Density Measurement Worksheet.

Use this sheet to determine if your formula is consistent with the known densities of various compounds.

Formula :

Formula weight : _____ (FW) Unit Cell Volume :_____ (V)

Probable Z value for your Laue symmetry (based on the unit cell: table 1) : _____ (Z)

Formula

$$Density = \frac{FW \times Z}{0.6023 \times V}$$

Density = _____

Your density should "fit" in the range of values for compounds of similar formulas (see table 2).

Table 1. Multiplicity Guide for Crystal Systems
Z(1) = non-centrosymmetric*: Z(-1)* = centrosymmetric
L = Lattice

System	Laue	L	*Z(1)*	*Z(-1)*
Triclinic	-1	P	1	2
Monoclinic	2/m	P	2	4
Monoclinic	2/m	C	4	8
Orthorhombic	mmm	P	4	8
Orthorhombic	mmm	C	8	16
Orthorhombic	mmm	A	8	16
Orthorhombic	mmm	I	8	16
Orthorhombic	mmm	F	16	32
Tetragonal	4/m	P	4	8
Tetragonal	4/m	I	8	16
Tetragonal	4/mmm	P	8	16
Tetragonal	4/mmm	I	16	32
Trigonal	-3	P	3	6
Trigonal	-3	R	9	18
Trigonal	-3m	P	6	12
Trigonal	-3m	R	18	36
Hexagonal	6/m	P	6	12
Hexagonal	6/mmm	P	12	24
Cubic	m-3	P	12	24
Cubic	m-3	I	24	48
Cubic	m-3	F	48	96
Cubic	m-3m	P	24	48
Cubic	m-3m	I	48	96
Cubic	m-3m	F	96	192

Table 2. Range of Density

Type	Density Limits g/ml
C-H	1.1 – 1.3
+ N	1.1 – 1.4
+ O	1.2 – 1.5
+ S	1.2 – 1.6
1st row TR	1.4 – 1.9
+ Br	1.4 – 2.0
2nd row TR	1.4 – 2.1
+ I	1.5 – 2.3
3rd row TR	1.5 – 2.4
+Pb	1.6 – 2.9