

Name: _____

Date: _____

Identifying Metals

Objective: Using reactions and reference material, identify given samples of various unknown metals.Materials:

aqueous solutions of:	sodium sulfate	zinc chloride	cadmium nitrate
	tin(II) nitrate	copper(II) nitrate	silver nitrate

The unknown metals are:	tin	calcium	lead
	zinc	copper	magnesium
	manganese		

Equipment:

spot plates	dropper pipets	beakers
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Procedure:

You may perform any reaction with your unknown metal and the compounds given above to determine the identity of your unknowns. All reactions should be performed in the spot plate. Be sure to cover the metal sample with the necessary solution. Patience is needed for many of these reactions! Excess unreacted metal can be reused. Solutions outside of copper(II) nitrate and lead(II) nitrate can be disposed in the sink at the conclusion of the experiment.

Results:

	sodium sulfate	silver nitrate	zinc chloride	tin(II) nitrate	copper(II) nitrate	cadmium nitrate
#1	no reaction	yes	no reaction	yes	yes	slight
#2	no reaction	strong	slight	yes	yes	slowly
#3	no reaction	yes	no reaction	no reaction	slowly	slight
#4	no reaction	slight	no reaction	no reaction	no reaction	no reaction
#5	no reaction	strong	Slowly	yes	yes	yes
#6	no reaction	yes	no reaction	no reaction	slight	no reaction
#7	yes	vigorous	yes	vigorous	vigorous	vigorous

Analysis:

Write reaction equations for each reaction that worked. (handwritten submission).

Conclusion:

Identify your unknowns (online)

Explain your rationale. (handwritten submission)