

Part 1—Qualitative Identification Scheme

1. What can you conclude about the relative solubilities of the halogens and halides in mineral oil? Explain the preference for one solvent or the other in terms of polarity.

Part 2—Halogens as Oxidizing Agents

2. Fill in table below.

	Cl ₂		Br ₂		I ₂	
	Rxn? (Yes/No)	Color of oil layer	Rxn? (Yes/No)	Color of oil layer	Rxn? (Yes/No)	Color of oil layer
Cl ⁻						
Br ⁻						
I ⁻						

3. Arrange the halogens in order of increasing strengths as oxidizing agents.

_____ < _____ < _____

Results #5—Halogens

Name _____

	Cl ₂		Br ₂		I ₂	
	Rxn? (Yes/No)	observations	Rxn? (Yes/No)	observations	Rxn? (Yes/No)	observations
Copper (Cu)						

Part 3—Halides as Reducing Agents

4. Fill in table below.

	CuSO ₄		KMnO ₄	
	Rxn? (Yes/No)	observations	Rxn? (Yes/No)	observations
Cl ⁻				
Br ⁻				
I ⁻				

5. Arrange the halides in order of increasing strengths as reducing agents.

_____ < _____ < _____

Results #5—Halogens

Name _____

6. For each "YES" in the tables for parts 2 & 3 above, fill in 1 row in the table below. You may not need all rows in the table. *Label species being oxidized and reduced* below each reaction.

Balanced chemical reaction equation