The chemical analysis of nonfibrous ulexite is compared with the theoretical oxide percentages for ulexite in the columns below.

	Nonfibrous Ulexite	Theoretical Ulexite
Na_2O	7.85%	7.65%
CaO	13.51	13.85
SrO	1.06	—
B_2O_3	41.31	42.95
H_2O (+ and −)	36.41	35.55
Total	100.14	100.00

Two fibrous ulexite samples from the Kramer district were analyzed for strontium oxide with a spectrophotometer to evaluate the significance of the strontium oxide content found in nonfibrous ulexite. One contained 0.118 per cent, the other, 0.056 per cent—each considerably less than the 1.06 per cent found by the same method in nonfibrous ulexite.

X-ray powder patterns of nonfibrous and fibrous ulexites from the Kramer district are practically identical with respect to interplanar spacings and relative intensities.

The presence of strontium in the ulexite described may account for its nonfibrous character.

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MAGNETIC SUSCEPTIBILITIES OF MINERALS IN THE FRANTZ ISODYNAMIC MAGNETIC SEPARATOR[1]

SAM ROSENBLUM, *U. S. Geological Survey Denver Federal Center, Denver, Colorado*[2]

The following list (Table 1) and the accompanying chart (Fig. 1) of magnetic susceptibilities of minerals were compiled to fill the need for a guide in separating minerals in an isodynamic magnetic separator, and were especially designed for the occasional "do-it-yourself" user.

The magnetic susceptibilities on the chart are in terms of increasing amperages on the Frantz separator and are valid only for the tilts indicated: i.e., 15° side, 25° forward. For other settings of tilt, the amperages will serve as relative magnetic susceptibilities of the minerals, and the chart should then be used only as a guide.

The writer worked chiefly with grains in the 100–150 mesh size range, but found the same results are obtained with grains in the 65–100 mesh and 150–200 mesh ranges. No data are available for mesh ranges other

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[2] Present address: ICA/MSM-China, APO 63, San Francisco, California.

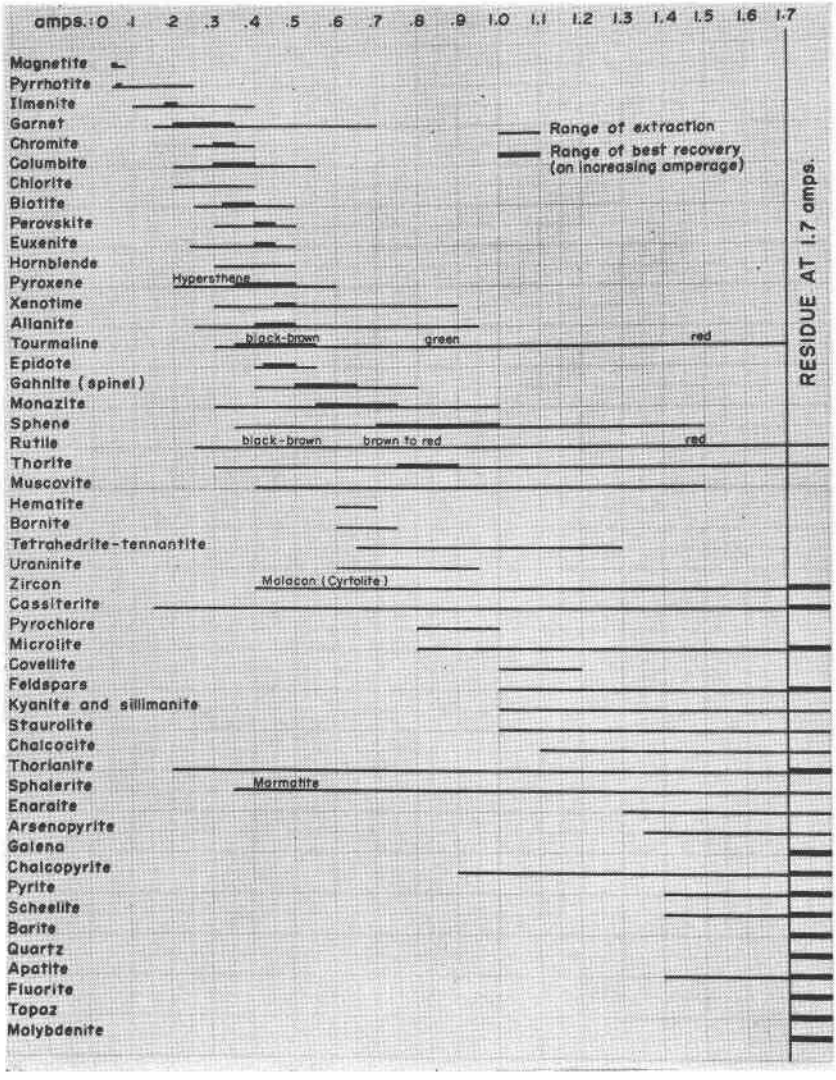

FIG. 1. Magnetic susceptibilities of minerals in Frantz isodynamic magnetic separator (side tilt 15°; forward tilt 25°; dried grains in 100–150 mesh range).

than these. The 100–150 mesh range is probably best for most crushed medium-grained rock samples, as the percentage of locked grains is generally small, and the grains are easier to manipulate and identify than smaller sizes under the binocular and petrographic microscopes.

TABLE 1

Mineral	Extraction range (amps.)	Best extraction range (amps.)
Allanite	.25– .95	.40– .50
Apatite	1.4 –1.7+	1.7+
Arsenopyrite	1.35–1.7+	
Barite	1.7+	
Biotite	.25– .50	.32– .40
Bornite	.60– .75	
Cassiterite	.15–1.7+	1.7+
Chalcocite	1.1 –1.7+	
Chalcopyrite	.9 –1.7+	1.7+
Chlorite	.20– .40	
Chromite	.25– .40	.30– .35
Columbite	.20– .55	.30– .40
Covellite	1.0 –1.2	
Enargite	1.3 –1.7+	
Epidote	.40– .55	
Euxenite	.24– .50	.40– .45
Feldspars	1.0 –1.7+	1.7+
Fluorite	1.7+	
Gahnite	.40– .80	.50– .65
Galena	1.7+	
Garnet	.15– .70	.20– .35
Hematite	.60– .70	
Hornblende	.30– .50	
Ilmenite	.10– .40	.18– .21
Kyanite and sillimanite	1.0 –1.7+	
Magnetite	0 – .05	.02(–)
Microlite	.80–1.7+	1.7+
Molybdenite	1.7+	
Monazite	.30–1.0	.55– .75
Muscovite	.40–1.5	
Perovskite	.30– .50	.40– .45
Pyrite	1.4 –1.7+	1.7+
Pyrochlore	.80–1.0	
Pyroxene	.20– .60	.35– .50
Pyrrhotite	0 – .25	.02– .04
Quartz	1.7+	
Rutile	.25–1.7+	
Scheelite	1.4 –1.7+	1.7+
Sphalerite	.35–1.7+	
Sphene	.35–1.5	.70–1.0
Staurolite	1.0 –1.7+	
Tetrahedrite-tennantite	.65–1.3	
Thorianite	.20–1.7+	1.7+
Thorite	.30–1.7+	.75– .90
Topaz	1.7+	
Tourmaline	.30–1.7	.35– .55
Uraninite	.60– .95	
Xenotime	.30– .90	.45– .50
Zircon	.40–1.7+	1.7+

It is suggested that removal of magnetite and pyrrhotite is most efficiently accomplished with a hand magnet and it will avert clogging in the Frantz separator.

Most of the data were determined by the writer; those for the ore

sulfides and the columbates were taken from articles by Gaudin and Spedden (1943), and Jacobson, Cawley, and Macleod (1951). Data for fluorite, kyanite and sillimanite, molybdenite, staurolite, topaz and uraninite were supplied by David Gottfried (written communication, 1957) of the U. S. Geological Survey.

The purpose of this note is two-fold: (1) to present data available on some of the common rock-forming and ore minerals, and (2) to urge others to present similar data for other minerals. The isodynamic magnetic separator is a most useful tool in the mineralogical laboratory and its characteristics in the separation of minerals do not seem to differ appreciably from one instrument to another. A more complete chart of magnetic susceptibilities for this instrument is desirable and may in some cases be useful in determinative mineralogy. Additions to the following list will be welcome.

References

Gaudin, A. M., and Spedden, H. R. (1943), Magnetic separation of sulphide minerals: *Am. Inst. Min. Met. Eng. Tech.* Paper No. 1549, 13 p.

Jacobson, R. R. E., Cawley, A., and Macleod, W. N., (1951), The occurrence of columbite in Nigeria: *Geol. Survey Nigeria*, Occas. Paper No. 9, 11 p.

The Department of Mineralogy and Petrography, Harvard University, made a substantial contribution toward the cost of the enlarged November–December 1957 issue of the *American Mineralogist*.

Dr. Paul F. Kerr, Professor of Mineralogy at Columbia University, has been presented with the third K. C. Li Medal. This medal is awarded for "Meritorious achievement in advancing the science of tungsten." The two former recipients are Dr. William D. Coolidge, Director Emeritus of the General Electric Research Laboratory, and Dr. Thomas B. Nolan, Director of the U. S. Geological Survey.

Professor W. N. Benson, of the University of Otago, Dunedin, New Zealand, died August 20, 1957, at the age of 72.

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The National Science Foundation will award grants to partially defray travel expenses for a limited number of American scientists wishing to participate in the meetings of the International Federation of Electron Microscope Societies. This meeting is to be held in Berlin, Germany, 10–17 September, 1958.

Application blanks may be obtained from the National Science Foundation, Washington 25, D. C. Completed application forms must be submitted by 15 February, 1958.