Bead Test Lab   Name _____

Introduction: Certain metallic ions impart characteristic colors to a borax (sodium tetraborate) bead. These bead tests are used to identify the presence of a metal ion in an unknown compound.

Objective: To identify a metal in a compound by its bead color.

Materials: Nichrome wire in a glass holder, sodium tetraborate, burners, solutions of metallic compounds

Procedure:

1) Clean your test tubes thoroughly, then clean your wire by heating it strongly in the lower (reducing) part of the flame. Repeat until the wire imparts no color to the flame. Observe the color just above the wire. Be careful to not heat the wire/glass area, as it will break.
2) As the wire gets red hot, dip it into the borax.
3) Return the wire to the **upper** (oxidizing) part of the flame until the borax melts into a clear bead.
4) To remove the bead into an evaporating dish, **_gently_** tap the COOL END of the rod on your hand. If the bead does not dislodge, immediately return the bead to the flame until it is **red hot** and try again.
5) Repeat steps 2-4 until a colorless, clear bead is produced. You will be repeating these steps each time you need to clean the wire loop.
6) When you are ready to create a bead to observe the color of your metal ion, make a new bead and when it is red hot dip it into the solution containing the metallic ions. Reheat it in the oxidizing flame and remove the bead into a separate evaporating dish (don't confuse your metallic bead with a "cleaning" bead).
7) After the bead cools, tape it to the data table with clear tape.
8) Repeat the procedure for each of the remaining metal ions, making sure to follow the steps 1-5 to clean the wire loop before moving to the next metal.
9) Determine the metal present in the unknown solutions. Tape the bead on your data table and identify the metal present.
   Note: the iron color depends on whether the bead is heated in the oxidizing (upper) or the reducing (lower blue cones) flame. Make an iron bead in each of the flames for reference.

METAL	COLOR	UNKNOWN METAL #	COLOR/IDENTITY
Cobalt		1)	
Chromium		2)	
Manganese		3)	
Nickel		4)	
Iron (oxidizing)		5)	
Iron (reducing)		6)	
		7)	