

Test 2: Test pH using litmus paper.

Test 3: Test reactivity with magnesium.

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# Conductivity

Data: (During the lab, complete the following table.)

litmus

reactivity

Solution	Prediction (A, B, NI, NM)	Test 1 Result	Test 2 Result	Test 3 Result
HCl <sub>(aq)</sub>	A	Y	A	B.b
HNO <sub>3(aq)</sub>	A	Y	A	B.b
H <sub>2</sub> SO <sub>4(aq)</sub>	A	Y	A	B.b
NaOH <sub>(aq)</sub>		Y	B	No B.b
Na <sub>2</sub> CO <sub>3(aq)</sub>		Y	B	No B.b
Na <sub>2</sub> SO <sub>4(aq)</sub>		Y	N	No B.b.s
NaCl <sub>(aq)</sub>		Y	N	No B.b.s
CH <sub>3</sub> OH <sub>(aq)</sub>		N	N	No B.b.s

Conclusion: (Classify each solution.)

Acids	Bases	Neutral Ionic	Neutral Molecular
HCl HNO <sub>3</sub> H <sub>2</sub> SO <sub>4</sub>	NaOH Na <sub>2</sub> CO <sub>3</sub>	Na <sub>2</sub> SO <sub>4</sub> <del>CH<sub>3</sub>OH</del> NaCl	CH <sub>3</sub> OH