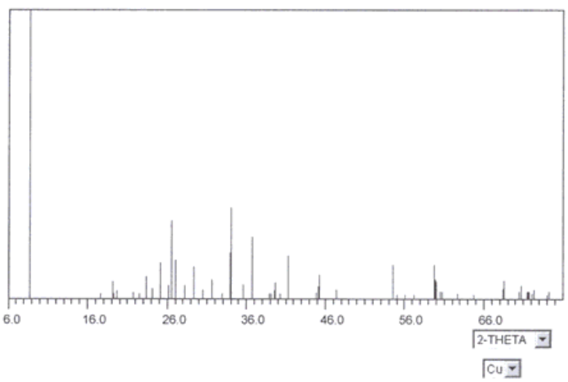
XRD REFERENCE SPECTRA

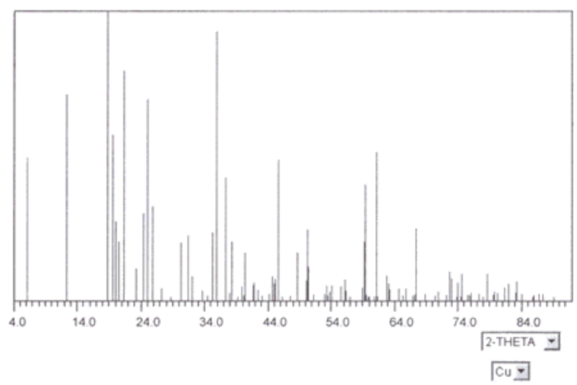
All spectra are for Cu-Kα x-rays (λ = 1.54Å). Å = Angstrom, a unit of distance = 1 x 10^{-10} m. I/I° is the relative intensity. I/I° = 100 identifies the diffracted peak with the greatest intensity. The y-axis on each of the images is the relative intensity (I/I°). The line that extends to the top of the graph represents the peak with the greatest intensity.

CLAYS IN POTTERY

BIOTITE, [3], 2M(1), $K(Mg,Fe)_3\{[AlSi_3]O_{10}\}(OH)_2$



CHLORITE, [1], $Al_{2.0}[Si_{3.3}Al_{0.7}]O_{10}(OH)_2[Mg_{2.3}Al_{0.7}](OH)_6$



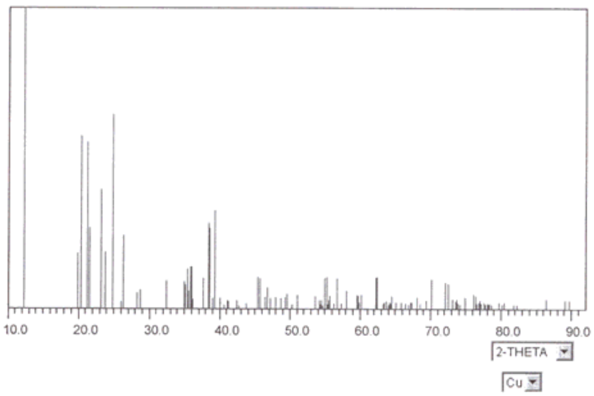
Biotite

d	I/I°	θ	2θ
10.064	100	4.4	8.8
2.624	44	17.1	34.1
3.401	36	13.1	26.2

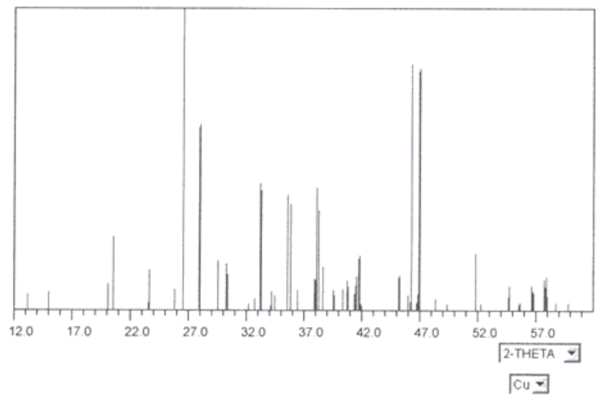
Chlorite

d	I/I°	θ	2θ
4.728	100	9.4	18.8
2.503	92	17.9	35.8
4.172	79	10.6	21.3

KAOLINITE, [2], $Al_2Si_2O_5(OH)_4$



KYANITE, [1], structure type - kyanite, $Al_2[SiO_5]$



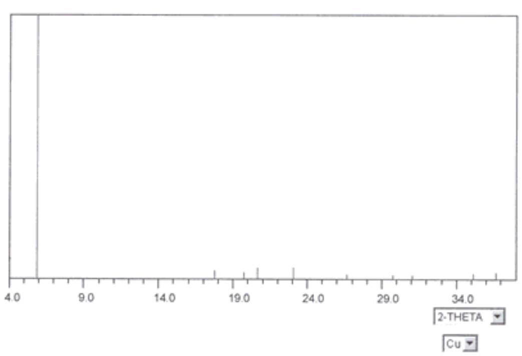
Kaolinite

d	I/I°	θ	2θ
8.886	100	5.0	10.0
5.425	12	8.2	16.3
4.643	9	9.5	19.1

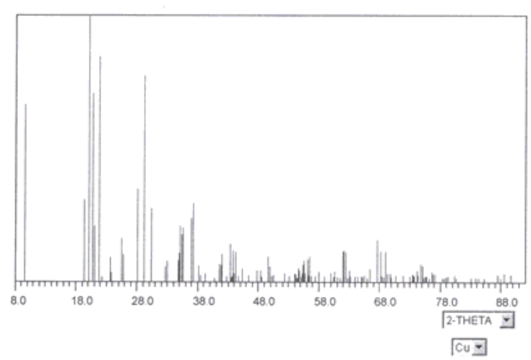
Kyanite

d	I/I°	θ	2θ
3.345	100	13.3	26.6
1.957	81	23.2	46.3
1.929	80	23.5	47.0

MONTMORILLONITE, [1], Ca, syn, DF, $Ca_{0.5}Al_2Si_4O_{10}(OH)_2 \cdot H_2O$



PYROPHYLLITE, [1], 1TC, $Al[Si_2O_5](OH)$



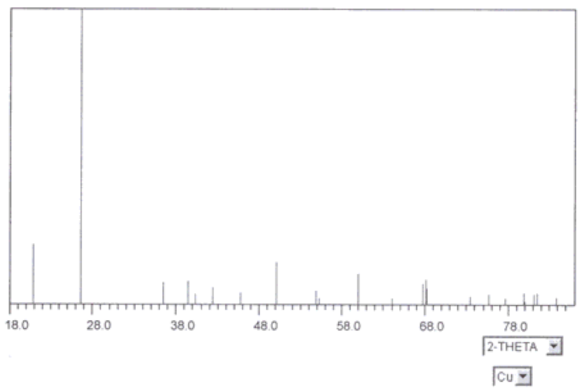
Montmorillonite

d	I/I°	θ	2θ
15.000	100	2.9	5.8
4.299	4	10.3	20.6
3.851	4	11.5	23.0

Pyrophyllite

d	I/I°	θ	2θ
4.411	100	10.1	20.1
4.060	84	10.9	21.8
3.061	77	14.6	29.0

QUARTZ, [1], alpha, structure type - alpha-quartz, SiO_2

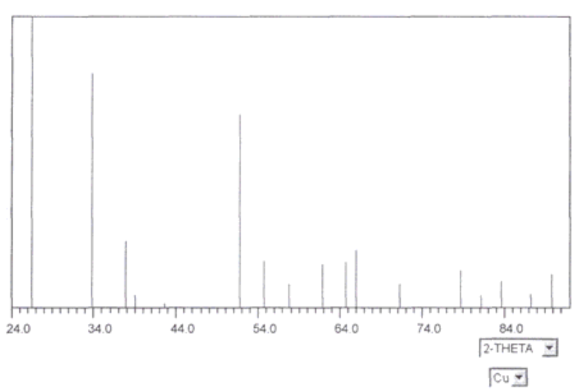


Quartz

d	I/I°	θ	2θ
3.344	100	13.3	26.6
4.256	20	10.4	20.8
1.818	14	25.1	50.1

POTTERY GLAZES

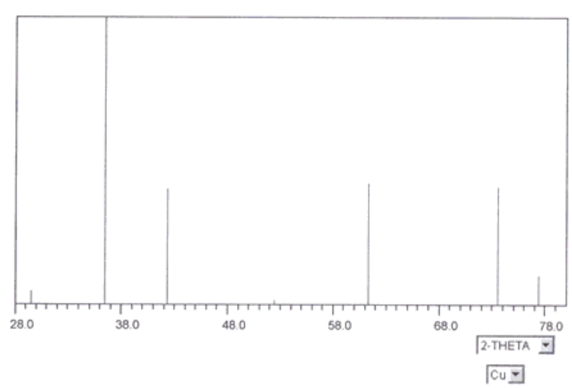
CASSITERITE, [1], structure type - rutile, SnO_2



Cassiterite

d	I/I°	θ	2θ
3.350	100	13.3	26.6
2.644	80	16.9	33.8
1.764	66	25.9	51.8

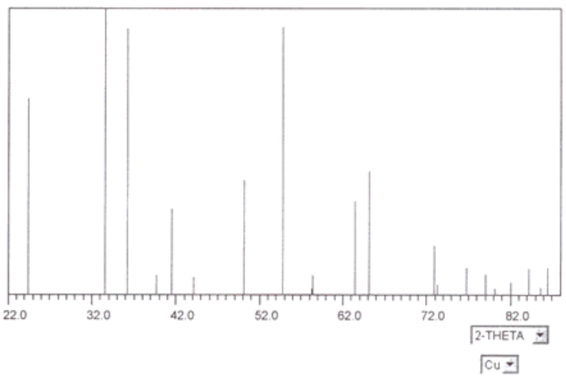
CUPRITE, [1], structure type - cuprite, Cu_2O



Cuprite

d	I/I°	θ	2θ
2.465	100	18.2	36.4
1.510	41	30.7	61.3
1.287	41	36.7	73.5

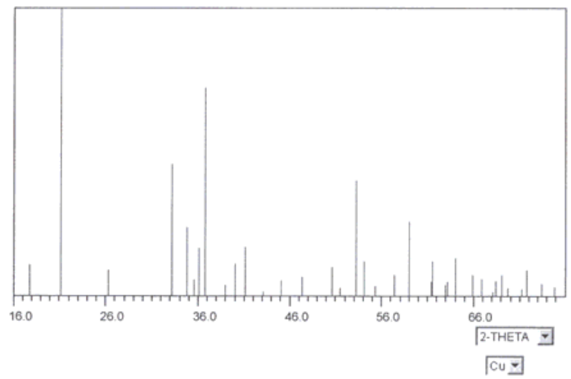
ESKOLAITE, [1], structure type - corundum, Cr_2O_3



Eskolaite

d	I/I°	θ	2θ
2.666	100	16.8	33.6
1.673	93	27.4	54.8
2.480	93	18.1	36.2

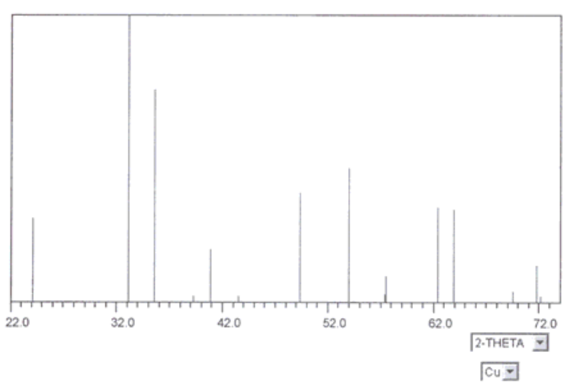
GOETHITE, [1], alpha, structure type - diaspore, FeO(OH)



Goethite

d	I/I°	θ	2θ
4.190	100	10.6	21.2
2.445	72	18.4	36.7
2.694	45	16.6	33.2

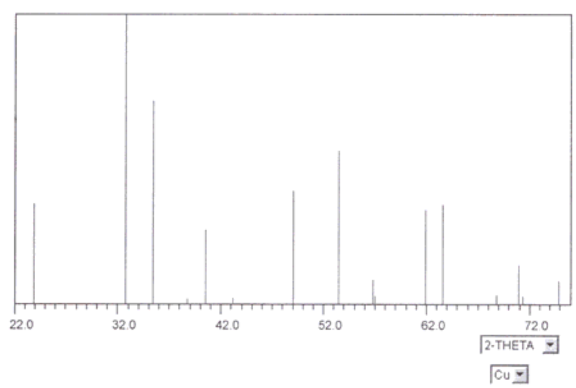
HEMATITE, [1], structure type - corundum, Fe_2O_3



Hematite

d	I/I°	θ	2θ
2.703	100	16.6	33.1
2.519	74	17.8	35.6
1.697	46	27.0	54.0

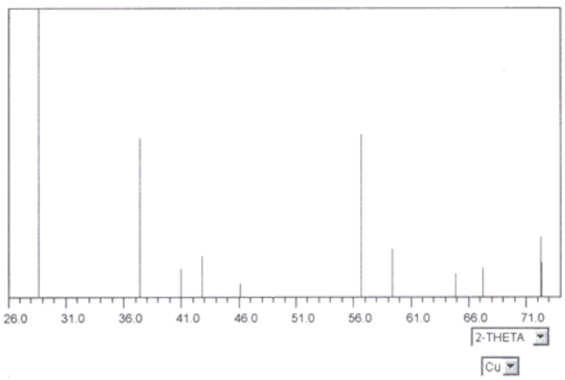
ILMENITE, [1], structure type - ilmenite, $Fe(Ti,Mg)O_3$



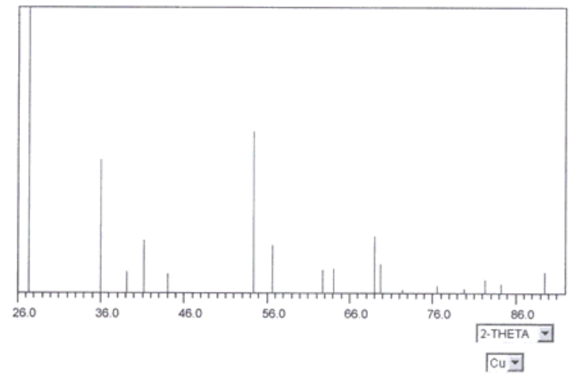
Ilmenite

d	I/I°	θ	2θ
2.728	100	16.4	32.8
2.534	70	17.7	35.4
1.712	52	26.7	53.4

PYROLUSITE, [1], MnO_2



RUTILE, [1], structure type - rutile, at 25°C, TiO_2



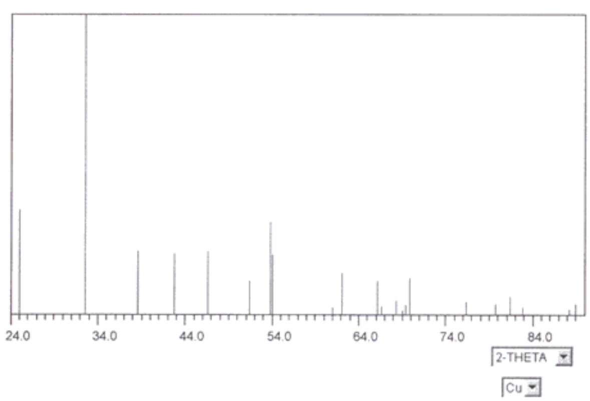
Pyrolusite

d	I/I°	θ	2θ
3.110	100	14.3	28.6
1.623	56	28.3	56.6
2.405	55	18.7	37.4

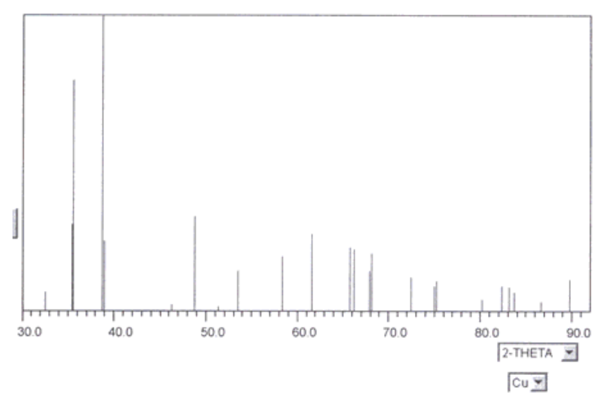
Rutile

d	I/I°	θ	2θ
3.248	100	13.7	27.4
1.687	56	27.2	54.3
2.487	46	18.0	36.1

SPHAEROCOBALTITE, [1], $CoCO_3$



TENORITE, [1], structure type - tenorite, CuO



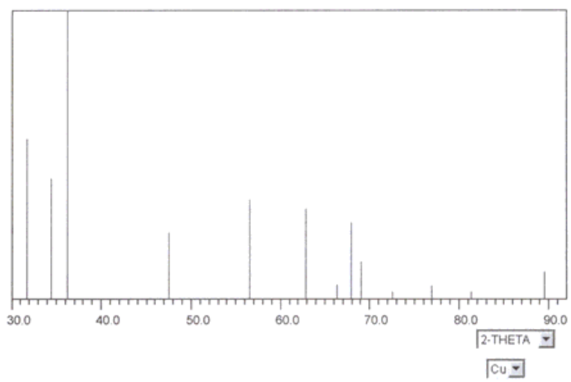
Sphaerocobaltite

d	I/I°	θ	2θ
2.742	100	16.3	32.6
3.550	34	12.5	25.0
1.702	30	26.9	53.8

Tenorite

d	I/I°	θ	2θ
2.322	100	19.4	38.7
2.523	78	17.8	35.6
1.866	31	24.4	48.8

ZINCITE, [5], ZnO

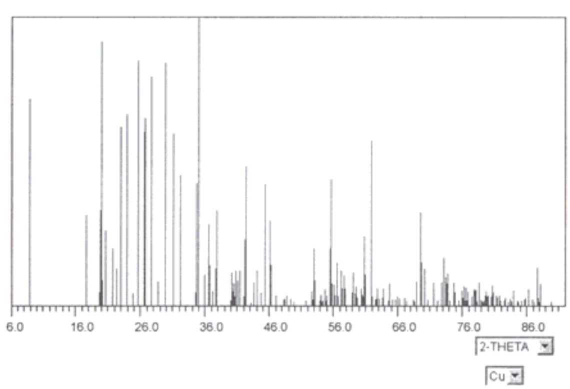


Zincite

d	I/I^o	θ	2θ
2.475	100	18.1	36.2
2.814	55	15.9	31.8
2.602	41	17.3	34.4

COSMETICS

MUSCOVITE, [1], 2M, $KAl_2[Si_3Al]O_{10}(OH)_2$



Muscovite is used in some cosmetics to provide a pearly-like appearance. Other minerals used in modern cosmetics are rutile and hematite for yellowish and reddish colors respectively. XRD data for these two minerals are found in the preceding section for “Pottery Glazes”.

Muscovite

d	I/I^o	θ	2θ
2.557	100	17.5	35.0
4.448	91	10.0	20.0
3.476	85	12.8	25.6