

Sulfides/Sulfosalts/Arsenides Lab

Introduction

For this lab you will be given 15 unknown specimens to identify. You can assume that they all are from the Sulfides/Sulfosalts/Arsenides group of minerals. Use the physical properties of the minerals to identify the specimens. Attached is a data sheet to use in the process of identifying the minerals. Some of the physical properties will not apply in all cases so you may enter "N/A" in those situations. Turn in the below sheet for grading but keep the data sheets in your notebook for use in future open book tests.

Specimen #	Mineral Name
1.	_____
2.	_____
3.	_____
4.	_____
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____
10.	_____
11.	_____
12.	_____
13.	_____
14.	_____
15.	_____

Mineral Specimen Data Sheet

Lab: _____

Specimen No.: _____

1. Hardness: _____

2. Color: _____

3. Streak: _____

4. Luster: _____

5. Crystal Habit: _____

6. Tenacity: _____

7. Specific Gravity: _____

8. Cleavage/Fracture: _____

9. Miscellaneous (Magnetic, Double refraction, etc.) _____

10. Notes:

- **Mineral Formula System**

• Argentite (Ag ore)	Ag ₂ S	Isometric
• Arsenopyrite (As ore)	FeAsS	Monoclinic
• Bornite	Cu ₅ FeS ₄	Tetragonal/ Isometric
• Boulangerite	Pb ₅ Sb ₄ S ₁₁	Orthorhombic
• Chalcocite (Cu ore)	Cu ₂ S	Monoclinic
• Chalcopyrite (Cu ore)	CuFeS ₂	Tetragonal
• Cinnabar (Hg ore)	HgS	Hexagonal
• Cobaltite (Co ore)	CoAsS	Isometric
• Covellite (Cu ore)	CuS	Hexagonal
• Domeykite (Cu ore)	Cu ₃ As	Isometric
• Digenite (Cu ore)	Cu ₉ S ₅	Hexagonal (trigonal)
• Enargite (Cu ore)	Cu ₃ AsS ₄	Orthorhombic
• Galena (Pb ore)	PbS	Isometric
• Jamsonite	Pb ₄ FeSb ₆ S ₁₄	Monoclinic
• Marcasite	FeS ₂	Orthorhombic
• Millerite (Ni ore)	NiS	Hexagonal
• Molybdenite (Mo ore)	MoS ₂	Hexagonal
• Nickeline/Niccolite (Ni ore)	NiAs	Hexagonal
• Orpiment (As ore)	As ₂ S ₃	Monoclinic (combined with realgar)
• Pararamnelsbergite (Ni ore)	NiAs ₂	Orthorhombic
• Pyrite	FeS ₂	Isometric
• Pyrrhotite	Fe(1-x)S	Variable
• Realgar (As ore)	AsS	Monoclinic (combined with orpiment)
• Skutterudite/smaltite	(Co,Ni)As ₂₋₃ /(Co,Ni)As _{3x}	Isometric
• Sphalerite (Zn ore)	ZnS	Isometric
• Stibnite	Sb ₂ S ₃	Orthorhombic
• Tetrahedrite (Cu ore)	(Cu, Fe) ₁₂ Sb ₄ S ₁₃	Isometric