

Exploration of Nonmetal Activity

Purpose: To explore the activity of halogens.

Materials: Solutions of Cl_2 , Br_2 , and I_2 , hexane (**don't get any of the previous solutions on your skin and avoid excessive inhalation**), .1M solutions of NaF, NaI, NaBr, NaCl, test tubes, test tube rack.

Procedure: Some halide ions can be replaced by elemental halogens. Determine what halogens can replace what halides.

With each test use 10 - 15 drops of hexane along with about 20 drops of the other solutions you are mixing. If a halide ion is displaced and changed into a halogen, the halogen will be dissolved in the hexane. **The color of the hexane layer tells you what halogen is dissolved.**

THE CYCLOHEXANE IS ONLY A SOLVENT AND IS NOT INVOLVED IN ANY REACTION.

Data: Record appropriate data in your lab book

Conclusion.

1. What was the most active halogen?
2. Defend your answer to question one.
3. Select one of the reactions in which a reaction occurred. What substance lost electrons?
4. Write a chemical equation that shows the loss of electrons you identified in question 3. Remember that elemental halogens always occur in pairs.
5. Would it be more appropriate to call the change identified in question 3 an oxidation or a reduction? (you may need to look up the definitions of oxidation and reduction.)
6. Explain why Bromine is more chemically active than Iodine.

	Chlorine (green)	Bromine (orange)	Iodine (purple)
NaF	green	orange	purple
NaCl	XXXX	orange	purple
NaBr	orange	XXXX	purple
NaI	purple	purple	XXXX