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SULFUR VARIETIES IN ILLINOIS COALS

FLOAT-SINK TESTS

R. J. Helfinstine, N. F. Shimp, and J. A. Simon

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Report of Study Phase I, supported in part by U. S. Public Health Service, Department of Health, Education and Welfare Contract No. PH86-67-206 August 10, 1969

Prepared at the ILLINOIS STATE GEOLOGICAL SURVEY *Urbana, Illinois*

Corrections

Sulfur Varieties in Illinois Coals - Float-Sink Tests Report of Study Phase I, August 10, 1969

1. Table 1 consists of the first 20 pages of tables.
2. Table 5 is "Chemical Analysis of Channel Samples of Coal."
3. Table 5: Decimal point is misplaced in three columns.
Move decimal point one place to the left for:
SL SUL (Sulfate Sulfur) (i.e., 0.60 = .06)
TOT CLR (Total Chlorine)
WS CLR (Water Soluble Chlorine)
4. Asterisk (*) on Table 6 should be on column headed "Recovery."
5. Figures 233 to 236 precede Figures 229 to 232.

SULFUR VARIETIES IN ILLINOIS COALS

Float-Sink Tests

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SULFUR VARIETIES IN ILLINOIS COALS

Float-Sink Tests

R. J. Helfinstine, N. F. Shimp, and J. A. Simon

INTRODUCTION

In June 1967, members of the staff of the Illinois State Geological Survey undertook a special study to examine the forms and distribution of sulfur in Illinois coals. The U. S. Public Health Service, Department of Health, Education and Welfare, through contract No. PH 86-67-206, provided substantial support for this study.

Since the founding of the Illinois State Geological Survey in 1905, continuous research has been done on the chemical characteristics of Illinois coals. Since 1912, approximately 3000 face-channel sample analyses from more than 800 mines have been made and filed by the Survey staff. Many special studies have been made relative to evaluating coal preparation characteristics, coking quality, and other chemical and physical properties of coal.

Acknowledgments

We are grateful to the operating coal companies in Illinois for their invaluable assistance in obtaining samples, a cooperation that has made this project possible. Although in the report identity of the samples is not disclosed, we plan to ask the various coal companies for permission to provide as much identification of samples as practical.

Many other members of the staff of the Illinois State Geological Survey have contributed to this effort, and, except as noted, their contributions were entirely supported by the Survey. They include *Coal Section* - M. E. Hopkins, W. H. Smith, H. J. Gluskoter, K. E. Clegg, H. H. Damberger, R. A. Peppers, R. B. Nance, and several part-time student assistants. *Analytical Chemistry Section* - C. W. Beeler, J. K. Kuhn, P. E. Gardner, L. R. Kohlenberger, and G. R. James. *Chemical Engineering* - W. E. Cooper and L. D. Arnold. *Geological Group* - Frances Alsterlund.

The following personnel were paid from Contract funds: B. Ahmid, H. F. Hutchins, Jr., Virginia S. Martin, Sharon L. Olson, G. Ranalli, R. E. Rankin, and Thakur Tukrel.

OBJECTIVES

Our primary aim was to make a study of the washability characteristics of Illinois coals, with particular emphasis on the quantity, distribution, and varieties (forms) of sulfur in Illinois coals. We hoped to provide a basis for evaluating how much pyritic sulfur could be removed from Illinois coals by conventional preparation techniques, and also to provide a basis for evaluating the pyritic and total sulfur contents of coal mine refuse.

The data developed in this study will be useful for 1) determining how much sulfur can be removed from various seams or different areas within the same seam by conventional preparation techniques; 2) evaluating the possibility of concentrating pyrite and coal from mine refuse to reduce its influence on stream pollution; and 3) evaluating the use of Illinois coal refuse as a source of pyrite for sulfur recovery.

A secondary object of the investigation has been a comprehensive study of other chemical and physical properties of Illinois coals, including research on mineral matter other than sulfur compounds, on trace elements, on coal petrography, and on palynology. Some of these data are included in this report. Other data and samples from this investigation are being incorporated in other Survey research projects concerned with coal. Maps will be made showing the incidence of certain chemical and physical properties of coals throughout the state in relation to their geologic occurrence.

PROCEDURE

Samples

The forty coal samples described in this report were taken from 35 Illinois coal mines located in most mining areas of Illinois. The coal seams sampled were the Danville (No. 7) Coal - 1 mine; Herrin (No. 6) Coal - 20 mines; Harrisburg or Springfield (No. 5) Coal - 10 mines; Sumnum (No. 4) Coal - 2 mines; Colchester (No. 2) Coal - 4 mines; DeKoven Coal - 1 mine; Davis Coal - 1 mine; Rock Island (No. 1) Coal - 1 mine. The total number of samples is greater than the total number of mines because several mines produced coal from more than one seam. Coal from each seam was sampled separately.

An attempt was made to obtain a sample for the washability (float and sink) studies that was representative of the coal received by the preparation plant during one shift of operation. A sample of 2000 lbs made up of 20 to 30 increments was desired, taken at uniform intervals throughout a working shift. However, in many cases fewer increments were taken because sampling conditions were poor. The samples, therefore, may not be representative of the output for the operating shift, and should never be considered as representative of the output of the mine for an extended period. The samples are, however, superior to a grab sample. At several strip mines, coals from different seams were being mixed at the preparation plant and it was not practical to obtain a single-seam sample from the tipple. In these cases the samples were cut from freshly exposed faces in the pits.

In addition to the tipple samples, channel samples (usually three) of about 50 lbs each were cut from the coal face in different areas of the mine. Mineral bands three-eighths of an inch or more thick were excluded from these samples in accordance with U. S. Bureau of Mines procedures. (J. A. Holmes, "The Sampling of Coal in the Mine," U. S. Bureau of Mines Technical Paper No. 1. (1918))

Laboratory Preparation

The channel samples were crushed and riffled in the laboratories to obtain adequate samples for chemical and physical analyses, which included proximate analyses, heating value, total sulfur, forms of sulfur (pyritic, organic, or sulfate), and chlorine. These same analyses, plus ultimate analyses, free-swelling index, ash fusion temperatures, and Gieseler plasticity were made on a composite of the three face-channel samples.

The 1-ton sample of raw coal was crushed to a maximum size of 1 1/2 inches in the laboratory with a jaw crusher. The crushed coal was quartered and riffled and five representative samples of approximately 50 lbs each were taken for float and sink separations at five different gravities. An attempt was made to select gravities for the float-sink procedures for each coal that would yield float recoveries of about 20, 40, and 60 percent. (Note: The first four samples, like the three-eighths-inch x 14-mesh coals, were floated progressively.) In addition, gravities of 1.40 and 1.60 were used for all coals. Appropriate mixtures of naphtha and perchloro-ethylene were used to obtain solutions of the desired gravity for the separations.

A second representative sample of about 100 lbs of the 1 1/2-inch x 0 coal was crushed to a top size of an eighth of an inch and riffled to give representative samples for chemical analyses.

A third representative sample of about 200 lbs of the 1 1/2-inch x 0 coal was crushed to a top size of three-eighths of an inch in a roll crusher. This coal was then screened at 14 and 100 meshes to get three-eighths-inch x 14 mesh, 14 mesh x 100 mesh, and 100 mesh x 0 fractions.

The three-eighths-inch x 14 mesh coal was floated progressively in the following manner. Approximately 100 lbs of the raw, sized coal was placed in the lightest gravity solution for separation. The resulting float fraction was dried, weighed, crushed, and sampled for chemical analyses. The sink fraction from this first separation was placed in the next heavier solution, and again the float coal was dried, weighed, crushed, and sampled. The second sink product was placed in the next heavier solution and the float material was processed as before. This procedure was repeated until the desired number of solution gravities had been used. The sink material from the separation with the heaviest solution was dried, weighed, crushed, and sampled for chemical analyses.

The 14 mesh x 100 mesh coal was divided into five representative fractions, each of which was placed in the liquid of the desired gravity for float and sink separations.

Gravity separations of fine coal are difficult with any coal and are particularly difficult with Illinois coals, which are quite porous. The liquid used for the separation rapidly penetrates the pores and thereby exerts a major influence on the results. Although some tests were made with the 100 mesh x 0 coals, the results were not considered satisfactory and are not reported.

Chemical Analyses

Chemical analyses, which included percentages of ash, sulfate sulfur, pyritic sulfur, organic sulfur, and total sulfur, were made on all float fractions and on some sink fractions. The grindability and the fusibility of the ash were determined for the lightest, intermediate, and heaviest (1.60 gravity) float fractions of the 1 1/2 inch x 0 coal. The proximate analyses, and determinations of total sulfur, forms of sulfur, heating value, and free swelling index were made for the raw coal as received and on the sized fractions.

A large percentage of the analyses were done by the Geological Survey's Analytical Chemistry Section, supplemented by analyses made under a subcontract with Commercial Testing and Engineering Company, Chicago, Illinois.

RESULTS

Table 1 lists the pertinent data for the float and sink tests. These are copies of the print-out from a Fortran IV IBM 360 computer. The heading lists the code used to identify the coal used. The last one or two digits are the only ones of significance in this report and range from 1 through 40 and correspond to the sample numbers used throughout this report. The next line indicates the size of the coal (1 1/2 inch x 0) used to obtain the data for the tabulation that immediately follows. The abbreviated headings for the float fractions are, from left to right: specific gravity, cumulative weight (recovery), ash, total sulfur, pyritic sulfur, and organic sulfur. The same headings are repeated for the sink fraction. Similar headings and data are given for the three-eighths-inch x 14 mesh and 14 mesh x 100 mesh sizes. All data are given on the dry basis unless indicated otherwise. ASTM Standards were used in the various procedures and analyses where practical.

Although the ash data are listed to the nearest 0.1 percent and the sulfur to the nearest 0.01 percent in Table 1, differences in data are not significant to one decimal place with ash and two decimal places with sulfur for several reasons. First, the relatively small quantity of sample used for float and sink tests, particularly for the 1 1/2 inch x 0 coal. However, working with a larger sample was not justified for this study. Second, chemical analyses obtained from high-ash and/or high-sulfur coals are subject to significant error. The ASTM allows the following variation in results on representative samples taken from the same bulk sample after the last stage of reduction.

	<u>Same</u> <u>Laboratory</u>	<u>Different</u> <u>Laboratory</u>
Pyritic sulfur, under 2%	0.05	0.30
Pyritic sulfur, 2% or more	0.10	0.40
Total sulfur, under 2%	0.05	0.10
Total sulfur, 2% or more	0.10	0.20
Ash, no carbonates present	0.2	0.3
Ash, carbonates present	0.3	0.5
Ash, with more than 12% ash and containing carbonates and pyrite	0.5	1.0

Although the specific gravities used for the tests were readily measured to the third decimal place, as shown occasionally, this certainly is beyond its significance. The same is true of the cumulative weights (recoveries). The method of separation, particularly the speed of the operation, and the moisture in the coal have considerable influence on results. Although the same general procedure, including speed of separation, was used for each size fraction, variations in moisture definitely influenced the results.

The chemical analyses listed for the sink fractions in Table 1 are calculated values, except for the 1.60 sink fraction of the three-eighths-inch x 14 mesh coal. The analyses of the float fractions given in Table 1 for that size are calculated, except for the lightest float fraction. The other chemical analyses are reported as analyzed. A study of the tabulated data discloses that the calculations frequently give improbable results, and occasionally impossible results. An example is the calculation of more than 100 percent ash in the 1.60 sink fraction of the 1 1/2 inch x 0 coal of sample 20. Some of the calculated values for the forms of sulfur in the sink fraction are wrong. For example, the percentage of pyritic sulfur is occasionally greater than the total sulfur. A glance at the table showing allowable analytical tolerance plus other possible measurement errors indicates that such discrepancies are inevitable.

Much of the data listed in Table 1 are shown in graphical form in Figures 1 through 240. The curves are drawn to be reasonably smooth and no attempt was made to determine the curve that would be the best fit for the plotted points. Those points that are obviously wrong were ignored when plotted and others that did not follow an apparent trend were often discounted.

Effect of Coal Size on Ash and Sulfur

Figures 1 through 40 show the relation between the total sulfur in the coals and the float coal recoveries for the three different sizes tested. In general, there was a decrease in sulfur with a decrease in size, as was expected. However, there are numerous exceptions to this general trend. Many of these are minor and should be considered insignificant because of allowable tolerances in the analyses and other sources of variability. One source of variability is illustrated by sample 6 (Fig. 6), in which the total sulfur in

the 14 mesh x 100 mesh fraction is appreciably greater than in the larger sizes for all float-coal recovery percentages. However, the ash in the 14 mesh x 100 mesh fraction is about 27 percent and in the 1 1/2 inch x 0 and three-eighths of an inch x 14 mesh fractions is about 15 percent (Fig. 86 or Table 1). If the recoveries were recalculated to a standard ash basis, the sulfur curve for 14 mesh x 100 mesh fraction would probably be lower than that shown for the 1 1/2 inch x 0 coal. An attempt will be made to develop a computer program to put the data on a comparable basis by compensating for this difference in percentage of ash in the three size fractions.

Figures 41 through 80 show the relation between the pyritic sulfur and the float-coal recoveries for the three sizes tested. The variations shown are similar to those for total sulfur, with a tendency for lower amounts of pyritic sulfur recorded in the smaller coal sizes.

The effects of coal size upon the relation between the percentages of ash and float-coal recovery are shown in figures 81 through 120. The trend is similar to that shown for the total and pyritic sulfur.

Table 2 shows the difference in percentages of ash, total sulfur, and pyritic sulfur in the 1.60 float fraction for the three coal sizes studied. The average algebraic differences and standard deviations also are shown. Table 3 gives the same information for the 1.40 float fraction. The data given in these tables provided further evidence that there is generally less ash, total sulfur, and pyritic sulfur in the finer sized coal, but the average differences are not great.

Sulfur in the Sink Fraction

Figures 121 through 160 show the relation between the percentage of sink material and its sulfur content for the 1 1/2 inch x 0 coal. For convenience, the sulfur vs. float-coal recoveries are included on the same graph, although this relationship was shown in figures 1 through 40. The percentage of sulfur for the sink fractions is indicated by the scale on the right side of the page and the percentage of sulfur for the float fractions is indicated on the left side.

The sulfur vs. sink curves indicate the potential value of using the coal reject (sink) as a source of sulfur. If the reject were 100 percent pyrite, the sulfur percentage would be about $\frac{50}{1}$ percent. Although no sink material from the present test series approached $\frac{50}{1}$ percent, the 1.60 sink from several coals exceeded 20 percent sulfur, as indicated by Figures 144, 146, 156, 157, and 158.

Sample 38 (Fig. 158), as received from the mine, had nearly 6 percent sulfur, which was reduced to slightly more than 4 percent in the 1.60 float. The 1.60 sink material had about 26 percent sulfur, which is the greatest for the 40 coals tested.

The sulfur reduction with sample 37 (Fig. 157) is remarkable. With only about 15 percent reject (sink), the sulfur in the coal as received was reduced from slightly over 6 percent to just over 3 percent, about 50 percent reduction. The total sulfur in the 1.60 sink was about 24 percent and the pyritic sulfur was about 22 percent. This sample, however, was obtained from a small mine, so the quantity of reject available from this mine would be small.

Several other samples had relatively high percentages of sulfur in the 1.6 sink fraction. Included are samples 2, 16, 28, 31, and 35 (Figs. 122, 136, 148, 151, and 155).

Sulfur vs. Recovery

One of the basic aims of this study is to provide information that will show the potential of Illinois coals as a source of fuel within certain sulfur limits and within practical limits of recovery. Although the limits of sulfur may be regulated, a practical recovery limit will vary with every mine, and from day to day at that mine. Table 4 is a list of the percentages of ash, total sulfur, and pyritic sulfur at 40, 60, and 80 percent recoveries, based upon the data obtained from the 1 1/2 inch x 0 coals tested. The samples are arranged in ascending order of total sulfur. The calculations assume a direct relation between the sulfur (or ash) and the float-coal recovery between the available adjacent datum points. In other words, the datum points were connected by straight lines, and the percentages of sulfur (or ash) were calculated for 40, 60, and 80 percent recoveries.

Some of the values given in Table 4 were compared with those that could be found from Figures 1 through 120 and the comparison was quite close in most cases. Later, we shall attempt to develop a "best fit" curve by computer that will eliminate some of the obvious discrepancies.

Table 4 shows that five of the 40 coal samples tested could be floated with an 80 percent recovery and a maximum of 1.50 percent sulfur. This number was increased to eight with a 40 percent recovery. With a maximum of 2.0 percent sulfur, the number was eight with 80 percent recovery, only one additional sample met this limit at 40 percent recovery. A 2.5 percent sulfur maximum included 10 samples at 80 percent recovery and 19 samples at 40 percent recovery.

Compilations similar to that shown in Table 4 were made for the three-eighths of an inch x 14 mesh and 14 mesh x 100 mesh coals, but they are not included in this report. A summary of the findings are shown below.

Size	Number of samples meeting indicated sulfur maxima					
	80% Recovery			40% Recovery		
	1.5%	2.0%	2.5%	1.5%	2.0%	2.5%
1 1/2 in. x 0	5	8	10	8	9	19
3/8 in. x 14mm	6	8	12	8	9	20
14m x 100m	6	8	10	8	11	24

These data should not be extended from number of samples to quantities of coal available. Some of the samples are from areas with very low coal reserves, while the reverse is true of others. Ultimately, we hope that it will be practical to make quantitative estimates by sulfur categories.

As previously mentioned, the practical percentage of recovery is variable. In some mines it is cheaper to mine large percentages of non-coal material and reject it in a preparation plant instead of excluding it during the mining operation. A 50 percent reject in the preparation plant may be the most economical way to produce a marketable coal in a given mine, and only a small percentage of coal will be left in the reject. In another mine, a 20 percent reject may have a considerable proportion of coal. There are examples of both of these conditions of mining in the 40 samples included in this report.

Channel Samples

The analyses of the composite of the channel samples are given in Table 5. The column headings for this Table, from left to right are sample, moisture, volatile matter, fixed carbon, ash, hydrogen, carbon, nitrogen, oxygen, sulfate sulfur, pyritic sulfur, organic sulfur, total sulfur, total chlorine, water soluble chlorine, Btu (heating value), Gieseler maximum fluidity, and free-swelling index. All values are given in percent, except Btu, Gieseler maximum fluidity (given in dial divisions per minute) and free-swelling index.

The composite channel samples (Table 5) are considered fairly representative of coal from a mine after a minimum of preparation in the tipple (because of exclusion of bands over three-eighths of an inch) and might provide a useful basis for recovery figures. The computer was therefore programmed to list the percentages of total and pyritic sulfurs at 80, 60, and 40 percent recoveries upon the "channel sample" basis (Table 6). This was accomplished by determining the "raw coal" recovery percentage that would yield a coal with the same ash content as that from the associated composite face-channel samples. (These values are given in column 4, Table 6). As shown for sample 1, an 80 percent recovery on the "channel sample" basis is equivalent to 80×0.901 or 72.08 percent, recovery on the "raw coal" basis. The 3.66 percent total sulfur listed in the 80 percent recovery column is, therefore, the same as would be obtained with 72.08 percent recovery on the "raw coal" basis.

Ash Fusion

Early in this study, a combustion engineer expressed concern about the possibility of the reduction in sulfur in a coal being accompanied by change in the behavior of the ash in a power plant boiler. As a measure of this change, albeit a poor one, the ash fusion temperatures were determined for the lightest float fraction, the intermediate float fraction, and the heaviest (1.60 sp. gr.) float fraction. These data are given in Table 7. The algebraic differences and standard deviations in fusion temperatures among the three gravity fractions of coal also are shown. Although the differences in temperatures with individual coals may be significant, no trend was clearly indicated.

Hardgrove Grindability

The Hardgrove grindability was obtained for the low, intermediate, and high (1.60) gravity float fractions of most of the 1 1/2 inch x 0 coal samples. Table 8 is a tabulation of these data. The differences between the grindabilities for the various gravity fractions also are shown. The maximum difference was 11 for sample 26. However, the Hardgrove grindability of 64 given for the intermediate fraction is questionable. The average algebraic differences and standard deviations indicate no major trend.

CONCLUSIONS

The Illinois coals sampled and tested for this study indicated that only a few could be prepared with a practical percentage of recovery and 1.5 percent or less total sulfur. Only about a fourth of those tested had an 80 percent float recovery and 2.5 percent or less total sulfur.

The float coal fractions usually had less sulfur in the smaller coal sizes, but the differences were not great enough to make fine grinding a practical means of sulfur reduction for the coals tested.

The maximum sulfur in the 1.60 specific gravity sink fraction for the 40 Illinois coal samples tested was 26 percent. Five of the 40 samples tested had more than 20 percent sulfur in the 1.60 sink fraction. These sink products indicate that the mine refuse from some Illinois mines is a potential source of sulfur.

The Hardgrove grindability and ash fusion temperatures for the heavier float fractions did not differ materially from those for the lighter float fractions.

COAL CODE 0707T0A01

SIZE 1 1/2X0

		FLOAT FRACTION						SINK FRACTION			
SP.GRAV	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.275	12.1	3.1	3.27	0.39	2.86	87.9	18.7	5.62	2.99	2.59	
1.30	44.7	5.6	3.41	0.58	2.82	55.3	25.9	6.89	4.38	2.47	
1.40	78.9	8.3	3.73	0.96	2.75	21.1	48.7	11.34	9.12	2.16	
1.60	86.5	9.5	3.97	1.26	2.69	13.5	63.6	14.06	11.79	2.20	
CALC. WHOLE COAL	100.0	16.8	5.33	2.68	2.62						
ANAL. WHOLE COAL	100.0	16.3	4.91	2.25	2.59						

SIZE 3 /8X14

		FLOAT FRACTION						SINK FRACTION			
SP.GRAV	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.27	13.3	3.3	3.38	0.46	2.91	86.7	17.5	5.19	2.75	2.40	
1.30	36.3	4.4	3.42	0.57	2.83	63.7	22.0	5.82	3.51	2.27	
1.35	69.7	6.6	3.56	0.81	2.73	30.3	36.2	8.14	6.20	1.87	
1.40	81.6	7.7	3.69	0.96	2.71	18.4	50.4	10.51	9.03	1.39	
1.60	88.6	8.9	3.89	1.19	2.67	11.4	67.7	13.18	12.18	0.91	
CALC. WHOLE COAL	100.0	15.6	4.95	2.44	2.47						
ANAL. WHOLE COAL	100.0	14.0	4.51	1.88	2.58						

SIZE 1 4X100

		FLOAT FRACTION						SINK FRACTION			
SP.GRAV	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.30	19.8	3.2	3.16	0.27	2.72	80.2	24.9	4.56	2.00	2.11	
1.35	58.0	4.9	3.22	0.41	2.60	42.0	42.3	5.74	3.39	1.72	
1.40	68.2	5.6	3.35	0.51	2.61	31.8	52.8	6.27	4.13	1.42	
1.60	81.6	8.0	3.60	0.71	2.57	18.4	76.5	7.30	5.87	0.72	
ANAL. WHOLE COAL	100.0	20.6	4.28	1.66	2.23						

COAL CODE 0668T0A02

SIZE 1 1/2X0

		FLOAT FRACTION						SINK FRACTION			
SP.GRAV	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.25	18.0	3.1	1.66	0.72	0.85	82.0	13.0	3.47	2.46	0.94	
1.30	60.7	4.0	1.79	0.77	0.94	39.3	22.3	5.24	4.27	0.90	
1.35	81.4	5.7	1.85	0.79	0.99	18.6	35.4	8.80	8.09	0.66	
1.40	87.0	6.2	1.91	0.82	1.01	13.0	44.9	11.43	11.03	0.34	
1.60	92.5	7.3	2.02	0.96	0.99	7.5	59.2	16.96	16.78	0.17	
CALC. WHOLE COAL	100.0	11.2	3.14	2.15	0.93						
ANAL. WHOLE COAL	100.0	10.5	3.58	1.94	1.39						

SIZE 3 /8X14

		FLOAT FRACTION						SINK FRACTION			
SP.GRAV	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.25	29.0	2.5	1.57	0.41	1.10	71.0	12.8	4.74	2.92	1.73	
1.30	71.8	3.9	1.77	0.62	1.08	28.2	24.9	9.04	6.19	2.74	
1.35	83.6	4.5	1.81	0.64	1.10	16.4	36.6	14.05	10.07	3.82	
1.40	87.4	5.0	1.83	0.68	1.08	12.6	43.0	17.60	12.68	4.75	
1.60	92.7	6.1	1.88	0.75	1.06	7.3	57.3	28.40	20.51	7.69	
CALC. WHOLE COAL	100.0	9.8	3.82	2.19	1.55						
ANAL. WHOLE COAL	100.0	10.6	3.09	1.67	0.95						

SIZE 1 4X100

		FLOAT FRACTION						SINK FRACTION			
SP.GRAV	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	32.6	2.0	1.63	0.23	1.13	67.4	17.6	3.90	2.16	1.63	
1.30	58.1	2.8	1.74	0.30	1.11	41.9	26.0	5.13	3.24	1.97	
1.35	73.8	3.8	1.81	0.35	1.08	26.2	37.0	6.96	4.85	2.57	
1.40	82.1	4.6	1.82	0.40	1.05	17.9	48.7	9.31	6.71	3.40	
1.60	90.1	5.9	1.87	0.46	1.01	9.9	72.6	14.90	11.27	5.66	
ANAL. WHOLE COAL	100.0	12.5	3.16	1.53	1.47						

COAL CODE 0690TOA03

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	17.2	4.0	1.01	0.35	0.66	82.8	21.2	1.16	0.80	0.35	
1.30	50.1	4.8	0.81	0.42	0.38	49.9	31.8	1.46	1.03	0.42	
1.33	68.3	6.0	0.82	0.46	0.36	31.7	44.8	1.81	1.30	0.48	
1.40	81.1	7.3	0.90	0.50	0.40	18.9	65.1	2.13	1.68	0.42	
1.60	85.4	8.0	0.92	0.54	0.38	14.6	78.3	2.36	1.81	0.51	
CALC. WHOLE COAL	100.0	18.3	1.13	0.72	0.40						
ANAL. WHOLE COAL	100.0	19.9	1.37	0.59	0.76						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	20.6	3.3	1.05	0.42	0.63	79.4	22.6	1.58	1.05	0.53	
1.30	49.9	4.2	0.91	0.42	0.49	50.1	33.0	2.03	1.42	0.61	
1.33	67.7	5.6	1.01	0.48	0.53	32.3	46.0	2.43	1.85	0.58	
1.40	80.1	6.8	1.10	0.52	0.58	19.9	66.1	2.96	2.53	0.43	
1.60	84.4	7.6	1.13	0.56	0.57	15.6	78.2	3.31	2.87	0.43	
CALC. WHOLE COAL	100.0	18.6	1.47	0.92	0.55						
ANAL. WHOLE COAL	100.0	19.2	1.69	0.90	0.77						

SIZE 1 X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.30	33.6	2.2	0.99	0.19	0.76	66.4	28.4	1.77	0.99	0.59	
1.35	60.5	3.8	1.08	0.28	0.74	39.5	43.8	2.17	1.39	0.51	
1.40	71.6	5.0	1.11	0.30	0.74	28.4	56.4	2.52	1.78	0.42	
1.60	81.2	6.6	1.17	0.36	0.74	18.8	75.7	2.98	2.27	0.26	
ANAL. WHOLE COAL	100.0	19.6	1.51	0.72	0.65						

COAL CODE 0664TOA04

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	6.5	2.5	1.38	0.44	0.93	93.5	16.3	2.89	1.95	0.86	
1.30	37.1	4.1	1.46	0.79	0.65	62.9	22.1	3.57	2.49	0.99	
1.33	65.9	5.8	1.69	0.89	0.76	34.1	34.1	4.91	3.72	1.05	
1.40	83.4	7.0	1.95	1.14	0.76	16.6	57.8	6.98	5.44	1.34	
1.60	88.3	7.5	2.16	1.35	0.76	11.7	75.0	7.51	5.70	1.61	
CALC. WHOLE COAL	100.0	15.4	2.79	1.86	0.86						
ANAL. WHOLE COAL	100.0	15.1	2.79	1.70	1.04						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	16.0	2.7	1.36	0.44	0.91	84.0	17.1	2.76	2.08	0.63	
1.30	51.5	4.8	1.44	0.63	0.80	48.5	25.4	3.70	3.07	0.54	
1.33	70.9	6.0	1.51	0.79	0.71	29.1	36.1	5.02	4.32	0.59	
1.40	85.9	7.2	1.71	1.04	0.65	14.1	60.9	7.53	6.54	0.86	
1.60	89.3	7.7	1.88	1.21	0.63	10.7	74.0	8.01	6.86	1.02	
CALC. WHOLE COAL	100.0	14.8	2.53	1.82	0.68						
ANAL. WHOLE COAL	100.0	15.8	2.59	1.51	1.04						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	15.2	1.6	0.71	0.23	0.41	84.8	23.1	3.45	2.23	0.96	
1.30	37.2	2.8	1.36	0.36	0.92	62.8	29.9	4.02	2.86	0.86	
1.35	61.9	4.5	1.57	0.47	0.99	38.1	44.7	5.40	4.30	0.70	
1.40	68.2	5.4	1.60	0.54	0.94	31.4	50.7	6.10	4.91	0.75	
1.60	80.8	6.9	1.92	0.72	1.05	19.2	74.1	7.70	7.02	0.16	
ANAL. WHOLE COAL	100.0	19.8	3.03	1.93	0.88						

COAL CODE 0863TOA05

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	13.3	2.6	0.83	0.26	0.57	86.7	15.5	1.23	0.57	0.65	
1.30	48.5	3.8	0.93	0.33	0.60	51.5	23.2	1.42	0.72	0.68	
1.33	63.6	4.4	0.76	0.31	0.45	36.4	30.2	1.91	0.91	0.97	
1.40	82.3	5.9	0.83	0.38	0.45	17.7	50.5	2.81	1.23	1.52	
1.60	90.3	7.4	1.14	0.48	0.66	9.7	73.4	1.55	1.00	0.45	
ANAL. WHOLE COAL	100.0	13.8	1.18	0.53	0.64						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	21.6	2.1	0.71	0.31	0.40	78.4	16.3	1.14	0.64	0.50	
1.30	44.2	2.7	0.80	0.31	0.49	55.8	21.6	1.25	0.78	0.47	
1.33	67.8	5.3	0.88	0.36	0.53	32.2	30.0	1.40	1.02	0.37	
1.40	85.2	6.6	0.90	0.40	0.50	14.8	51.5	1.92	1.58	0.34	
1.60	91.5	7.6	0.93	0.42	0.51	8.5	73.5	2.39	2.21	0.18	
CALC. WHOLE COAL	100.0	13.2	1.05	0.57	0.48						
ANAL. WHOLE COAL	100.0	12.9	1.16	0.52	0.63						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	49.8	2.9	0.93	0.24	0.67	50.2	29.6	2.01	1.18	0.81	
1.30	61.1	3.5	0.94	0.28	0.64	38.9	36.4	2.30	1.39	0.90	
1.35	72.4	4.1	0.98	0.28	0.68	27.6	48.3	2.76	1.84	0.90	
1.40	81.2	5.1	0.98	0.31	0.65	18.8	64.7	3.59	2.44	1.13	
1.60	88.9	6.3	1.00	0.37	0.61	11.1	96.4	5.23	3.43	1.78	
ANAL. WHOLE COAL	100.0	16.3	1.47	0.71	0.74						

COAL CODE 0855TDA06

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.25	21.1	3.2	2.24	0.42	1.79	78.9	18.2	5.08	2.99	1.98	
1.26	34.7	3.3	2.27	0.44	1.80	65.3	21.2	5.65	3.52	2.01	
1.28	54.4	3.5	2.47	0.56	1.88	45.6	28.7	6.88	4.70	2.01	
1.40	75.1	4.7	2.89	1.01	1.83	24.9	46.1	9.28	6.79	2.27	
1.60	82.5	6.7	3.11	1.19	1.84	17.5	54.1	10.94	8.39	2.41	
ANAL. WHOLE COAL	100.0	15.0	4.48	2.45	1.94						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.25	20.1	2.4	2.05	0.34	1.70	79.9	15.4	4.68	2.85	1.69	
1.26	42.0	2.7	2.15	0.35	1.79	58.0	20.1	5.60	3.80	1.62	
1.28	65.4	3.2	2.34	0.50	1.82	34.6	30.9	7.57	5.84	1.46	
1.40	83.2	4.4	2.73	0.92	1.76	16.8	53.9	11.21	9.41	1.35	
1.60	87.7	5.3	2.90	1.13	1.72	12.3	66.2	13.09	11.02	1.52	
CALC. WHOLE COAL	100.0	12.8	4.15	2.35	1.69						
ANAL. WHOLE COAL	100.0	14.4	4.61	2.51	2.03						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	21.1	2.6	2.55	0.25	2.05	78.9	33.4	4.83	2.40	1.94	
1.30	39.4	3.0	2.60	0.28	2.04	60.6	42.4	5.49	3.04	1.91	
1.35	57.9	4.1	2.74	0.47	1.95	42.1	58.3	6.56	3.99	1.97	
1.40	62.8	4.5	2.84	0.54	1.98	37.2	64.7	6.90	4.33	1.93	
1.60	70.6	5.9	3.00	0.74	1.93	29.4	77.3	7.59	4.86	2.03	
ANAL. WHOLE COAL	100.0	26.9	4.35	1.95	1.96						

COAL CODE 0865T0A07

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.25	14.0	3.2	1.80	0.72	0.90	86.0	25.3	5.24	3.21	1.81
1.265	29.0	4.1	2.15	1.11	0.80	71.0	29.6	5.83	3.57	2.04
1.30	53.6	4.3	2.26	1.12	0.88	46.4	42.9	7.65	4.87	2.60
1.40	68.4	6.7	2.42	1.36	0.72	31.6	55.8	9.83	6.11	3.76
1.60	76.8	7.0	3.01	1.54	1.00	23.2	72.5	10.55	7.23	3.92
ANAL. WHOLE COAL	100.0	22.2	4.76	2.86	1.68					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.25	17.6	3.8	2.19	0.81	1.21	82.4	23.2	5.09	3.92	0.77
1.26	32.0	4.1	2.23	0.90	1.15	68.0	27.1	5.68	4.54	0.71
1.30	56.8	4.5	2.43	1.16	1.06	43.2	39.8	7.40	6.29	0.57
1.40	71.9	5.6	2.81	1.52	1.03	28.1	56.0	9.09	8.11	0.38
1.60	79.3	7.5	3.21	1.93	0.99	20.7	66.9	9.82	8.91	0.31
CALC. WHOLE COAL	100.0	19.8	4.58	3.37	0.85					
ANAL. WHOLE COAL	100.0	21.4	5.37	3.17	1.99					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.28	10.0	3.1	2.00	0.63	0.81	90.0	40.2	5.02	3.47	0.80
1.30	15.9	3.3	2.04	0.63	0.89	84.1	42.8	5.23	3.67	0.78
1.35	36.2	4.5	2.28	0.65	1.02	63.8	54.7	6.10	4.63	0.68
1.40	46.4	5.3	2.44	0.78	1.02	53.6	63.5	6.69	5.28	0.61
1.60	53.8	8.3	2.78	1.11	0.99	46.2	69.3	6.98	5.61	0.58
ANAL. WHOLE COAL	100.0	36.5	4.72	3.19	0.80					

COAL CODE 0847T0A08

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	15.4	4.7	2.15	0.66	1.47	84.6	17.9	3.99	2.54	1.40
1.31	37.3	5.1	2.05	0.64	1.40	62.7	22.3	4.70	3.21	1.42
1.325	50.8	5.0	2.07	0.63	1.44	49.2	27.2	5.40	3.92	1.38
1.40	77.3	6.5	2.26	0.77	1.47	22.7	47.9	8.65	7.29	1.21
1.60	85.3	8.2	2.57	1.03	1.46	14.7	60.6	10.33	9.33	1.12
ANAL. WHOLE COAL	100.0	15.9	3.71	2.25	1.41					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	26.1	3.6	2.18	0.49	1.69	73.9	16.7	4.01	2.53	1.36
1.31	42.7	4.3	2.24	0.59	1.64	57.3	20.0	4.50	3.04	1.31
1.325	54.1	4.6	2.24	0.63	1.61	45.9	23.5	5.06	3.61	1.26
1.40	77.7	6.3	2.36	0.82	1.53	22.3	37.6	7.63	6.10	1.15
1.60	85.2	7.4	2.48	0.96	1.51	14.8	47.4	9.61	7.96	1.11
CALC. WHOLE COAL	100.0	13.3	3.54	2.00	1.45					
ANAL. WHOLE COAL	100.0	15.8	3.84	2.23	1.55					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	29.5	2.2	1.83	0.23	1.55	70.5	23.9	3.96	2.56	1.27
1.35	58.9	4.3	2.02	0.42	1.51	41.1	36.4	5.21	3.95	1.12
1.40	71.1	5.5	2.16	0.56	1.49	28.9	47.0	6.21	5.09	1.01
1.60	80.6	7.1	2.31	0.72	1.45	19.4	60.7	7.57	6.65	0.93
ANAL. WHOLE COAL	100.0	17.5	3.33	1.87	1.35					

COAL CODE 0622QQA09

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	18.8	3.1	2.47	0.47	1.97	81.2	20.3	4.95	3.29	1.61	
1.31	36.0	4.4	2.52	0.65	1.78	64.0	24.2	5.58	3.95	1.62	
1.325	52.4	5.2	2.63	0.55	2.07	47.6	30.2	6.52	5.19	1.25	
1.40	76.6	7.8	3.02	0.86	2.06	23.4	47.5	9.26	8.98	0.44	
1.60	85.9	9.1	3.21	1.33	1.78	14.1	65.8	12.22	11.47	1.07	
ANAL. WHOLE COAL	100.0	17.1	4.48	2.76	1.68						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	20.3	3.2	2.46	0.60	1.80	79.7	18.6	5.63	3.82	1.72	
1.31	34.6	4.1	2.52	0.58	1.91	65.4	21.5	6.30	4.54	1.65	
1.325	45.4	4.9	2.62	0.60	1.98	54.6	24.2	6.96	5.30	1.54	
1.40	72.6	6.9	2.75	0.80	1.92	27.4	38.3	10.93	9.45	1.26	
1.60	85.3	8.7	2.92	1.03	1.85	14.7	54.5	17.01	15.55	1.08	
CALC. WHOLE COAL	100.0	15.5	4.99	3.17	1.74						
ANAL. WHOLE COAL	100.0	15.5	4.78	2.91	1.83						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	32.8	2.4	2.36	0.40	1.94	67.2	26.7	5.14	3.17	1.87	
1.30	40.7	2.7	2.41	0.43	1.95	59.3	29.7	5.53	3.52	1.85	
1.35	58.3	4.0	2.48	0.56	1.89	41.7	39.3	6.75	4.64	1.89	
1.40	66.7	4.9	2.57	0.59	1.94	33.3	46.3	7.65	5.61	1.79	
1.60	77.5	6.9	2.62	0.74	1.84	22.5	59.3	9.91	7.50	2.06	
ANAL. WHOLE COAL	100.0	18.7	4.26	2.26	1.89						

COAL CODE 0879TOA10

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	20.0	4.4	2.26	0.40	1.85	80.0	19.4	5.91	4.09	1.74	
1.31	31.8	5.1	2.30	0.39	1.89	68.2	21.7	6.52	4.73	1.70	
1.335	45.6	6.0	2.31	0.53	1.76	54.4	25.1	7.59	5.71	1.76	
1.40	73.5	8.5	2.75	0.94	1.77	26.5	38.3	11.92	10.03	1.73	
1.60	87.2	10.5	3.35	1.58	1.70	12.8	56.6	17.65	15.41	2.17	
ANAL. WHOLE COAL	100.0	16.4	5.18	3.35	1.76						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	12.1	4.1	2.37	0.49	1.87	87.9	15.7	5.52	3.85	1.59	
1.31	25.3	4.8	2.42	0.53	1.88	74.7	17.5	6.06	4.43	1.54	
1.335	42.9	5.9	2.51	0.63	1.87	57.1	20.6	7.11	5.56	1.44	
1.40	70.3	7.9	2.75	0.94	1.80	29.7	29.3	10.79	9.38	1.21	
1.60	86.2	9.9	3.23	1.48	1.73	13.8	41.4	17.04	15.76	0.96	
CALC. WHOLE COAL	100.0	14.3	5.14	3.45	1.62						
ANAL. WHOLE COAL	100.0	16.0	5.66	3.85	1.73						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.30	26.1	4.0	2.19	0.47	1.70	73.9	31.6	7.77	5.73	1.88	
1.35	46.5	6.4	2.64	0.90	1.70	53.5	40.0	9.50	7.37	1.94	
1.40	56.5	7.7	2.81	0.95	1.82	43.5	46.1	10.86	8.79	1.84	
1.60	71.3	10.3	3.26	1.42	1.78	28.7	59.4	13.89	11.66	1.95	
ANAL. WHOLE COAL	100.0	24.4	6.31	4.36	1.83						

COAL CODE 0705TOA11

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.285	17.2	6.0	2.37	0.35	1.98	82.8	21.1	4.27	1.70	2.52	
1.30	38.0	7.8	2.57	0.36	2.16	62.0	25.1	4.78	2.15	2.60	
1.31	53.3	9.4	2.65	0.54	2.06	46.7	28.9	5.41	2.53	2.85	
1.40	78.2	10.6	3.01	0.89	2.00	21.8	46.8	7.28	3.55	3.97	
1.60	87.6	12.7	3.43	1.25	2.00	12.4	59.5	7.54	3.02	5.47	
ANAL. WHOLE COAL	100.0	18.5	3.94	1.47	2.43						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.285	25.3	5.5	2.41	0.42	1.92	74.7	18.4	4.71	2.66	1.84	
1.30	33.2	5.7	2.41	0.43	1.91	66.8	19.8	4.98	2.92	1.84	
1.31	38.7	5.9	2.42	0.43	1.93	61.3	20.9	5.20	3.14	1.82	
1.40	75.2	8.1	2.70	0.75	1.87	24.8	36.4	8.46	6.17	1.85	
1.60	88.1	9.8	3.09	1.11	1.87	11.9	54.4	11.81	9.41	1.78	
CALC. WHOLE COAL	100.0	15.1	4.13	2.09	1.86						
ANAL. WHOLE COAL	100.0	18.4	4.00	1.71	2.25						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	19.1	3.8	2.41	0.35	2.02	80.9	29.5	3.99	2.22	1.58	
1.30	27.4	3.9	2.43	0.33	2.06	72.6	32.4	4.17	2.44	1.51	
1.35	56.1	6.6	2.64	0.52	2.07	43.9	47.6	5.03	3.57	1.14	
1.40	70.2	7.7	2.72	0.60	2.05	29.8	64.4	5.98	4.83	0.74	
1.60	77.1	11.3	3.05	0.92	2.03	22.9	69.4	5.84	5.02	0.41	
ANAL. WHOLE COAL	100.0	24.6	3.69	1.86	1.66						

COAL CODE 0801TOA12

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	19.1	3.4	0.82	0.26	0.55	80.9	23.8	1.57	0.78	0.76	
1.305	37.9	4.1	0.85	0.29	0.55	62.1	29.5	1.78	0.92	0.82	
1.32	46.8	4.1	0.91	0.26	0.63	53.2	33.8	1.89	1.05	0.80	
1.40	67.4	5.8	1.12	0.49	0.60	32.6	49.1	2.07	1.07	0.97	
1.60	73.4	8.0	1.30	0.67	0.59	26.6	52.7	1.79	0.71	1.08	
ANAL. WHOLE COAL	100.0	19.9	1.43	0.68	0.72						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	19.0	3.1	0.82	0.29	0.52	81.0	22.9	1.58	0.96	0.57	
1.305	34.0	3.8	0.85	0.29	0.55	66.0	27.0	1.73	1.12	0.57	
1.32	47.4	4.3	0.86	0.32	0.52	52.6	32.5	1.95	1.30	0.60	
1.40	69.1	6.0	0.99	0.46	0.51	30.9	48.4	2.41	1.68	0.69	
1.60	75.8	7.2	1.09	0.55	0.52	24.2	56.4	2.49	1.74	0.69	
CALC. WHOLE COAL	100.0	19.1	1.43	0.84	0.56						
ANAL. WHOLE COAL	100.0	19.8	1.63	0.84	0.76						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	10.5	2.1	0.79	0.12	0.66	89.5	25.9	1.62	1.01	0.57	
1.30	38.4	2.5	0.85	0.16	0.68	61.6	36.4	1.95	1.39	0.52	
1.35	54.9	3.7	1.00	0.27	0.72	45.1	47.4	2.18	1.71	0.41	
1.40	62.0	4.5	1.03	0.32	0.69	38.0	54.2	2.35	1.90	0.40	
1.60	70.3	6.6	1.16	0.48	0.66	29.7	63.2	2.41	1.96	0.39	
ANAL. WHOLE COAL	100.0	23.4	1.53	0.92	0.58						

COAL CODE 0693T0A13

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	25.9	5.2	3.23	0.62	2.54	74.1	26.3	5.20	3.06	2.08	
1.30	34.3	5.3	3.26	0.61	2.59	65.7	28.9	5.44	3.38	2.00	
1.32	47.7	6.1	3.32	0.68	2.54	52.3	34.2	5.94	4.03	1.89	
1.40	72.0	7.9	3.73	1.00	2.60	28.0	54.0	7.16	6.11	1.17	
1.60	81.3	9.5	3.94	1.35	2.46	18.7	69.9	7.95	7.13	1.07	
ANAL. WHOLE COAL	100.0	20.8	4.69	2.43	2.20						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	19.7	5.0	3.18	0.72	2.43	80.3	22.0	5.52	3.35	1.96	
1.30	32.7	5.2	3.24	0.66	2.52	67.3	25.2	5.94	3.88	1.83	
1.32	46.3	5.7	3.26	0.74	2.48	53.7	29.9	6.60	4.64	1.69	
1.40	71.4	7.8	3.59	1.08	2.38	28.6	45.9	8.71	7.20	1.24	
1.60	79.7	9.0	3.81	1.40	2.29	20.3	56.8	9.93	8.46	1.14	
CALC. WHOLE COAL	100.0	18.7	5.06	2.83	2.06						
ANAL. WHOLE COAL	100.0	20.2	5.34	3.23	2.04						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	13.7	2.8	2.76	0.27	2.46	86.3	28.6	4.83	2.96	1.78	
1.30	33.1	4.3	2.99	0.58	2.38	66.9	35.4	5.32	3.58	1.62	
1.35	53.8	5.9	3.22	0.63	2.56	46.2	47.5	6.10	4.87	1.07	
1.40	60.7	6.4	3.26	0.86	2.36	39.3	54.0	6.54	5.26	1.11	
1.60	71.6	9.1	3.63	1.17	2.41	28.4	65.4	6.87	6.17	0.51	
ANAL. WHOLE COAL	100.0	25.1	4.55	2.59	1.87						

COAL CODE 0673T0A14

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.26	20.0	4.0	2.51	0.57	1.89	80.0	21.9	4.53	2.71	1.80	
1.27	30.3	3.7	2.47	0.54	1.88	69.7	24.6	4.85	3.04	1.79	
1.29	41.8	4.4	2.65	0.59	2.01	58.2	28.3	5.19	3.49	1.68	
1.40	80.3	8.0	2.98	0.89	2.01	19.7	60.3	8.82	7.95	1.05	
1.60	87.3	8.9	3.03	0.95	1.98	12.7	82.9	11.69	11.42	0.72	
ANAL. WHOLE COAL	100.0	18.3	4.13	2.20	1.82						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.26	21.3	3.4	2.47	0.47	1.95	78.7	21.2	4.51	2.81	1.54	
1.27	28.5	3.5	2.46	0.48	1.93	71.5	23.0	4.72	3.04	1.51	
1.29	43.0	4.0	2.56	0.58	1.92	57.0	27.5	5.22	3.62	1.41	
1.40	76.3	7.6	2.90	0.91	1.88	23.7	49.0	7.87	6.84	0.82	
1.60	84.5	8.7	3.00	1.02	1.88	15.5	65.2	9.90	9.38	0.26	
CALC. WHOLE COAL	100.0	17.4	4.07	2.31	1.63						
ANAL. WHOLE COAL	100.0	17.7	3.91	2.11	1.76						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	6.9	1.0	2.05	0.28	1.77	93.1	22.6	3.82	2.03	1.75	
1.30	19.3	2.7	2.19	0.38	1.80	80.7	25.5	4.06	2.28	1.74	
1.35	49.6	4.0	2.43	0.58	1.85	50.4	37.9	4.95	3.22	1.65	
1.40	60.3	5.4	2.63	0.73	1.90	39.7	44.9	5.33	3.70	1.52	
1.60	72.3	8.1	2.81	0.99	1.80	27.7	55.0	6.02	4.31	1.62	
ANAL. WHOLE COAL	100.0	21.1	3.70	1.91	1.75						

COAL CODE 0871T0A15

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.285	30.9	5.0	2.98	0.93	2.02	69.1	19.6	6.02	3.64	2.32	
1.30	41.9	5.9	3.18	0.88	2.28	58.1	21.7	6.45	4.18	2.19	
1.325	53.8	6.0	3.14	0.94	2.06	46.2	25.7	7.34	4.97	2.43	
1.40	74.0	7.2	3.33	1.13	2.16	26.0	37.6	10.06	7.55	2.43	
1.60	85.1	10.1	3.62	1.64	1.74	14.9	43.7	13.42	9.43	5.03	
ANAL. WHOLE COAL	100.0	15.1	5.08	2.80	2.23						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.285	41.1	4.4	2.94	0.70	2.21	58.9	21.3	6.73	4.81	1.79	
1.30	44.7	4.4	2.95	0.70	2.21	55.3	22.3	6.97	5.08	1.76	
1.325	50.6	4.6	2.97	0.74	2.20	49.4	24.3	7.43	5.57	1.73	
1.40	68.8	6.3	3.24	1.07	2.13	31.2	32.1	9.44	7.64	1.61	
1.60	86.1	8.4	3.54	1.47	2.03	13.9	51.3	15.30	13.34	1.59	
CALC. WHOLE COAL	100.0	14.3	5.17	3.12	1.96						
ANAL. WHOLE COAL	100.0	14.7	5.29	2.97	2.30						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.30	9.5	2.4	2.75	0.31	2.43	90.5	16.7	4.75	2.61	2.09	
1.325	36.5	2.9	2.86	0.37	2.48	63.5	22.4	5.54	3.55	1.91	
1.35	46.0	3.3	2.91	0.41	2.47	54.0	25.5	5.97	4.08	1.82	
1.40	69.9	5.1	3.10	0.61	2.47	30.1	39.0	7.95	6.52	1.31	
1.60	83.0	7.1	3.34	0.96	2.36	17.0	55.3	10.52	9.37	0.95	
ANAL. WHOLE COAL	100.0	15.3	4.56	2.39	2.12						

COAL CODE 0701T0A16

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	18.5	3.9	2.48	0.37	2.10	81.5	21.8	5.06	3.09	1.92	
1.31	35.3	5.0	2.69	0.54	2.13	64.7	25.9	5.61	3.71	1.85	
1.325	48.6	6.1	2.73	0.65	2.07	51.4	30.2	6.33	4.42	1.84	
1.40	68.5	8.7	2.81	0.99	1.81	31.5	39.8	8.43	6.07	2.25	
1.60	83.2	10.2	3.00	1.14	1.85	16.8	59.6	12.40	9.77	2.45	
ANAL. WHOLE COAL	100.0	18.5	4.58	2.59	1.95						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.29	22.3	4.8	2.58	0.58	1.99	77.6	23.4	5.94	4.18	1.72	
1.31	33.7	5.4	2.61	0.68	1.92	66.2	26.4	6.51	4.75	1.71	
1.325	44.7	5.8	2.69	0.83	1.84	55.2	30.2	7.22	5.44	1.73	
1.40	68.6	8.0	2.78	0.88	1.89	31.3	44.0	10.47	8.84	1.55	
1.60	80.3	9.8	2.95	1.12	1.81	19.6	58.2	14.36	12.61	1.67	
CALC. WHOLE COAL	99.9	19.3	5.19	3.38	1.78						
ANAL. WHOLE COAL	100.0	19.9	5.20	3.43	1.73						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	16.6	3.7	2.51	0.47	2.02	83.4	25.6	4.46	2.68	1.73	
1.30	22.8	3.7	2.32	0.48	1.82	77.2	27.4	4.68	2.85	1.77	
1.35	51.1	4.9	2.67	0.52	2.14	48.9	39.9	5.68	4.18	1.40	
1.40	62.2	6.0	2.71	0.60	2.09	37.8	48.3	6.49	5.12	1.27	
1.60	75.3	9.1	2.80	0.79	1.99	24.7	61.3	8.23	6.94	1.14	
ANAL. WHOLE COAL	100.0	22.0	4.14	2.31	1.78						

COAL CODE 0814TOA17

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	12.8	4.9	1.86	0.35	1.51	87.2	19.3	3.60	2.55	1.02
1.32	26.4	6.6	2.08	0.65	1.42	73.6	21.4	3.85	2.85	0.96
1.35	54.3	7.5	2.22	0.64	1.58	45.7	29.4	4.76	4.21	0.49
1.40	69.6	8.8	2.32	0.92	1.38	30.4	37.4	5.81	5.36	0.39
1.60	85.8	10.0	2.70	1.54	1.15	14.2	62.8	7.49	6.68	0.66
ANAL. WHOLE COAL	100.0	17.5	3.38	2.27	1.08					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	58.7	7.7	2.35	0.67	1.65	41.3	27.1	4.81	3.60	1.18
1.32	66.2	8.0	2.35	0.70	1.62	33.8	30.8	5.35	4.19	1.13
1.35	75.0	8.6	2.42	0.82	1.58	25.0	37.0	6.20	5.07	1.10
1.40	81.4	9.1	2.52	0.91	1.59	18.6	44.6	7.06	6.14	0.87
1.60	87.9	9.9	2.76	1.18	1.56	12.1	57.8	7.76	6.99	0.71
CALC. WHOLE COAL	100.0	15.7	3.36	1.88	1.46					
ANAL. WHOLE COAL	100.0	15.6	3.27	2.24	1.02					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.28	25.7	3.5	1.63	0.44	1.18	74.3	35.4	4.00	2.82	1.15
1.30	36.7	4.5	1.75	0.61	1.13	63.3	40.4	4.34	3.14	1.18
1.35	56.3	7.2	1.96	0.82	1.13	43.7	53.0	5.23	4.00	1.20
1.40	58.6	7.3	2.02	0.84	1.17	41.4	55.4	5.33	4.15	1.15
1.60	69.6	10.0	2.31	1.34	0.95	30.4	66.6	5.86	4.20	1.64
ANAL. WHOLE COAL	100.0	27.2	3.39	2.21	1.16					

COAL CODE 0688TOA18

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	22.6	4.1	1.18	0.35	0.82	77.4	28.5	1.86	1.45	0.38
1.31	30.1	4.6	1.20	0.27	0.90	69.9	30.9	1.93	1.60	0.30
1.33	48.0	4.7	1.25	0.26	0.98	52.0	39.9	2.13	2.07	0.02
1.40	70.9	7.8	1.32	0.49	0.79	29.1	60.0	2.66	2.93	-0.28
1.60	78.0	8.3	1.46	0.52	0.93	22.0	75.1	2.60	3.61	-1.12
ANAL. WHOLE COAL	100.0	23.0	1.71	1.20	0.48					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	41.3	4.6	1.17	0.27	0.88	58.7	31.4	2.06	1.03	1.01
1.31	53.9	5.1	1.21	0.30	0.88	46.1	38.2	2.26	1.20	1.04
1.33	62.3	5.7	1.25	0.36	0.87	37.7	44.6	2.42	1.31	1.09
1.40	71.7	6.7	1.31	0.40	0.89	28.3	54.9	2.65	1.50	1.12
1.60	79.4	8.0	1.37	0.43	0.92	20.6	67.8	2.93	1.80	1.10
CALC. WHOLE COAL	100.0	20.3	1.69	0.71	0.95					
ANAL. WHOLE COAL	100.0	20.8	1.67	1.22	0.44					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.28	38.3	3.5	1.09	0.50	0.58	61.7	33.3	2.03	1.55	0.47
1.30	53.9	2.7	0.98	0.43	0.54	46.1	44.3	2.48	1.99	0.47
1.35	64.1	4.7	1.15	0.61	0.53	35.9	52.6	2.60	2.11	0.47
1.40	67.3	5.7	1.18	0.64	0.52	32.7	55.2	2.68	2.20	0.49
1.60	77.0	7.2	1.28	0.72	0.55	23.0	71.1	2.98	2.59	0.38
ANAL. WHOLE COAL	100.0	21.9	1.67	1.15	0.51					

COAL CODF 0881TOA19

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.25	19.7	2.9	2.31	0.21	2.09	80.3	44.2	5.39	3.61	1.67	
1.26	24.4	3.0	2.34	0.16	2.13	75.6	46.8	5.57	3.84	1.63	
1.275	34.9	3.8	2.51	0.26	2.23	65.1	53.4	6.00	4.38	1.49	
1.40	61.8	6.8	2.65	0.49	2.09	38.2	83.5	8.23	6.90	1.20	
1.60	65.9	8.3	2.77	0.73	1.95	34.1	89.8	8.66	7.21	1.36	
ANAL. WHOLE COAL	100.0	36.1	4.78	2.94	1.75						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.25	13.7	2.3	2.32	0.30	1.82	86.3	32.7	3.94	1.74	1.99	
1.26	21.1	2.5	2.34	0.39	1.83	78.9	35.5	4.09	1.86	2.00	
1.275	29.7	2.9	2.38	0.37	1.89	70.3	39.4	4.28	2.04	2.00	
1.40	56.9	7.6	2.67	0.50	2.05	43.1	56.2	5.10	2.93	1.85	
1.60	67.9	8.9	2.71	0.50	2.07	32.1	70.1	5.86	3.75	1.73	
CALC. WHOLE COAL	100.0	28.6	3.72	1.55	1.96						
ANAL. WHOLE COAL	100.0	30.9	4.03	2.45	1.48						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	15.0	2.0	2.14	0.29	1.75	85.0	48.7	3.49	2.25	1.06	
1.30	30.5	2.7	2.29	0.39	1.80	69.5	58.8	3.73	2.65	0.88	
1.35	40.7	4.0	2.44	0.52	1.81	59.3	67.6	3.87	2.95	0.71	
1.40	45.4	5.1	2.46	0.60	1.75	54.6	72.1	3.98	3.09	0.67	
1.60	53.1	7.2	2.51	0.66	1.73	46.9	80.8	4.17	3.43	0.51	
ANAL. WHOLE COAL	100.0	41.7	3.29	1.96	1.16						

COAL CODE 0880TDA20

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	28.2	4.5	2.58	0.84	1.65	71.8	55.2	5.24	3.83	1.32	
1.30	38.2	4.6	2.75	0.78	1.85	61.8	63.3	5.57	4.36	1.14	
1.32	45.6	4.7	2.66	0.86	1.79	54.4	71.2	6.02	4.78	1.09	
1.40	57.7	6.7	2.86	1.10	1.64	42.3	87.6	6.71	5.57	1.10	
1.60	64.3	7.6	3.28	1.21	1.94	35.7	****	6.67	6.20	0.46	
ANAL. WHOLE COAL	100.0	40.9	4.49	2.99	1.41						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	27.8	3.8	2.53	0.65	1.77	72.2	47.3	4.67	3.42	1.03	
1.30	38.0	4.6	2.56	0.73	1.72	62.0	54.0	5.00	3.83	0.94	
1.32	44.2	5.2	2.64	0.81	1.71	55.8	59.0	5.21	4.11	0.86	
1.40	52.3	6.5	2.78	0.95	1.70	47.7	66.7	5.49	4.52	0.73	
1.60	58.3	7.8	2.86	1.04	1.68	41.7	73.6	5.76	4.90	0.62	
CALC. WHOLE COAL	100.0	35.2	4.07	2.65	1.24						
ANAL. WHOLE COAL	100.0	37.4	4.36	2.92	1.31						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	6.3	3.7	2.43	0.46	1.81	93.7	57.9	3.40	2.43	0.74	
1.30	13.8	3.5	2.44	0.44	1.84	86.2	62.7	3.48	2.61	0.65	
1.35	26.4	3.9	2.53	0.54	1.81	73.6	72.6	3.63	2.94	0.45	
1.40	32.4	5.6	2.70	0.68	1.86	67.6	77.9	3.65	3.09	0.31	
1.60	38.6	8.5	2.84	0.83	1.82	61.4	83.4	3.65	3.24	0.18	
ANAL. WHOLE COAL	100.0	54.5	3.34	2.31	0.81						

COAL CODE 0704TOA21

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	16.6	6.5	2.36	0.28	2.05	83.4	24.1	4.41	2.53	1.80	
1.29	36.0	7.3	2.44	0.35	2.01	64.0	29.0	4.99	3.18	1.74	
1.31	51.1	7.5	2.48	0.38	2.08	48.9	35.5	5.73	4.02	1.59	
1.40	74.6	9.2	2.78	0.71	1.99	25.4	56.4	7.86	6.42	1.40	
1.60	84.2	10.6	3.22	1.02	2.11	15.8	77.7	8.60	8.24	0.40	
ANAL. WHOLE COAL	100.0	21.2	4.07	2.16	1.84						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	11.3	5.8	2.51	0.37	2.08	88.7	22.5	4.15	2.26	1.66	
1.29	28.4	6.3	2.53	0.39	2.09	71.6	26.3	4.53	2.70	1.56	
1.31	44.4	6.8	2.53	0.43	2.04	55.6	31.7	5.11	3.33	1.45	
1.40	70.7	8.4	2.69	0.68	1.92	29.3	50.2	7.06	5.33	1.21	
1.60	80.6	9.9	2.91	0.89	1.91	19.4	65.3	8.36	6.81	0.90	
CALC. WHOLE COAL	100.0	20.6	3.97	2.04	1.71						
ANAL. WHOLE COAL	100.0	20.9	3.90	1.97	1.84						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.33	8.6	3.3	2.40	0.17	2.16	91.4	34.8	3.86	2.29	1.42	
1.34	17.9	4.5	2.43	0.29	2.05	82.1	38.1	4.01	2.51	1.36	
1.35	23.3	4.7	2.54	0.27	2.18	76.7	40.4	4.09	2.67	1.27	
1.40	47.3	6.8	2.60	0.40	2.08	52.7	54.8	4.74	3.64	0.94	
1.60	67.5	10.5	2.93	0.67	2.06	32.5	77.0	5.39	5.10	0.28	
ANAL. WHOLE COAL	100.0	32.1	3.73	2.11	1.48						

COAL CODE 0694TOA22

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	25.8	3.8	0.96	0.28	0.62	74.2	20.4	1.51	0.98	0.54	
1.28	39.3	4.5	0.94	0.31	0.59	60.7	23.6	1.65	1.12	0.54	
1.29	56.8	4.7	1.04	0.31	0.48	43.2	31.1	1.80	1.44	0.67	
1.40	80.4	6.4	1.00	0.41	0.52	19.6	55.9	2.89	2.40	0.72	
1.60	87.6	7.4	1.06	0.43	0.61	12.4	77.6	3.56	3.41	0.21	
ANAL. WHOLE COAL	100.0	16.1	1.37	0.80	0.56						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	34.6	3.7	0.88	0.34	0.54	65.4	20.1	1.38	1.10	0.46	
1.28	49.8	3.9	0.88	0.34	0.54	50.2	24.9	1.53	1.33	0.43	
1.29	57.0	4.0	0.89	0.34	0.55	43.0	28.2	1.62	1.50	0.40	
1.40	82.6	5.9	0.99	0.43	0.55	17.4	54.9	2.26	2.76	0.21	
1.60	86.9	6.7	1.02	0.48	0.54	13.1	65.8	2.43	3.21	0.17	
CALC. WHOLE COAL	100.0	14.4	1.21	0.84	0.49						
ANAL. WHOLE COAL	100.0	15.1	1.40	0.85	0.53						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	17.6	3.1	0.90	0.18	0.64	82.4	23.6	1.94	1.28	0.62	
1.29	29.9	2.1	0.84	0.15	0.62	70.1	27.6	2.15	1.49	0.62	
1.34	64.6	3.9	0.94	0.23	0.61	35.4	49.4	3.26	2.66	0.64	
1.40	73.1	4.7	0.98	0.29	0.58	26.9	61.6	3.88	3.26	0.73	
1.60	80.3	6.6	1.07	0.43	0.52	19.7	74.6	4.57	3.78	1.03	
ANAL. WHOLE COAL	100.0	20.0	1.76	1.09	0.62						

COAL CODE 0639TOA23

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	12.2	5.2	2.35	0.24	2.07	87.8	21.6	5.35	3.08	2.21	
1.29	30.1	6.1	2.48	0.32	2.09	69.9	25.4	6.06	3.77	2.23	
1.30	41.0	6.6	2.51	0.41	2.02	59.0	28.6	6.70	4.34	2.31	
1.40	77.2	9.7	3.06	0.80	2.03	22.8	53.1	11.48	9.26	2.73	
1.60	82.2	11.8	3.45	1.15	1.99	17.8	55.6	12.05	10.03	3.11	
ANAL. WHOLE COAL	100.0	19.6	4.98	2.73	2.19						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	24.0	5.2	2.32	0.30	2.01	76.0	23.7	5.72	4.17	1.44	
1.29	31.4	5.7	2.37	0.35	2.01	68.6	25.4	6.06	4.56	1.38	
1.30	39.7	6.5	2.43	0.42	1.99	60.3	27.7	6.53	5.10	1.31	
1.40	76.2	9.5	2.92	1.00	1.89	23.8	50.3	11.25	10.43	0.58	
1.60	82.7	10.6	3.19	1.29	1.85	17.3	60.6	13.11	12.56	0.26	
CALC. WHOLE COAL	100.0	19.2	4.90	3.24	1.58						
ANAL. WHOLE COAL	100.0	20.1	5.33	2.98	2.27						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	13.3	2.6	2.18	0.17	2.00	86.7	26.2	4.74	2.75	1.90	
1.30	30.0	3.8	2.27	0.26	2.00	70.0	31.4	5.31	3.33	1.87	
1.35	55.8	5.7	2.40	0.43	1.95	44.2	45.1	6.92	4.91	1.86	
1.40	67.6	7.3	2.62	0.59	2.01	32.4	56.1	8.11	6.21	1.70	
1.60	77.3	9.4	2.89	0.88	1.96	22.7	69.8	9.54	7.62	1.74	
ANAL. WHOLE COAL	100.0	23.1	4.40	2.41	1.91						

COAL CODE 0699TOA24

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.275	18.5	3.1	3.02	0.32	2.66	81.5	16.7	5.50	3.39	2.06	
1.285	32.0	3.7	3.03	0.32	2.66	68.0	19.1	5.99	4.00	1.94	
1.31	47.1	4.9	3.05	0.38	2.62	52.9	22.5	6.81	4.99	1.77	
1.40	83.0	7.8	3.14	0.53	2.50	17.0	45.4	14.32	14.00	0.56	
1.60	91.0	9.2	3.26	0.85	2.17	9.0	64.8	23.04	22.74	2.17	
ANAL. WHOLE COAL	100.0	14.2	5.04	2.82	2.17						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.275	22.7	3.1	3.05	0.33	2.69	77.3	16.2	5.14	2.82	2.19	
1.285	32.7	3.6	3.08	0.39	2.66	67.3	17.9	5.43	3.17	2.13	
1.31	46.5	4.3	3.11	0.43	2.64	53.5	21.0	6.01	3.85	2.01	
1.40	81.5	7.6	3.16	0.61	2.48	18.5	37.9	11.30	9.51	1.52	
1.60	90.8	9.1	3.29	0.78	2.43	9.2	53.8	18.25	16.84	1.05	
CALC. WHOLE COAL	100.0	13.2	4.66	2.26	2.31						
ANAL. WHOLE COAL	100.0	13.7	5.17	2.83	2.30						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	13.7	2.5	2.60	0.24	2.33	86.3	17.7	4.93	2.87	1.97	
1.30	32.8	2.7	2.86	0.26	2.56	67.2	21.9	5.46	3.61	1.76	
1.35	61.7	3.8	2.96	0.43	2.48	38.3	34.6	7.27	5.86	1.28	
1.40	65.7	5.5	3.03	0.49	2.48	34.3	34.9	7.64	6.38	1.14	
1.60	83.6	8.1	3.10	0.72	2.28	16.4	53.8	12.31	11.63	0.69	
ANAL. WHOLE COAL	100.0	15.6	4.61	2.51	2.02						

COAL CODE 0834TOA25

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.255	27.4	3.1	1.37	0.71	0.62	72.6	26.0	3.08	2.16	0.83
1.265	35.8	3.7	1.41	0.84	0.54	64.2	28.6	3.28	2.27	0.90
1.28	45.0	3.8	1.61	0.90	0.65	55.0	32.7	3.43	2.46	0.87
1.40	77.5	6.6	2.38	1.34	0.89	22.5	64.8	3.40	3.21	0.36
1.60	80.6	7.9	2.51	1.75	0.65	19.4	68.7	3.03	1.80	1.27
ANAL. WHOLE COAL	100.0	19.7	2.61	1.76	0.77					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.255	37.1	2.6	1.35	0.55	0.76	62.9	24.2	3.61	2.79	0.73
1.265	46.0	2.7	1.41	0.58	0.75	54.0	27.6	3.93	3.13	0.73
1.28	56.5	3.0	1.52	0.67	0.81	43.5	33.2	4.40	3.63	0.65
1.40	79.4	4.9	2.09	1.19	0.85	20.6	59.7	5.38	4.94	0.30
1.60	84.0	5.9	2.26	1.34	0.85	16.0	69.8	5.47	5.18	0.15
CALC. WHOLE COAL	100.0	16.2	2.77	1.96	0.74					
ANAL. WHOLE COAL	100.0	15.8	2.73	1.82	0.84					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.28	17.1	1.8	1.20	0.27	0.85	82.9	31.8	3.52	2.34	0.99
1.30	27.2	2.3	1.23	0.37	0.76	72.8	35.8	3.83	2.60	1.05
1.35	42.4	3.7	1.52	0.60	0.80	57.6	43.6	4.30	3.01	1.10
1.40	58.7	4.5	1.62	0.69	0.79	41.3	58.3	5.25	3.84	1.23
1.60	70.8	7.1	1.98	1.01	0.82	29.2	74.2	5.88	4.37	1.33
ANAL. WHOLE COAL	100.0	26.7	3.12	1.99	0.97					

COAL CODE 0670QQA26

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.245	24.6	4.4	2.97	0.67	2.25	75.4	18.1	6.09	3.59	2.37
1.26	35.8	5.2	3.04	0.63	2.32	64.2	20.0	6.59	4.12	2.35
1.28	58.3	5.6	3.14	0.61	2.46	41.7	27.4	8.37	6.03	2.17
1.40	85.5	7.9	3.34	0.81	2.47	14.5	54.8	17.00	15.02	1.57
1.60	90.3	8.7	3.60	1.28	2.20	9.7	70.6	21.33	17.67	3.64
ANAL. WHOLE COAL	100.0	14.7	5.32	2.87	2.34					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.245	15.9	4.4	3.00	0.51	2.43	84.1	13.5	4.93	2.32	2.44
1.26	23.6	4.4	3.04	0.52	2.45	76.4	14.4	5.11	2.50	2.43
1.28	40.5	4.8	3.06	0.54	2.45	59.5	17.0	5.68	3.05	2.42
1.40	88.7	7.7	3.28	0.67	2.49	11.3	46.3	15.12	12.68	2.02
1.60	92.8	8.3	3.36	0.76	2.48	7.2	59.4	20.84	18.47	1.89
CALC. WHOLE COAL	100.0	12.0	4.62	2.03	2.43					
ANAL. WHOLE COAL	100.0	11.7	5.12	2.61	2.40					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	13.9	2.4	3.00	0.41	2.37	86.1	16.8	5.80	2.58	2.60
1.32	21.3	2.4	2.96	0.31	2.41	78.7	18.2	6.07	2.81	2.61
1.35	61.9	3.9	3.21	0.42	2.49	38.1	32.5	8.98	5.30	2.70
1.40	75.8	5.2	3.25	0.49	2.43	24.2	44.9	12.18	7.89	3.01
1.60	85.8	7.0	3.35	0.71	2.27	14.2	61.9	17.86	11.77	4.38
ANAL. WHOLE COAL	100.0	14.8	5.41	2.28	2.57					

COAL CODE 0697QQA27

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.286	20.6	4.6	2.30	0.38	1.90	79.4	15.3	4.92	3.18	1.60	
1.30	28.8	4.9	2.32	0.42	1.89	71.2	16.4	5.21	3.48	1.57	
1.34	53.5	5.9	2.63	0.66	1.97	46.5	21.4	6.39	4.83	1.30	
1.40	73.9	7.3	3.03	1.17	1.83	26.1	29.5	8.20	6.65	1.18	
1.60	89.0	9.1	3.71	1.93	1.73	11.0	45.5	9.80	8.02	1.09	
ANAL. WHOLE COAL	100.0	13.1	4.38	2.60	1.66						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.286	21.5	3.8	2.57	0.29	2.27	78.5	14.1	4.95	3.05	1.82	
1.30	35.1	4.4	2.69	0.34	2.34	64.9	16.0	5.38	3.60	1.69	
1.34	63.3	5.3	2.71	0.55	2.14	36.7	23.3	7.42	5.75	1.53	
1.40	79.5	6.3	2.99	0.86	2.10	20.5	33.6	10.04	8.66	1.19	
1.60	90.2	7.8	3.49	1.37	2.08	9.8	49.6	13.14	12.46	0.45	
CALC. WHOLE COAL	100.0	11.9	4.44	2.46	1.92						
ANAL. WHOLE COAL	100.0	12.0	4.55	2.64	1.80						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	15.0	1.4	2.04	0.18	1.85	85.0	21.0	4.85	3.22	1.53	
1.30	39.4	2.5	2.15	0.22	1.91	60.6	28.2	5.91	4.41	1.37	
1.35	53.3	3.7	2.28	0.35	1.90	46.7	34.5	6.88	5.51	1.21	
1.40	67.0	4.9	2.48	0.56	1.88	33.0	44.9	8.39	7.23	0.97	
1.60	82.7	6.9	2.94	0.93	1.91	17.3	71.6	11.55	11.51	0.00	
ANAL. WHOLE COAL	100.0	18.1	4.43	2.76	1.58						

COAL CODE 0697QQA28

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.31	15.5	7.4	2.36	0.75	1.56	84.5	21.2	5.58	3.77	1.75	
1.33	34.5	7.9	2.50	0.84	1.65	65.5	25.0	6.44	4.60	1.76	
1.35	47.9	8.5	2.64	1.03	1.59	52.1	28.8	7.32	5.39	1.84	
1.40	69.2	10.3	2.82	1.29	1.48	30.8	38.9	10.16	7.82	2.26	
1.60	83.3	12.1	3.28	1.79	1.43	16.7	54.0	14.06	10.83	3.17	
ANAL. WHOLE COAL	100.0	19.1	5.08	3.30	1.72						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.31	24.2	6.9	2.42	0.72	1.67	75.8	19.6	5.71	4.29	1.31	
1.33	34.9	7.5	2.50	0.78	1.68	65.1	21.4	6.20	4.84	1.25	
1.35	56.8	8.5	2.66	0.93	1.69	43.2	27.1	7.87	6.70	1.02	
1.40	72.9	9.4	2.83	1.09	1.70	27.1	35.7	10.50	9.70	0.59	
1.60	84.2	10.8	3.20	1.50	1.65	15.8	46.8	14.01	13.69	0.06	
CALC. WHOLE COAL	100.0	16.5	4.91	3.42	1.40						
ANAL. WHOLE COAL	100.0	17.5	5.25	3.45	1.74						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	15.1	3.3	1.85	0.48	1.35	84.9	25.2	5.01	3.30	1.59	
1.30	30.2	4.1	1.97	0.48	1.46	69.8	29.6	5.64	3.90	1.59	
1.35	55.8	6.1	2.41	0.76	1.62	44.2	41.8	7.21	5.53	1.46	
1.40	65.4	7.2	2.45	0.88	1.53	34.6	49.7	8.46	6.63	1.59	
1.60	76.4	9.1	2.91	1.28	1.57	23.6	63.3	9.77	8.02	1.49	
ANAL. WHOLE COAL	100.0	21.9	4.53	2.87	1.55						

COAL CODE 0697QOA29

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	12.8	5.0	3.08	1.14	1.92	87.2	21.9	5.66	3.72	1.77
1.32	36.3	6.5	3.42	1.44	1.92	63.7	27.2	6.42	4.50	1.72
1.325	57.0	7.5	3.78	1.73	1.99	43.0	35.9	7.38	5.59	1.52
1.40	74.5	9.1	4.05	2.06	1.80	25.5	50.7	9.07	7.28	1.76
1.60	82.0	10.1	4.37	2.41	1.88	18.0	63.4	9.70	7.85	1.38
ANAL. WHOLE COAL	100.0	19.7	5.33	3.39	1.79					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	20.7	4.5	2.94	1.11	1.81	79.3	17.6	5.25	3.50	1.68
1.32	34.0	5.3	3.11	1.26	1.83	66.0	19.8	5.62	3.91	1.65
1.355	64.2	6.6	3.42	1.52	1.88	35.8	29.7	7.19	5.68	1.41
1.40	79.7	7.6	3.65	1.72	1.90	20.3	43.4	9.17	8.07	0.96
1.60	88.0	8.8	3.91	1.96	1.91	12.0	59.1	11.08	10.67	0.22
CALC. WHOLE COAL	100.0	14.9	4.77	3.01	1.71					
ANAL. WHOLE COAL	100.0	14.7	4.84	3.00	1.74					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.28	19.1	2.2	2.35	0.57	1.76	80.9	24.7	5.51	3.71	1.61
1.30	40.2	3.9	2.80	0.93	1.83	59.8	31.5	6.33	4.58	1.51
1.35	58.3	4.4	2.99	1.08	1.86	41.7	42.8	7.59	5.95	1.33
1.40	69.1	5.9	3.28	1.35	1.87	30.9	52.8	8.56	7.05	1.13
1.60	77.4	6.9	3.53	1.83	1.61	22.6	66.6	9.64	7.49	1.74
ANAL. WHOLE COAL	100.0	20.4	4.91	3.11	1.64					

COAL CODE 0883TOA30

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.295	23.3	5.4	2.13	0.29	1.83	76.7	27.7	5.04	3.71	1.24
1.32	39.2	6.1	2.18	0.36	1.81	60.8	33.1	5.77	4.55	1.10
1.34	46.6	7.4	2.23	0.55	1.67	53.4	35.7	6.22	4.97	1.13
1.40	62.9	8.9	2.41	0.70	1.70	37.1	45.6	7.67	6.66	0.84
1.60	77.9	10.8	2.92	1.23	1.68	22.1	63.7	9.44	8.83	0.32
ANAL. WHOLE COAL	100.0	22.5	4.36	2.91	1.38					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.295	18.5	3.9	2.08	0.22	1.85	81.5	26.6	4.48	3.03	1.37
1.32	28.3	4.7	2.14	0.29	1.84	71.7	29.4	4.79	3.39	1.31
1.34	45.9	5.7	2.21	0.43	1.77	54.1	36.5	5.59	4.28	1.19
1.40	69.7	8.0	2.37	0.59	1.76	30.3	55.4	7.87	6.92	0.76
1.60	79.5	9.8	2.61	0.85	1.73	20.5	71.4	9.57	8.93	0.39
CALC. WHOLE COAL	100.0	22.4	4.04	2.51	1.46					
ANAL. WHOLE COAL	100.0	23.5	3.81	2.28	1.50					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	29.8	2.8	2.06	0.19	1.84	70.2	29.9	5.19	3.72	1.41
1.32	38.1	3.7	2.14	0.25	1.87	61.9	32.9	5.56	4.16	1.34
1.35	50.2	5.0	2.16	0.36	1.78	49.8	38.7	6.38	5.00	1.30
1.40	61.7	6.7	2.25	0.49	1.73	38.3	46.1	7.50	6.18	1.23
1.60	77.0	9.8	2.45	0.86	1.54	23.0	62.0	10.32	8.73	1.54
ANAL. WHOLE COAL	100.0	21.8	4.26	2.67	1.54					

COAL CODE 0884QQA31

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	11.9	3.5	2.25	0.39	1.85	88.1	17.8	4.55	3.02	1.43	
1.28	31.1	3.5	2.24	0.37	1.86	68.9	21.8	5.20	3.77	1.31	
1.30	51.2	4.1	2.35	0.51	1.83	48.8	28.7	6.30	5.02	1.11	
1.40	80.8	6.4	2.55	0.70	1.64	19.2	56.9	11.56	11.17	0.81	
1.60	83.4	7.7	2.63	0.94	1.69	16.6	58.3	12.57	11.60	0.42	
ANAL. WHOLE COAL	100.0	16.1	4.28	2.71	1.48						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	11.9	3.1	2.19	0.37	1.82	88.1	16.1	4.19	2.54	1.55	
1.28	31.0	3.3	2.25	0.43	1.82	69.0	19.5	4.72	3.12	1.48	
1.30	54.8	3.9	2.28	0.47	1.80	45.2	27.3	5.98	4.49	1.32	
1.40	82.0	5.8	2.46	0.66	1.78	18.0	54.3	10.75	9.67	0.69	
1.60	87.4	6.8	2.62	0.83	1.77	12.6	68.1	13.23	12.39	0.34	
CALC. WHOLE COAL	100.0	14.5	3.95	2.28	1.59						
ANAL. WHOLE COAL	100.0	16.1	3.82	2.24	1.53						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	20.8	1.9	1.97	0.20	1.74	79.2	27.9	4.65	3.22	1.30	
1.30	41.3	2.6	2.02	0.28	1.70	58.7	36.5	5.55	4.22	1.17	
1.35	59.2	3.9	2.15	0.44	1.66	40.8	49.5	6.90	5.71	1.00	
1.40	66.3	4.8	2.20	0.52	1.63	33.7	57.3	7.81	6.66	0.92	
1.60	73.9	6.7	2.30	0.68	1.55	26.1	67.2	9.16	8.00	0.94	
ANAL. WHOLE COAL	100.0	22.5	4.09	2.59	1.39						

COAL CODE 0843TOA32

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	15.8	4.1	3.88	0.46	3.41	84.2	19.4	5.66	2.94	2.67	
1.29	31.7	4.5	3.98	0.49	3.49	68.3	22.8	6.03	3.51	2.47	
1.32	53.7	6.0	4.02	0.58	3.43	46.3	29.8	6.96	4.83	2.05	
1.40	89.9	8.8	4.21	0.91	3.26	10.1	90.0	15.79	17.15	-1.39	
1.60	91.5	10.1	4.45	1.35	3.05	8.5	91.3	15.39	15.47	-0.01	
ANAL. WHOLE COAL	100.0	17.0	5.38	2.55	2.79						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.27	11.8	3.0	3.98	0.31	3.65	88.2	18.7	6.08	3.25	2.70	
1.29	26.1	3.7	3.84	0.39	3.43	73.9	21.5	6.53	3.79	2.59	
1.32	51.1	5.6	3.89	0.54	3.31	48.9	28.6	7.86	5.37	2.29	
1.40	81.3	8.5	4.15	0.95	3.14	18.7	53.1	13.12	11.39	1.40	
1.60	87.7	9.6	4.37	1.20	3.08	12.3	68.2	16.22	15.02	0.88	
CALC. WHOLE COAL	100.0	16.8	5.83	2.90	2.81						
ANAL. WHOLE COAL	100.0	16.8	5.64	2.70	2.89						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.30	26.1	2.3	3.77	0.28	3.40	73.9	28.4	5.60	2.95	2.62	
1.32	40.9	3.1	3.81	0.36	3.35	59.1	34.4	6.03	3.56	2.45	
1.35	58.2	4.7	3.85	0.48	3.25	41.8	45.1	6.89	4.71	2.22	
1.40	70.6	6.1	3.87	0.53	3.20	29.4	58.8	8.12	6.38	1.91	
1.60	83.0	8.5	3.98	0.79	3.02	17.0	85.6	10.69	9.38	1.84	
ANAL. WHOLE COAL	100.0	21.6	5.12	2.25	2.82						

COAL CODE 0857T0A33

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	17.1	5.1	2.89	0.60	2.28	82.9	22.3	4.86	2.76	2.00
1.32	31.3	5.7	2.97	0.65	2.32	68.7	25.6	5.23	3.18	1.93
1.34	52.9	7.2	3.03	0.63	2.39	47.1	33.1	6.19	4.37	1.67
1.40	76.0	9.5	3.27	0.85	2.42	24.0	50.7	8.48	7.27	0.88
1.60	88.9	10.8	3.47	1.18	2.28	11.1	88.3	12.93	12.08	0.21
ANAL. WHOLE COAL	100.0	19.4	4.52	2.39	2.05					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.29	16.8	3.5	2.86	0.41	2.43	83.2	19.5	5.25	3.07	2.07
1.32	36.9	5.0	2.94	0.49	2.44	63.1	23.7	5.96	3.88	1.96
1.34	58.3	6.6	3.08	0.65	2.40	41.7	31.2	7.33	5.38	1.76
1.40	77.4	9.0	3.28	0.91	2.34	22.6	43.5	10.21	8.48	1.44
1.60	88.3	10.9	3.52	1.22	2.25	11.7	61.8	14.88	13.25	1.25
CALC. WHOLE COAL	100.0	16.8	4.85	2.62	2.13					
ANAL. WHOLE COAL	100.0	16.9	5.21	2.84	2.26					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	9.1	2.4	2.69	0.26	2.36	90.9	32.9	3.75	2.05	1.59
1.32	21.0	3.6	2.80	0.32	2.41	79.0	37.1	3.88	2.31	1.46
1.35	33.3	5.1	2.82	0.40	2.34	66.7	42.6	4.06	2.63	1.32
1.40	47.2	7.4	2.92	0.51	2.30	52.8	50.4	4.30	3.12	1.09
1.60	68.4	12.8	2.90	0.75	2.00	31.6	67.5	5.27	4.36	0.92
ANAL. WHOLE COAL	100.0	30.1	3.65	1.89	1.66					

COAL CODE 0684Q0A34

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.28	17.1	4.0	2.98	0.29	2.62	82.9	17.0	5.26	2.62	2.60
1.31	41.1	5.3	3.19	0.53	2.53	58.9	21.4	6.04	3.40	2.65
1.34	58.3	6.4	3.21	0.56	2.51	41.7	26.5	7.19	4.54	2.73
1.40	80.2	7.7	3.96	1.17	2.52	19.8	43.6	8.56	6.47	2.92
1.60	91.8	9.1	4.48	1.61	2.53	8.2	78.6	9.24	9.05	3.38
ANAL. WHOLE COAL	100.0	14.8	4.87	2.22	2.60					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.28	11.8	3.2	3.03	0.30	2.73	88.2	12.4	4.89	2.50	2.36
1.31	37.7	4.4	3.15	0.48	2.68	62.3	15.5	5.59	3.30	2.24
1.34	65.0	5.4	3.29	0.64	2.64	35.0	22.4	7.25	5.20	1.95
1.40	85.4	7.1	3.68	1.08	2.59	14.6	36.4	10.50	9.00	1.29
1.60	93.8	8.3	4.12	1.58	2.53	6.2	57.9	13.01	12.26	0.52
CALC. WHOLE COAL	100.0	11.4	4.67	2.24	2.40					
ANAL. WHOLE COAL	100.0	11.4	4.85	2.23	2.57					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	19.6	2.2	2.62	0.27	2.31	80.4	22.8	4.81	2.58	2.12
1.32	34.2	3.1	2.78	0.35	2.37	65.8	27.0	5.21	3.06	2.05
1.35	49.0	4.1	3.17	0.55	2.54	51.0	32.9	5.54	3.65	1.79
1.40	68.4	6.0	3.24	0.71	2.42	31.6	46.5	6.85	5.20	1.60
1.60	85.6	8.6	3.61	0.99	2.45	14.4	79.4	8.96	8.91	0.44
ANAL. WHOLE COAL	100.0	18.8	4.38	2.13	2.16					

COAL CODE 0873QQA35

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.285	20.5	3.9	2.62	0.42	2.20	79.5	26.3	5.34	3.24	1.89	
1.31	44.3	4.8	2.71	0.57	2.14	55.7	35.1	6.43	4.32	1.80	
1.34	57.0	6.0	2.77	0.63	2.14	43.0	42.5	7.44	5.35	1.70	
1.40	73.6	8.0	2.85	0.80	2.05	26.4	59.9	10.16	7.85	1.67	
1.60	82.2	9.0	2.97	0.96	2.01	17.8	80.3	13.14	10.51	1.67	
ANAL. WHOLE COAL	100.0	21.7	4.78	2.66	1.95						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.285	25.6	4.0	2.55	0.42	2.12	74.4	22.2	5.18	3.53	1.56	
1.31	36.7	4.6	2.59	0.46	2.11	63.3	25.1	5.63	4.05	1.46	
1.34	54.0	5.5	2.61	0.51	2.08	46.0	31.8	6.74	5.34	1.26	
1.40	75.7	7.3	2.68	0.65	2.02	24.3	49.6	10.21	9.23	0.72	
1.60	84.7	9.0	2.84	0.85	1.97	15.3	65.2	13.75	13.19	0.20	
CALC. WHOLE COAL	100.0	17.6	4.51	2.73	1.70						
ANAL. WHOLE COAL	100.0	18.7	5.19	2.95	2.12						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	21.9	2.1	2.39	0.28	2.09	78.1	33.1	4.36	2.64	1.62	
1.30	38.1	2.7	2.44	0.31	2.10	61.9	40.8	4.85	3.23	1.49	
1.35	54.3	4.1	2.54	0.42	2.08	45.7	52.7	5.58	4.14	1.29	
1.40	62.2	5.1	2.62	0.47	2.11	37.8	61.2	6.09	4.84	1.08	
1.60	71.0	7.6	2.77	0.72	1.99	29.0	72.1	6.77	5.55	1.06	
ANAL. WHOLE COAL	100.0	26.3	3.93	2.12	1.72						

COAL CODE 0873QQA36

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.30	21.6	4.4	2.78	0.07	2.71	78.4	17.3	6.07	3.67	2.14	
1.31	35.0	5.5	2.84	0.45	2.37	65.0	19.3	6.72	4.20	2.20	
1.33	52.3	6.5	2.93	0.59	2.34	47.7	23.3	8.02	5.41	2.17	
1.40	80.5	8.6	3.29	0.81	2.43	19.5	38.9	13.91	11.48	1.56	
1.60	92.2	9.7	3.83	1.70	2.04	7.8	71.2	23.45	16.96	4.86	
ANAL. WHOLE COAL	100.0	14.5	5.36	2.89	2.26						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.30	41.4	5.3	2.94	0.47	2.42	58.6	17.7	6.47	3.99	2.22	
1.31	46.1	5.5	2.96	0.50	2.41	53.9	18.5	6.75	4.28	2.21	
1.33	51.9	5.8	3.00	0.53	2.41	48.1	19.8	7.17	4.69	2.19	
1.40	78.2	7.6	3.30	0.81	2.41	21.8	30.1	11.14	8.74	1.94	
1.60	91.8	9.2	3.83	1.33	2.38	8.2	49.9	18.13	16.06	1.42	
CALC. WHOLE COAL	100.0	12.5	5.01	2.54	2.30						
ANAL. WHOLE COAL	100.0	13.6	5.05	2.52	2.37						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					CUM.WT	ASH	SINK FRACTION		
		ASH	TOT.SUL	PY.SUL	OR.SUL	TOT.SUL			PY.SUL	OR.SUL	
1.28	16.1	3.1	2.72	0.32	2.34	83.9	22.3	5.39	3.05	2.09	
1.30	32.6	3.8	2.80	0.47	2.26	67.4	26.6	6.00	3.65	2.07	
1.35	63.7	5.7	3.00	0.52	2.38	36.3	42.9	8.40	6.28	1.69	
1.40	75.5	6.7	3.15	0.66	2.37	24.5	57.7	10.54	8.62	1.39	
1.60	86.3	8.7	3.49	1.01	2.31	13.7	85.3	14.22	12.69	1.00	
ANAL. WHOLE COAL	100.0	19.2	4.96	2.61	2.13						

COAL CODE 0836TOA37

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.23	26.7	4.2	2.23	1.00	1.03	73.3	18.9	7.63	5.72	1.62
1.245	44.6	4.0	2.24	0.83	1.16	55.4	23.9	9.37	7.38	1.70
1.26	51.8	4.1	2.18	0.84	1.09	48.2	26.7	10.50	8.35	1.86
1.40	80.8	5.1	2.88	1.27	1.20	19.2	56.7	20.12	17.88	2.55
1.60	85.3	6.1	3.10	1.39	1.24	14.7	66.6	24.12	22.27	2.74
ANAL. WHOLE COAL	100.0	15.0	6.19	4.46	1.46					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.23	4.1	3.7	1.99	0.79	1.05	95.9	16.1	5.84	4.55	0.97
1.245	20.3	3.5	2.04	0.78	1.10	79.7	18.6	6.61	5.31	0.94
1.26	33.6	3.5	2.07	0.83	1.08	66.4	21.6	7.51	6.20	0.92
1.40	80.8	5.0	2.82	1.47	1.10	19.2	59.8	17.70	16.71	0.44
1.60	84.1	5.6	3.06	1.67	1.12	15.9	68.2	19.54	18.82	0.20
CALC. WHOLE COAL	100.0	15.5	5.68	4.39	0.98					
ANAL. WHOLE COAL	100.0	17.9	6.99	5.25	1.46					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.30	23.7	3.2	1.98	0.41	1.19	76.3	33.2	6.11	3.92	1.36
1.32	38.2	4.0	2.19	0.53	1.20	61.8	39.8	6.95	4.67	1.39
1.35	51.3	4.4	2.28	0.62	1.18	48.7	49.0	8.13	5.69	1.47
1.40	59.6	5.4	2.39	0.66	1.18	40.4	56.6	9.17	6.67	1.53
1.60	71.8	7.9	2.62	0.89	1.10	28.2	72.4	11.52	8.69	1.88
ANAL. WHOLE COAL	100.0	26.1	5.13	3.09	1.32					

COAL CODE 0831TOA38

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.24	13.9	3.1	2.79	0.68	2.11	86.1	14.1	6.43	3.77	2.56
1.26	33.2	3.3	2.78	0.62	2.16	66.8	17.2	7.48	4.69	2.67
1.27	47.9	3.4	2.87	0.78	2.09	52.1	21.1	8.72	5.69	2.88
1.40	85.7	5.6	3.76	1.64	2.12	14.3	54.6	18.86	13.53	4.78
1.60	92.0	7.5	4.20	2.30	1.87	8.0	71.3	25.70	15.30	9.75
ANAL. WHOLE COAL	100.0	12.6	5.92	3.34	2.50					

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.24	14.8	2.9	2.62	0.47	2.13	85.2	12.6	6.16	3.86	2.19
1.26	32.1	3.2	2.67	0.49	2.16	67.9	14.9	7.03	4.71	2.19
1.27	42.1	3.5	2.77	0.56	2.18	57.9	16.7	7.71	5.39	2.19
1.40	84.8	5.9	3.67	1.32	2.29	15.2	40.5	16.57	14.72	1.61
1.60	90.9	6.9	4.12	1.80	2.25	9.1	53.7	20.75	18.96	1.53
CALC. WHOLE COAL	100.0	11.1	5.63	3.36	2.18					
ANAL. WHOLE COAL	100.0	11.7	5.82	3.50	2.25					

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION				SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL
1.26	20.2	1.8	2.35	0.26	2.06	79.8	20.0	6.61	4.41	2.11
1.28	48.9	2.8	2.52	0.39	2.09	51.1	29.2	8.84	6.61	2.11
1.30	61.7	3.4	2.78	0.50	2.23	38.3	37.1	10.53	8.52	1.89
1.40	78.5	4.5	3.20	0.93	2.20	21.5	59.4	15.06	13.21	1.73
1.60	83.3	5.7	3.71	1.37	2.27	16.7	69.2	15.93	14.54	1.25
ANAL. WHOLE COAL	100.0	16.3	5.75	3.57	2.10					

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COAL CODE 0765TOA39

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.29	20.4	4.1	3.35	0.45	2.89	79.6	16.4	5.27	2.74	2.51	
1.31	37.2	5.3	3.44	0.55	2.89	62.8	19.0	5.73	3.29	2.41	
1.325	52.2	6.1	3.43	0.61	2.79	47.8	22.4	6.46	4.08	2.37	
1.40	78.1	8.3	3.63	0.91	2.72	21.9	33.9	9.34	7.12	2.13	
1.60	87.7	9.7	3.75	1.23	2.51	12.3	43.8	12.94	9.69	3.16	
ANAL. WHOLE COAL	100.0	13.9	4.88	2.27	2.59						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.29	33.1	4.1	3.37	0.46	2.90	66.9	19.3	5.77	3.50	2.22	
1.31	42.9	4.7	3.39	0.50	2.88	57.1	21.5	6.16	3.99	2.12	
1.325	53.5	5.2	3.43	0.55	2.87	46.5	24.7	6.75	4.73	1.97	
1.40	76.5	7.3	3.56	0.81	2.74	23.5	37.1	9.56	7.98	1.50	
1.60	89.1	9.1	3.82	1.14	2.66	10.9	56.4	14.41	13.57	0.71	
CALC. WHOLE COAL	100.0	14.3	4.97	2.50	2.45						
ANAL. WHOLE COAL	100.0	15.9	5.69	3.03	2.64						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	13.7	1.6	3.03	0.24	2.76	86.3	22.3	4.73	2.59	2.18	
1.30	30.4	2.8	3.19	0.36	2.82	69.6	26.8	5.13	3.09	2.02	
1.35	58.9	5.2	3.30	0.54	2.75	41.1	40.0	6.32	4.72	1.56	
1.40	70.3	5.8	3.27	0.65	2.61	29.7	51.9	7.55	6.07	1.43	
1.60	81.0	8.1	3.37	0.90	2.45	19.0	68.1	9.53	8.06	1.45	
ANAL. WHOLE COAL	100.0	19.5	4.54	2.26	2.26						

COAL CODE 0885TOA40

SIZE 1 1/2X0

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.285	14.6	3.0	1.10	0.35	0.75	85.4	28.3	1.85	1.29	0.53	
1.305	35.9	4.0	1.28	0.51	0.77	64.1	36.1	2.00	1.51	0.44	
1.32	49.3	4.7	1.27	0.53	0.73	50.7	44.0	2.20	1.75	0.39	
1.40	71.8	6.7	1.43	0.64	0.79	28.2	70.2	2.53	2.45	-0.03	
1.60	78.2	8.1	1.54	0.77	0.77	21.8	83.8	2.46	2.51	-0.19	
ANAL. WHOLE COAL	100.0	24.6	1.74	1.15	0.56						

SIZE 3 /8X14

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.285	12.2	2.9	1.11	0.39	0.72	87.8	27.4	1.59	1.08	0.50	
1.305	31.6	3.4	1.20	0.49	0.71	68.4	34.2	1.69	1.23	0.44	
1.32	42.7	4.2	1.25	0.55	0.70	57.3	39.6	1.75	1.34	0.40	
1.40	62.6	6.1	1.38	0.69	0.69	37.4	55.2	1.80	1.52	0.26	
1.60	76.0	7.8	1.45	0.78	0.67	24.0	77.3	1.80	1.70	0.07	
CALC. WHOLE COAL	100.0	24.4	1.54	1.00	0.53						
ANAL. WHOLE COAL	100.0	24.0	1.51	0.91	0.58						

SIZE 1 4X100

SP.GRAV	CUM.WT	FLOAT FRACTION					SINK FRACTION				
		ASH	TOT.SUL	PY.SUL	OR.SUL	CUM.WT	ASH	TOT.SUL	PY.SUL	OR.SUL	
1.28	47.3	2.9	1.11	0.39	0.71	52.7	46.0	2.61	2.12	0.46	
1.30	58.3	3.5	1.16	0.44	0.71	41.7	56.5	2.93	2.50	0.40	
1.35	67.1	4.5	1.21	0.52	0.68	32.9	68.6	3.31	2.89	0.38	
1.40	71.8	5.4	1.29	0.57	0.71	28.2	77.0	3.45	3.16	0.25	
1.60	78.3	7.0	1.35	0.63	0.71	21.7	92.7	3.88	3.72	0.11	
ANAL. WHOLE COAL	100.0	25.6	1.90	1.30	0.58						

TABLE 2

EFFECT OF SIZE ON THE IMPURITIES CONTENT IN THE COAL
THE FOLLOWING ANALYSIS IS FOR 1.60 FLOAT FRACTION ONLY

SIZE A = 1 1/2 X 0

SIZE B = 3 /8 X 14

SIZE C = 14 X 100

SAMPLE	ASH						TOTAL SULFUR						PYRITIC SULFUR											
	SIZE A	SIZE B	SIZE C	(A-B)	(A-C)	(B-C)	SIZE A	SIZE B	SIZE C	(A-B)	(A-C)	(B-C)	SIZE A	SIZE B	SIZE C	(A-B)	(A-C)	(B-C)						
01	9.5	8.9	8.0	0.6	1.5	0.9	3.97	3.89	3.60	0.08	0.37	0.29	1.26	1.19	0.71	0.07	0.55	0.48						
02	7.3	6.1	5.9	1.2	1.4	0.2	2.02	1.88	1.87	0.14	0.15	0.01	0.96	0.75	0.46	0.21	0.50	0.29						
03	8.0	7.6	6.6	0.4	1.4	1.0	0.92	1.13	1.17	-0.21	-0.25	-0.04	0.54	0.56	0.36	-0.02	0.18	0.20						
04	7.5	7.7	6.9	-0.1	0.6	0.8	2.16	1.88	1.92	0.28	0.24	-0.04	1.35	1.21	0.72	0.13	0.63	0.49						
05	7.4	7.6	6.3	-0.2	1.1	1.3	1.14	0.93	1.00	0.21	0.14	-0.07	0.48	0.42	0.37	0.06	0.11	0.05						
06	6.7	5.3	5.9	1.4	0.8	-0.6	3.11	2.90	3.00	0.21	0.11	-0.10	1.19	1.13	0.74	0.06	0.45	0.39						
07	7.0	7.5	8.3	-0.5	-1.3	-0.8	3.01	3.21	2.78	-0.20	0.23	0.43	1.54	1.93	1.11	-0.39	0.43	0.82						
08	8.2	7.4	7.1	0.8	1.1	0.3	2.57	2.48	2.31	0.09	0.26	0.17	1.03	0.96	0.72	0.07	0.31	0.24						
09	9.1	8.7	6.9	0.4	2.2	1.8	3.21	2.92	2.62	0.29	0.59	0.30	1.33	1.03	0.74	0.30	0.59	0.29						
10	10.5	9.9	10.3	0.6	0.2	-0.4	3.35	3.23	3.26	0.12	0.09	-0.03	1.58	1.48	1.42	0.10	0.16	0.06						
11	12.7	9.8	11.3	2.9	1.4	-1.5	3.43	3.09	3.05	0.34	0.38	0.04	1.25	1.11	0.92	0.14	0.33	0.19						
12	8.0	7.2	6.6	0.8	1.4	0.6	1.30	1.09	1.16	0.21	0.14	-0.07	0.67	0.55	0.48	0.12	0.19	0.07						
13	9.5	9.0	9.1	0.5	0.4	-0.1	3.94	3.81	3.63	0.13	0.31	0.18	1.35	1.40	1.17	-0.05	0.18	0.23						
14	8.9	8.7	8.1	0.2	0.8	0.6	3.03	3.00	2.81	0.03	0.22	0.19	0.95	1.02	0.99	-0.07	-0.04	0.03						
15	10.1	8.4	7.1	1.7	3.0	1.3	3.62	3.54	3.34	0.08	0.28	0.20	1.64	1.47	0.96	0.17	0.68	0.51						
16	10.2	9.8	9.1	0.4	1.1	0.7	3.00	2.95	2.80	0.05	0.20	0.15	1.14	1.12	0.79	0.02	0.35	0.33						
17	10.0	9.9	10.0	0.1	0.0	-0.1	2.70	2.76	2.31	-0.06	0.39	0.45	1.54	1.18	1.34	0.36	0.20	-0.16						
18	8.3	8.0	7.2	0.3	1.1	0.8	1.46	1.37	1.28	0.09	0.18	0.09	0.52	0.43	0.72	0.09	-0.20	-0.29						
19	8.3	8.9	7.2	-0.6	1.1	1.7	2.77	2.71	2.51	0.06	0.26	0.20	0.73	0.50	0.66	0.23	0.07	-0.16						
20	7.6	7.8	8.5	-0.2	-0.9	-0.7	3.28	2.86	2.84	0.42	0.44	0.02	1.21	1.04	0.83	0.17	0.38	0.21						
21	10.6	9.9	10.5	0.7	0.1	-0.6	3.22	2.91	2.93	0.31	0.29	-0.02	1.02	0.89	0.67	0.13	0.35	0.22						
22	7.4	6.7	6.6	0.7	0.8	0.1	1.06	1.02	1.07	0.04	-0.01	-0.05	0.43	0.48	0.43	-0.05	0.00	0.05						
23	11.8	10.6	9.4	1.2	2.4	1.2	3.45	3.19	2.89	0.26	0.56	0.30	1.15	1.29	0.88	-0.14	0.27	0.41						
24	9.2	9.1	8.1	0.1	1.1	1.0	3.26	3.29	3.10	-0.03	0.16	0.19	0.85	0.78	0.72	0.07	0.13	0.06						
25	7.9	5.9	7.1	2.0	0.8	-1.2	2.51	2.26	1.98	0.25	0.53	0.28	1.75	1.34	1.01	0.41	0.74	0.33						
26	8.7	8.3	7.0	0.4	1.7	1.3	3.60	3.36	3.35	0.24	0.25	0.01	1.28	0.76	0.71	0.52	0.57	0.05						
27	9.1	7.8	6.9	1.3	2.2	0.9	3.71	3.49	2.94	0.22	0.77	0.55	1.93	1.37	0.93	0.56	1.00	0.44						
28	12.1	10.8	9.1	1.3	3.0	1.7	3.28	3.20	2.91	0.08	0.37	0.29	1.79	1.50	1.28	0.29	0.51	0.22						
29	10.1	8.8	6.9	1.3	3.2	1.9	4.37	3.91	3.53	0.46	0.84	0.38	2.41	1.96	1.83	0.45	0.58	0.13						
30	10.8	9.8	9.8	1.0	1.0	-0.0	2.92	2.61	2.45	0.31	0.47	0.16	1.23	0.85	0.86	0.38	0.37	-0.01						
31	7.7	6.8	6.7	0.9	1.0	0.1	2.63	2.62	2.30	0.01	0.33	0.32	0.94	0.83	0.68	0.11	0.26	0.15						
32	10.1	9.6	8.5	0.5	1.6	1.1	4.45	4.37	3.98	0.08	0.47	0.39	1.35	1.20	0.79	0.15	0.56	0.41						
33	10.8	10.9	12.8	-0.1	-2.0	-1.9	3.47	3.52	2.90	-0.05	0.57	0.62	1.18	1.22	0.75	-0.04	0.43	0.47						
34	9.1	8.3	8.6	0.8	0.5	-0.3	4.48	4.12	3.61	0.36	0.87	0.51	1.61	1.58	0.99	0.03	0.62	0.59						
35	9.0	9.0	7.6	0.0	1.4	1.4	2.97	2.84	2.77	0.13	0.20	0.07	0.96	0.85	0.72	0.11	0.24	0.13						
36	9.7	9.2	8.7	0.5	1.0	0.5	3.83	3.83	3.49	-0.00	0.34	0.34	1.70	1.33	1.01	0.37	0.69	0.32						
37	6.1	5.6	7.9	0.5	-1.8	-2.3	3.10	3.06	2.62	0.04	0.48	0.44	1.39	1.67	0.89	-0.28	0.50	0.78						
38	7.5	6.9	5.7	0.6	1.8	1.2	4.20	4.12	3.71	0.08	0.49	0.41	2.30	1.80	1.37	0.50	0.93	0.43						
39	9.7	8.1	8.1	0.6	1.6	1.0	3.75	3.82	3.37	-0.07	0.38	0.45	1.23	1.14	0.90	0.09	0.33	0.24						
40	8.1	7.8	7.0	0.3	1.1	0.8	1.54	1.45	1.35	0.09	0.19	0.10	0.77	0.78	0.63	-0.01	0.14	0.15						
AVERAGE (DIFF)				0.6	1.0	0.4							0.13	0.33	0.20									
STANDARD DEVIATION				0.7	1.1	1.0							0.15	0.22	0.20									
																0.14	0.38	0.25						
																0.20	0.26	0.23						

TABLE 3

EFFECT OF SIZE ON THE IMPURITIES CONTENT IN THE COAL
THE FOLLOWING ANALYSIS IS FOR 1.40 FLOAT FRACTION ONLY

SIZE A = 1 1/2 X 0

SIZE B = 3 /8 X 14

SIZE C = 14 X 100

SAMPLE	ASH						TOTAL SULFUR						PYRITIC SULFUR					
	SIZE A	SIZE B	SIZE C	(A-B)	(A-C)	(B-C)	SIZE A	SIZE B	SIZE C	(A-B)	(A-C)	(B-C)	SIZE A	SIZE B	SIZE C	(A-B)	(A-C)	(B-C)
01	8.3	7.7	5.6	0.5	2.7	2.1	3.73	3.69	3.35	0.03	0.38	0.34	0.96	0.96	0.51	0.00	0.45	0.45
02	6.2	5.0	4.6	1.1	1.6	0.4	1.91	1.83	1.82	0.08	0.09	0.01	0.82	0.68	0.40	0.14	0.42	0.28
03	7.3	6.8	5.0	0.5	2.3	1.8	0.90	1.10	1.11	-0.20	-0.21	-0.01	0.50	0.52	0.30	-0.02	0.20	0.22
04	7.0	7.2	5.4	-0.2	1.6	1.8	1.95	1.71	1.60	0.24	0.35	0.11	1.14	1.04	0.54	0.10	0.60	0.50
05	5.9	6.6	5.1	-0.7	0.8	1.5	0.83	0.90	0.98	-0.07	-0.15	-0.08	0.38	0.40	0.31	-0.02	0.07	0.09
06	4.7	4.4	4.5	0.3	0.2	-0.1	2.89	2.73	2.84	0.16	0.05	-0.11	1.01	0.92	0.54	0.09	0.47	0.38
07	6.7	5.6	5.3	1.1	1.4	0.3	2.42	2.81	2.44	-0.39	-0.02	0.37	1.36	1.52	0.78	-0.16	0.58	0.74
08	6.5	6.3	5.5	0.2	1.0	0.8	2.26	2.36	2.16	-0.10	0.10	0.20	0.77	0.82	0.56	-0.05	0.21	0.26
09	7.8	6.9	4.9	0.9	2.9	2.0	3.02	2.75	2.57	0.27	0.45	0.18	0.86	0.80	0.59	0.06	0.27	0.21
10	8.5	7.9	7.7	0.6	0.8	0.2	2.75	2.75	2.81	0.00	-0.06	-0.06	0.94	0.94	0.95	-0.00	-0.01	-0.01
11	10.6	8.1	7.7	2.5	2.9	0.4	3.01	2.70	2.72	0.31	0.29	-0.02	0.89	0.75	0.60	0.14	0.29	0.15
12	5.8	6.0	4.5	-0.2	1.3	1.5	1.12	0.99	1.03	0.13	0.09	-0.04	0.49	0.46	0.32	0.03	0.17	0.14
13	7.9	7.8	6.4	0.1	1.5	1.4	3.73	3.59	3.26	0.14	0.47	0.33	1.00	1.08	0.86	-0.08	0.14	0.22
14	8.0	7.6	5.4	0.4	2.6	2.2	2.98	2.90	2.63	0.08	0.35	0.27	0.89	0.91	0.73	-0.02	0.16	0.18
15	7.2	6.3	5.1	0.9	2.1	1.2	3.33	3.24	3.10	0.09	0.23	0.14	1.13	1.07	0.61	0.06	0.52	0.46
16	8.7	8.0	6.0	0.7	2.7	2.0	2.81	2.78	2.71	0.03	0.10	0.07	0.99	0.88	0.60	0.11	0.39	0.28
17	8.8	9.1	7.3	-0.3	1.5	1.8	2.32	2.52	2.02	-0.20	0.30	0.50	0.92	0.91	0.84	0.01	0.08	0.07
18	7.8	6.7	5.7	1.1	2.1	1.0	1.32	1.31	1.18	0.01	0.14	0.13	0.49	0.40	0.64	0.09	-0.15	-0.24
19	6.8	7.6	5.1	-0.8	1.7	2.5	2.65	2.67	2.46	-0.02	0.19	0.21	0.49	0.50	0.60	-0.01	-0.11	-0.10
20	6.7	6.5	5.6	0.2	1.1	0.9	2.86	2.78	2.70	0.08	0.16	0.08	1.10	0.95	0.68	0.15	0.42	0.27
21	9.2	8.4	6.8	0.8	2.4	1.6	2.78	2.69	2.60	0.09	0.18	0.09	0.71	0.68	0.40	0.03	0.31	0.28
22	6.4	5.9	4.7	0.5	1.7	1.2	1.00	0.99	0.98	0.01	0.02	0.01	0.41	0.43	0.29	-0.02	0.12	0.14
23	9.7	9.5	7.3	0.2	2.4	2.2	3.06	2.92	2.62	0.14	0.44	0.30	0.80	1.00	0.59	-0.20	0.21	0.41
24	7.8	7.6	5.5	0.2	2.3	2.1	3.14	3.16	3.03	-0.02	0.11	0.13	0.53	0.61	0.49	-0.08	0.04	0.12
25	6.6	4.9	4.5	1.7	2.1	0.4	2.38	2.09	1.62	0.29	0.76	0.47	1.34	1.19	0.69	0.15	0.65	0.50
26	7.9	7.7	5.2	0.2	2.7	2.5	3.34	3.28	3.25	0.06	0.09	0.03	0.81	0.67	0.49	0.14	0.32	0.18
27	7.3	6.3	4.9	1.0	2.4	1.4	3.03	2.99	2.48	0.04	0.55	0.51	1.17	0.86	0.56	0.31	0.61	0.30
28	10.3	9.4	7.2	0.9	3.1	2.2	2.82	2.83	2.45	-0.01	0.37	0.38	1.29	1.09	0.88	0.20	0.41	0.21
29	9.1	7.6	5.9	1.5	3.2	1.7	4.05	3.65	3.28	0.40	0.77	0.37	2.06	1.72	1.35	0.34	0.71	0.37
30	8.9	8.0	6.7	0.9	2.2	1.3	2.41	2.37	2.25	0.04	0.16	0.12	0.70	0.59	0.49	0.11	0.21	0.10
31	6.4	5.8	4.8	0.6	1.6	1.0	2.55	2.46	2.20	0.09	0.35	0.26	0.70	0.66	0.52	0.04	0.18	0.14
32	8.8	8.5	6.1	0.3	2.7	2.4	4.21	4.15	3.87	0.06	0.34	0.28	0.91	0.95	0.53	-0.04	0.38	0.42
33	9.5	9.0	7.4	0.5	2.1	1.6	3.27	3.28	2.92	-0.01	0.35	0.36	0.85	0.91	0.51	-0.06	0.34	0.40
34	7.7	7.1	6.0	0.6	1.7	1.1	3.96	3.68	3.24	0.28	0.72	0.44	1.17	1.08	0.71	0.09	0.46	0.37
35	8.0	7.3	5.1	0.7	2.9	2.2	2.85	2.68	2.62	0.17	0.23	0.06	0.80	0.65	0.47	0.15	0.33	0.18
36	8.6	7.6	6.7	1.0	1.9	0.9	3.29	3.30	3.15	-0.01	0.14	0.15	0.81	0.81	0.66	0.00	0.15	0.15
37	5.1	5.0	5.4	0.1	-0.3	-0.4	2.88	2.82	2.39	0.06	0.49	0.43	1.27	1.47	0.66	-0.20	0.61	0.81
38	5.6	5.9	4.5	-0.3	1.1	1.4	3.76	3.67	3.20	0.09	0.56	0.47	1.64	1.32	0.93	0.32	0.71	0.39
39	8.3	7.3	5.8	1.0	2.5	1.5	3.63	3.56	3.27	0.07	0.36	0.29	0.91	0.81	0.65	0.10	0.26	0.16
40	6.7	6.1	5.4	0.6	1.3	0.7	1.43	1.38	1.29	0.05	0.14	0.09	0.64	0.69	0.57	-0.05	0.07	0.12
AVERAGE (DIFF)				0.5	1.9	1.4					0.06	0.26	0.20			0.05	0.31	0.26
STANDARD DEVIATION				0.6	0.8	0.7					0.15	0.23	0.18			0.12	0.22	0.20

TABLE 4

ESTIMATES OF ASH, TOTAL SULFUR AND PYRITIC SULFUR CONTENT AT 40, 60 AND 80 PERCENT
RECOVERY OF COAL OBTAINED FROM FLOAT AND SINK ANALYSIS

THE VALUES ARE ARRANGED IN ASCENDING ORDER OF TOTAL SULFUR

THE FOLLOWING ANALYSIS IS FOR SIZE 1 1/2 X0 COAL

40 PERCENT RECOVERY				60 PERCENT RECOVERY				80 PERCENT RECOVERY			
SAMPLE	T.S	P.S	ASH	SAMPLE	T.S	P.S	ASH	SAMPLE	T.S	P.S	ASH
12	0.86	0.28	4.1	5	0.80	0.31	4.3	5	0.82	0.37	5.7
3	0.87	0.40	4.5	3	0.81	0.44	5.4	3	0.89	0.50	7.2
5	0.91	0.31	3.5	22	1.03	0.32	4.9	22	1.00	0.41	6.4
22	0.94	0.31	4.5	12	1.04	0.41	5.2	12	1.33	0.67	11.0
18	1.23	0.26	4.7	18	1.29	0.38	6.3	18	1.48	0.58	9.6
40	1.28	0.52	4.2	40	1.35	0.58	5.7	40	1.56	0.80	9.5
4	1.49	0.80	4.3	4	1.64	0.87	5.5	2	1.85	0.79	5.6
25	1.50	0.87	3.7	2	1.78	0.77	4.0	4	1.90	1.09	6.8
2	1.73	0.75	3.6	25	1.97	1.10	5.1	8	2.36	0.86	7.1
8	2.05	0.64	5.1	8	2.14	0.68	5.5	25	2.48	1.67	7.6
17	2.15	0.65	7.0	17	2.26	0.74	8.0	31	2.54	0.69	6.3
30	2.19	0.38	6.2	7	2.33	1.22	5.3	17	2.56	1.32	9.6
7	2.20	1.11	4.2	37	2.38	0.96	4.4	37	2.86	1.26	5.1
37	2.24	0.87	4.1	30	2.38	0.67	8.6	35	2.94	0.92	8.7
31	2.29	0.43	3.8	31	2.41	0.57	4.8	16	2.96	1.11	9.9
10	2.31	0.47	5.6	10	2.54	0.74	7.3	14	2.98	0.89	8.0
6	2.32	0.47	3.4	6	2.58	0.68	3.8	21	3.03	0.88	10.0
21	2.45	0.36	7.4	21	2.59	0.50	8.1	10	3.03	1.24	9.4
27	2.46	0.53	5.4	19	2.64	0.47	6.6	6	3.04	1.13	6.0
23	2.51	0.40	6.6	28	2.74	1.18	9.5	30	3.06	1.39	11.9
19	2.54	0.30	4.4	11	2.75	0.63	9.7	9	3.09	1.03	8.3
9	2.55	0.63	4.6	9	2.75	0.65	6.0	11	3.09	0.96	11.0
28	2.56	0.92	8.1	27	2.76	0.82	6.3	24	3.13	0.52	7.6
11	2.58	0.38	8.0	16	2.78	0.84	7.6	28	3.17	1.67	11.7
14	2.62	0.58	4.3	35	2.78	0.66	6.4	7	3.25	1.72	9.1
35	2.69	0.54	4.6	23	2.80	0.61	8.2	23	3.28	1.00	10.9
16	2.70	0.58	5.4	14	2.81	0.73	6.1	36	3.28	0.81	8.6
20	2.73	0.80	4.6	20	3.01	1.14	7.0	26	3.30	0.77	7.4
38	2.82	0.69	3.3	36	3.03	0.65	7.1	27	3.30	1.48	8.0
36	2.87	0.49	5.8	24	3.08	0.43	5.9	33	3.33	0.95	9.9
33	2.99	0.64	6.3	33	3.10	0.70	7.9	15	3.49	1.41	8.8
24	3.04	0.35	4.3	26	3.15	0.62	5.7	19	3.60	1.64	19.8
26	3.06	0.63	5.3	38	3.15	1.06	4.1	38	3.63	1.51	5.3
15	3.15	0.89	5.7	15	3.20	1.00	6.4	39	3.65	0.97	8.6
34	3.18	0.52	5.2	34	3.27	0.61	6.5	1	3.76	1.00	8.5
13	3.29	0.64	5.6	39	3.49	0.70	6.8	20	3.81	1.99	22.2
1	3.39	0.55	5.2	13	3.53	0.84	7.0	13	3.91	1.30	9.3
39	3.44	0.56	5.4	1	3.55	0.75	6.8	34	3.95	1.16	7.7
29	3.48	1.49	6.7	29	3.83	1.79	7.8	32	4.16	0.82	8.0
32	4.00	0.52	5.1	32	4.05	0.64	6.5	29	4.28	2.32	9.8

CHEMICAL ANALYSIS OF CHANNEL SAMPLES OF COALS

VALUES (EXCEPT MOISTURE) ARE GIVEN ON A DRY BASIS

SAMPLE	MOIS	V M	F C	ASH	H	C	N	O	SL	SUL	PY	SUL	OR	SUL	TOT	SUL	TOT	CLR	WS	CLR	BTU	MAX.	FLD	FSI
1	15.0	41.0	47.7	11.3	5.15	69.74	1.12	7.63	0.60	2.16	2.82	5.04	2.20	1.70	12480	9	3.5							
2	13.5	43.6	49.0	7.4	5.68	74.72	1.34	8.74	0.40	0.94	1.20	2.18	1.10	0.50	13480	800	4.0							
3	10.7	38.2	52.7	9.1	5.31	73.42	1.62	9.16	0.10	0.65	0.77	1.43	3.50	1.70	13027	9	5.5							
4	7.8	36.3	53.2	10.5	5.22	73.20	1.20	7.06	0.40	1.81	1.07	2.92	0.70	0.40	13137	83	6.0							
5	10.4	36.4	55.0	8.6	0.00	0.00	0.00	0.00	0.20	0.57	0.63	0.00	4.00	1.50	13162	10	5.5							
6	12.9	44.5	44.5	11.0	5.43	71.70	1.18	5.96	0.40	2.72	2.07	4.82	0.30	0.20	12829	9999	5.0							
7	14.5	42.9	47.6	9.5	5.47	72.73	1.29	6.24	1.10	3.38	1.32	4.81	0.40	0.10	12951	305	5.5							
8	8.5	38.2	51.8	10.0	5.13	74.49	1.48	6.18	0.20	1.44	1.33	2.78	2.80	1.20	12934	72	4.0							
9	10.8	40.1	49.1	10.8	0.00	0.00	0.00	0.00	0.30	1.76	1.94	0.00	0.10	0.20	12547	13	4.0							
10	7.0	39.4	48.5	12.1	5.15	71.18	1.02	6.58	0.20	2.34	1.65	4.01	3.10	0.90	12724	300	4.5							
11	4.6	42.1	45.1	12.8	4.91	70.31	1.19	7.09	0.20	1.42	2.24	3.68	0.20	0.20	12485	37	3.5							
12	7.9	34.3	55.4	10.3	5.16	74.60	1.52	7.05	0.20	0.74	0.58	1.34	0.20	0.20	13000	9	4.5							
13	14.4	43.3	44.6	12.1	4.98	69.49	1.27	7.91	0.30	1.66	2.56	4.25	1.30	0.90	12465	27	4.0							
14	12.1	45.6	44.4	10.0	5.44	71.29	1.13	9.13	0.10	1.16	1.84	3.01	0.60	0.10	13075	1660	5.0							
15	14.7	40.3	48.1	11.6	4.85	69.25	1.10	8.90	0.40	2.02	2.19	4.25	1.00	0.40	12419	5	4.5							
16	10.9	40.5	46.9	12.6	4.88	68.57	1.15	9.03	0.10	1.57	2.12	3.70	0.50	0.30	12255	13	4.0							
17	5.2	37.2	51.3	11.5	5.11	71.86	1.34	7.10	0.20	2.04	1.11	3.17	0.60	0.10	12873	41	5.5							
18	7.7	35.4	54.1	10.5	5.14	73.76	1.33	7.67	0.10	0.99	0.53	1.54	0.50	0.00	13005	11	5.0							
19	14.7	38.1	46.6	15.3	4.88	66.24	1.04	8.54	0.70	2.13	1.78	3.99	0.20	0.10	11900	4	4.0							
20	17.3	40.7	45.7	13.6	5.00	67.44	0.93	8.82	0.80	2.26	1.86	4.21	0.30	0.30	12074		4.5							
21	15.6	43.0	44.0	13.0	4.99	68.68	1.07	8.72	0.10	1.42	2.02	3.47	0.30	0.30	12220	12	4.0							
22	16.5	40.0	47.8	12.2	4.63	70.58	1.70	9.16	0.50	0.98	0.71	1.74	1.00	0.90	12438	10	4.5							
23	14.7	41.7	43.5	14.8	5.01	67.18	1.43	7.55	0.70	1.96	2.03	4.06	1.40	1.10	11973	8	5.0							
24	10.8	42.1	45.5	12.4	5.01	68.09	1.43	8.71	0.30	1.69	2.59	4.31	0.70	0.50	12222	19	5.5							
25	13.9	41.0	51.0	8.0	5.34	73.24	1.37	8.97	0.40	2.27	0.85	3.16	0.20	0.20	13102	5	5.5							
26	14.7	45.5	45.3	9.2	5.13	72.06	1.36	8.56	0.50	1.28	2.34	3.67	0.30	0.30	12996	84	3.5							
27	4.1	38.4	47.3	14.3	5.04	68.23	1.42	5.46	0.60	3.78	1.75	5.59	1.40	0.20	12387	1190	6.0							
28	4.1	37.7	46.2	16.1	4.47	68.57	1.46	5.28	1.00	2.90	1.15	4.15	0.70	0.20	12331	2200	7.0							
29	4.5	42.5	43.3	14.2	5.33	69.17	1.31	4.99	0.80	2.99	1.98	5.04	1.20	0.40	12541		7.5							
30	4.1	36.9	50.9	12.2	5.06	71.94	1.70	5.19	1.40	2.13	1.63	3.90	1.30	0.00	12997	5100	8.5							
31	5.0	40.5	49.2	10.3	5.22	73.53	1.68	6.17	0.80	1.58	1.50	3.16	0.90	0.10	13245	2030	7.5							
32	14.6	44.4	45.5	10.1	5.12	68.97	1.39	11.08	0.70	1.37	1.89	3.33	0.80	0.80	12442	8	4.5							
33	10.0	40.2	46.7	13.1	4.72	68.04	1.46	8.84	0.80	1.60	2.13	3.81	0.10	0.10	12171	7	4.5							
34	8.7	40.2	47.1	12.7	5.10	68.88	1.35	7.08	1.20	2.56	2.26	4.95	0.10	0.00	12390	30	4.0							
35	9.3	40.5	47.1	12.4	4.72	69.23	1.54	7.64	0.60	2.36	2.03	4.45	0.10	0.10	12274		0.0							
36	8.1	39.8	47.5	12.7	4.64	68.98	1.37	7.62	3.00	2.06	2.32	4.68	0.20	0.00	12314	2	3.0							
37	11.2	43.5	46.4	10.1	4.86	72.33	1.43	6.41	0.50	3.38	1.42	4.85	0.30	0.00	13042	104	4.0							
38	14.8	44.1	45.6	10.3	4.98	71.49	1.15	6.73	0.50	3.21	2.10	5.36	0.00	0.00	12952	62	3.5							
39	10.8	42.3	45.5	12.2	4.76	69.11	1.11	8.68	0.40	1.59	2.56	4.19	0.20	0.20	12449	414	3.5							
40	9.2	35.8	53.9	10.3	4.96	72.92	1.75	8.15	0.20	1.14	0.72	1.88	3.30	2.30	13008	423	4.0							

TABLE 6

ESTIMATES OF PYRITIC SULFUR AND TOTAL SULFUR CONTENT AT 40, 60, 80 PERCENT
RECOVERY* BASED ON THE ASH CONTENT IN CHANNEL COAL SAMPLES
THE FOLLOWING ANALYSIS IS FOR SIZE 1 1/2 X0 ONLY

SAMPLE	ASH CHANNEL	ASH WHOLE COAL	RECOVERY	TOTAL SULFUR			PYRITIC SULFUR		
				40 PCT	60 PCT	80 PCT	40 PCT	60 PCT	80 PCT
01	11.3	16.3	90.1	3.37	3.50	3.66	0.53	0.68	0.88
02	7.4	10.5	92.7	1.72	1.77	1.83	0.74	0.76	0.78
08	9.1	19.9	86.7	0.90	0.81	0.83	0.39	0.43	0.46
04	10.5	15.1	92.9	1.46	1.61	1.82	0.79	0.86	1.01
05	8.6	13.8	92.1	0.00	0.85	0.80	0.00	0.32	0.35
06	11.0	15.0	91.6	2.29	2.48	2.85	0.45	0.57	0.97
07	9.5	22.2	80.6	2.16	2.24	2.38	1.11	1.12	1.30
08	10.0	15.9	88.7	2.06	2.09	2.21	0.64	0.64	0.74
09	10.8	17.1	88.9	2.52	2.65	2.93	0.65	0.56	0.79
10	12.1	16.4	90.7	2.30	2.45	2.73	0.44	0.66	0.93
11	12.8	18.5	87.8	2.54	2.65	2.90	0.36	0.53	0.78
12	10.3	19.9	78.5	0.84	0.91	1.07	0.28	0.26	0.44
13	12.1	20.8	85.6	3.26	3.38	3.67	0.61	0.73	0.95
14	10.0	18.3	88.8	2.55	2.75	2.90	0.56	0.68	0.82
15	11.6	15.1	89.6	3.07	3.14	3.31	0.91	0.94	1.11
16	12.6	18.5	88.1	2.69	2.75	2.84	0.54	0.72	1.01
17	11.5	17.5	88.6	2.13	2.21	2.35	0.65	0.64	0.97
18	10.5	23.0	81.3	1.21	1.25	1.30	0.27	0.27	0.43
19	15.3	36.1	74.5	2.43	2.56	2.64	0.21	0.34	0.47
20	13.6	41.9	70.7	2.58	2.70	2.84	0.84	0.83	1.08
21	13.0	21.2	87.8	2.44	2.50	2.72	0.35	0.40	0.65
22	12.2	16.1	94.4	0.94	1.04	1.01	0.31	0.31	0.39
23	14.8	19.6	89.0	2.50	2.70	2.97	0.37	0.54	0.74
24	12.4	14.2	96.8	3.04	3.08	3.13	0.35	0.43	0.51
25	8.0	19.7	80.8	1.39	1.69	2.07	0.79	0.95	1.17
26	9.2	14.7	91.1	3.04	3.12	3.25	0.63	0.61	0.72
27	14.3	13.1	100.0	2.46	2.76	3.30	0.53	0.82	1.48
28	16.1	15.1	92.8	2.53	2.71	2.99	0.88	1.13	1.47
29	14.2	19.7	89.7	3.41	3.72	4.01	1.43	1.69	2.01
30	12.2	22.5	80.5	2.16	2.25	2.46	0.33	0.57	0.75
31	10.3	16.1	88.5	2.26	2.36	2.48	0.40	0.52	0.64
32	10.1	17.0	91.5	3.99	4.03	4.12	0.51	0.59	0.76
33	13.1	19.4	91.9	2.99	3.05	3.24	0.64	0.65	0.83
34	12.7	14.8	97.0	3.17	3.21	3.87	0.51	0.56	1.10
35	12.4	21.7	87.0	2.67	2.75	2.83	0.51	0.61	0.76
36	12.7	14.5	97.1	2.86	3.01	3.25	0.48	0.64	0.79
37	10.1	15.0	91.9	2.24	2.26	2.70	0.90	0.89	1.16
38	10.3	12.6	96.4	2.81	3.10	3.56	0.68	1.01	1.44
39	12.2	13.9	95.0	3.44	3.47	3.61	0.55	0.67	0.89
40	10.3	24.6	81.1	1.25	1.27	1.38	0.48	0.53	0.61

* See text for explanation.

TABLE 7
 FUSIBILITY OF COAL ASH
 REDUCING ATMOSPHERE
 DATA FROM FLOAT FRACTION 1 1/2 IN K O COAL
 DATA IN DEGREES F

HIGH GRAVITY (1.60) = H
 INTERMEDIATE GRAVITY = I
 LOW GRAVITY = L

SAMPLE	INITIAL DEFORMATION TEMP						SOFTENING TEMPERATURE						HEMI SPHERICAL TEMPERATURE						FLUID TEMPERATURE														
	LOW GRAV	INT. GRAV	HIGH GRAV	I-L	H-L	H-I	LOW GRAV	INT. GRAV	HIGH GRAV	I-L	H-L	H-I	LOW GRAV	INT. GRAV	HIGH GRAV	I-L	H-L	H-I	LOW GRAV	INT. GRAV	HIGH GRAV	I-L	H-L	H-I									
05	1915	2060	2210	145	295	150	2200	2400	2580	200	380	180	2200	2430	2600	230	400	170	2660	2690	2720	30	60	30									
06	1910	1950	1910	40	0	-40	2100	2110	2110	10	10	0	2120	2130	2130	10	10	0	2350	2500	2380	150	30	-120									
07	1820	1940	1930	120	110	-10	2035	2050	2080	15	45	30	2055	2070	2100	15	45	30	2405	2385	2360	-20	-45	-25									
08	1910	1980	1970	70	60	-10	2130	2170	2150	40	20	-20	2140	2185	2160	45	20	-25	2380	2430	2360	50	-20	-70									
09	1960	1950	1980	-10	20	30	2155	2175	2200	20	45	25	2185	2200	2230	15	45	30	2410	2430	2370	20	-40	-60									
10	1890	1910	1900	20	10	-10	2150	2160	2080	10	-70	-80	2170	2170	2100	0	-70	-70	2485	2430	2280	-55	-205	-150									
11	1850	2030	1960	80	10	-70	2290	2240	2100	-50	-190	-140	2320	2260	2130	-60	-190	-130	2620	2600	2350	-20	-270	-250									
12	1850	2320	1850	470	0	-470	2500	2520	2310	20	-190	-210	2530	2540	2340	10	-190	-200	2680	2650	2600	-30	-80	-50									
13	1850	1800	1950	-50	100	150	2035	2040	2050	5	15	10	2055	2060	2070	5	15	10	2260	2230	2210	-30	-50	-20									
14	1825	1965	1980	140	155	15	2110	2110	2135	0	25	25	2120	2130	2150	10	30	20	2235	2270	2400	35	165	130									
15	2000	2000	2030	0	30	30	2080	2100	2100	20	20	0	2100	2120	2120	20	20	0	2200	2200	2220	0	20	20									
16	1880	1880	2000	0	120	120	2160	2190	2110	30	-50	-80	2170	2220	2120	50	-50	-100	2310	2330	2230	20	-80	-100									
17	1915	1900	1975	-15	60	75	2135	2150	2110	15	-25	-40	2155	2180	2140	25	-15	-40	2410	2425	2360	15	-50	-65									
18	1950	1980	1965	30	15	-15	2050	2060	2060	10	10	0	2120	2140	2130	20	10	-10	2250	2300	2250	50	0	-50									
19	1900	1975	1950	75	50	-25	2060	2160	2100	100	40	-60	2140	2170	2230	30	90	60	2300	2330	2310	30	10	-20									
20	1910	1930	1900	20	-10	-30	2090	2100	2130	10	40	30	2110	2120	2150	10	40	30	2180	2480	2250	300	70	-230									
21	2020	2020	1970	0	-50	-50	2230	2230	2090	0	-140	-140	2260	2260	2115	0	-145	-145	2560	2570	2260	10	-300	-310									
22	2170	2200	2210	30	40	10	2260	2330	2350	70	90	20	2275	2360	2370	85	95	10	2350	2410	2440	60	90	30									
23	1960	1940	1880	-20	-80	-60	2040	2050	1960	10	-80	-90	2130	2125	2000	-5	-130	-125	2300	2400	2100	100	-200	-300									
24	1910	1950	1950	40	40	0	2150	2170	2225	20	75	55	2170	2200	2225	30	55	25	2380	2360	2520	-20	140	160									
25	1915	1850	1900	-65	-15	50	2045	2035	2140	-10	95	105	2065	2065	2170	0	105	105	2450	2420	2480	-30	30	60									
26	1845	1880	1990	35	145	110	2130	2190	2170	60	40	-20	2150	2210	2190	60	40	-20	2210	2350	2300	140	90	-50									
27	1940	1950	1940	10	0	-10	2205	2180	2110	-25	-95	-70	2220	2200	2130	-20	-90	-70	2300	2300	2230	0	-70	-70									
28	2000	1910	1880	-90	-120	-30	2130	2020	2060	-110	-70	40	2150	2070	2080	-80	-70	10	2320	2160	2180	-160	-140	20									
29	1900	1920	1930	20	30	10	2120	2080	2090	-40	-30	10	2150	2100	2110	-50	-40	10	2280	2260	2260	-20	-20	0									
30	2000	2010	1970	10	-30	-40	2150	2160	2100	10	-50	-60	2200	2200	2150	0	-50	-50	2320	2350	2310	30	-10	-40									
31	1980	1970	1990	-10	10	20	2100	2100	2150	0	50	50	2140	2130	2250	-10	110	120	2250	2200	2420	-50	170	220									
32	1965	1990	1950	25	-15	-40	2090	2160	2180	70	90	20	2120	2180	2200	60	80	20	2230	2300	2350	70	120	50									
33	2050	2030	2060	-20	10	30	2250	2230	2235	-20	-15	5	2270	2255	2250	-15	-20	-5	2410	2330	2320	-80	-90	-10									
34	1950	1960	1960	10	10	0	2210	2220	2150	10	-60	-70	2240	2250	2170	10	-70	-80	2400	2430	2300	30	-100	-130									
35	2040	2030	2000	-10	-40	-30	2240	2250	2230	10	-10	-20	2270	2280	2260	10	-10	-20	2370	2410	2450	40	80	40									
36	2060	2050	1980	-10	-80	-70	2480	2370	2265	-110	-215	-105	2500	2405	2280	-95	-220	-125	2620	2610	2480	-10	-140	-130									
37	1920	1920	1915	0	-5	-5	2070	2050	2060	-20	-10	10	2090	2070	2080	-20	-10	10	2170	2180	2150	10	-20	-30									
38	1900	1965	1930	65	30	-35	2080	2105	2025	25	-55	-80	2100	2135	2040	35	-60	-95	2160	2180	2100	20	-60	-80									
39	1900	1880	1970	-20	70	90	2120	2050	2050	-70	-70	0	2140	2070	2070	-70	-70	0	2250	2170	2160	-80	-90	-10									
40	1920	1910	2000	-10	80	90	2070	2100	2130	30	60	30	2100	2125	2160	25	60	35	2180	2230	2250	50	70	20									
AVERAGE (DIFF)				31.3	29.3	-1.9							10.1	-7.6	-17.8							10.7	-6.4	-17.1							18.2	-26.0	-44.2
STD. DEVIATION				90.6	75.3	99.4							53.8	103.0	72.8							53.8	109.3	76.2							76.1	112.8	113.3

TABLE 8

HARDGROVE GRINDABILITY

DATA FROM FLOAT FRACTIONS, 1 1/2 X 0 COAL

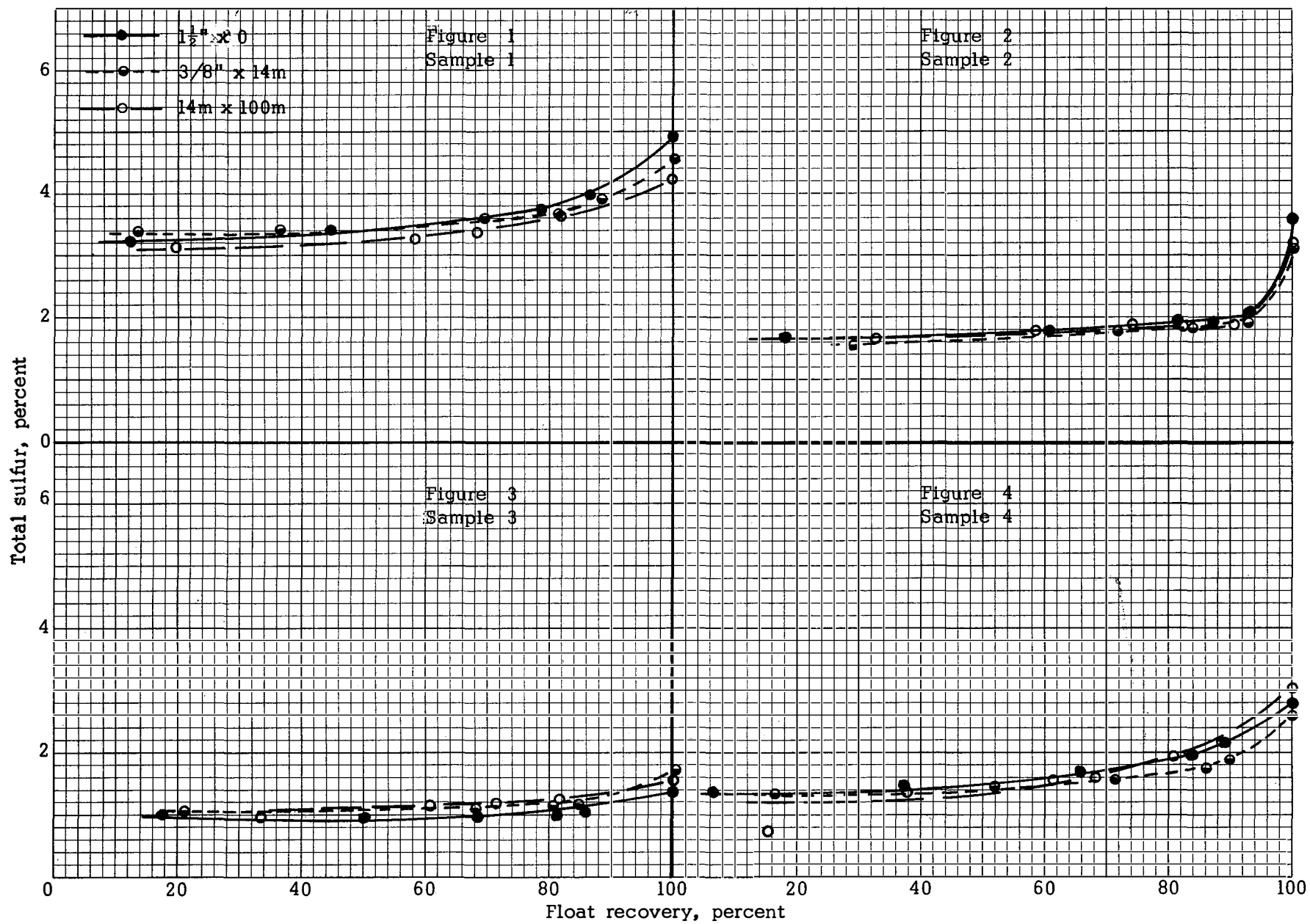
HIGH GRAVITY (1.60) = H

INTERMEDIATE GRAVITY = I

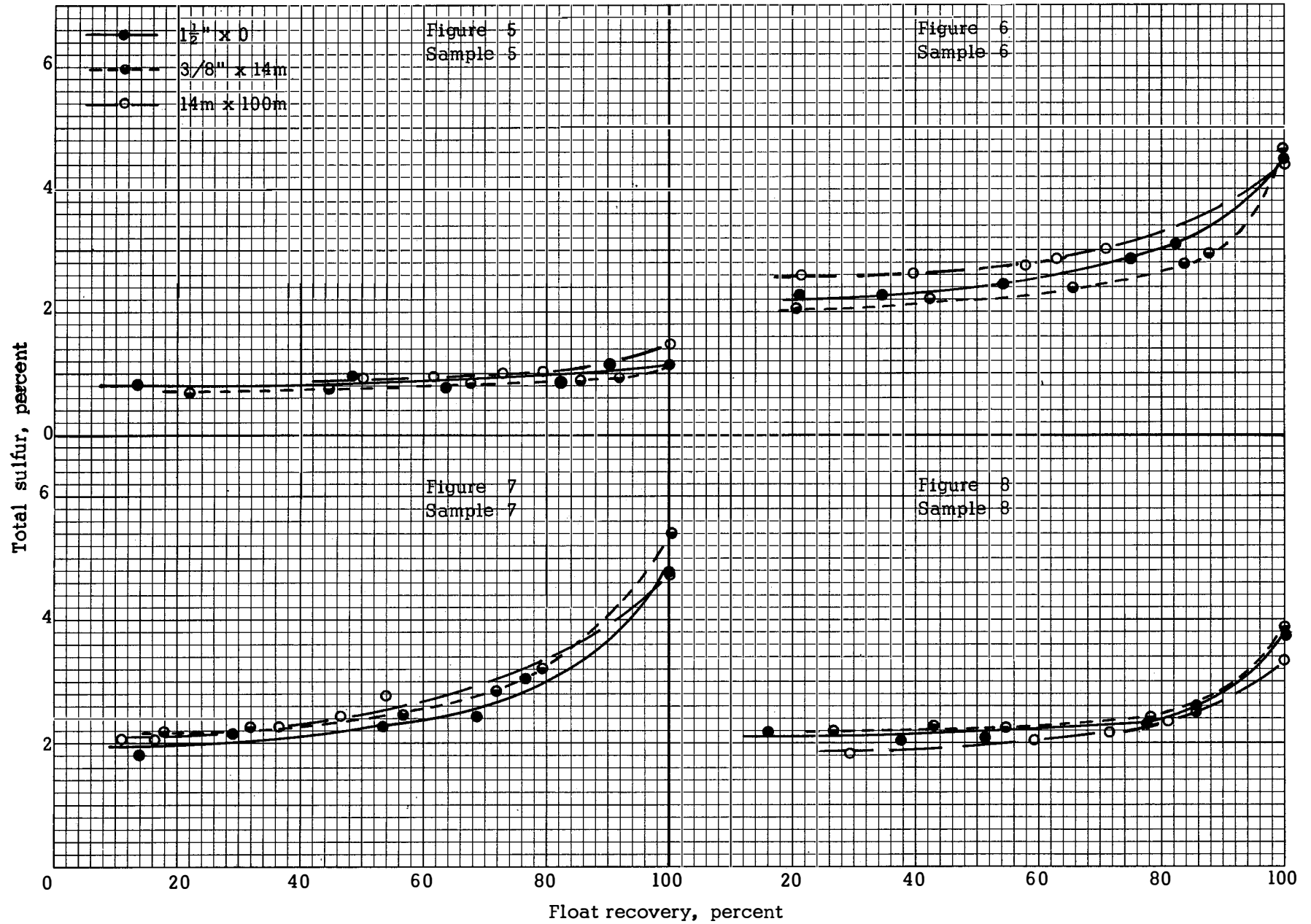
LOW GRAVITY = L

SAMPLE	LOW GRAV	INT GRAV	HIGH GRAV	L - I	L - H	I - H
05	59	55	55	4	4	0
06	63	58	55	5	8	3
07	62	63	56	-1	6	7
08	70	66	69	4	1	-3
09	64	68	66	-4	-2	2
10	67	65	67	2	0	-2
11	70	74	68	-4	2	6
12	74	65	70	9	4	-5
13	68	70	69	-2	-1	1
14	55	61	61	-6	-6	0
15	72	75	67	-3	5	8
16	60	69	81	-9	-21	-12
17	67	69	68	-2	-1	1
18	62	62	61	0	1	1
19	67	61	62	6	5	-1
20	61	58	66	3	-5	-8
21	56	54	55	2	1	-1
22	56	51	58	5	-2	-7
23	70	66	65	4	5	1
24	56	56	53	0	3	3
25	52	45	48	7	4	-3
26	54	64	53	-10	1	11
27	64	63	61	1	3	2
28	52	56	60	-4	-8	-4
29	58	55	62	3	-4	-7
30	73	64	69	9	4	-5
31	71	72	65	-1	6	7
32	59	57	62	2	-3	-5
33	59	56	57	3	2	-1
34	56	54	58	2	-2	-4
35	61	57	55	4	6	2
36	67	60	62	7	5	-2
37	55	56	52	-1	3	4
38	55	57	57	-2	-2	0
39	62	58	64	4	-2	-6
40	58	59	58	-1	0	1
AVERAGE (DIFF)				1.0	0.6	-0.4
STD DEVIATION				4.5	5.3	4.9

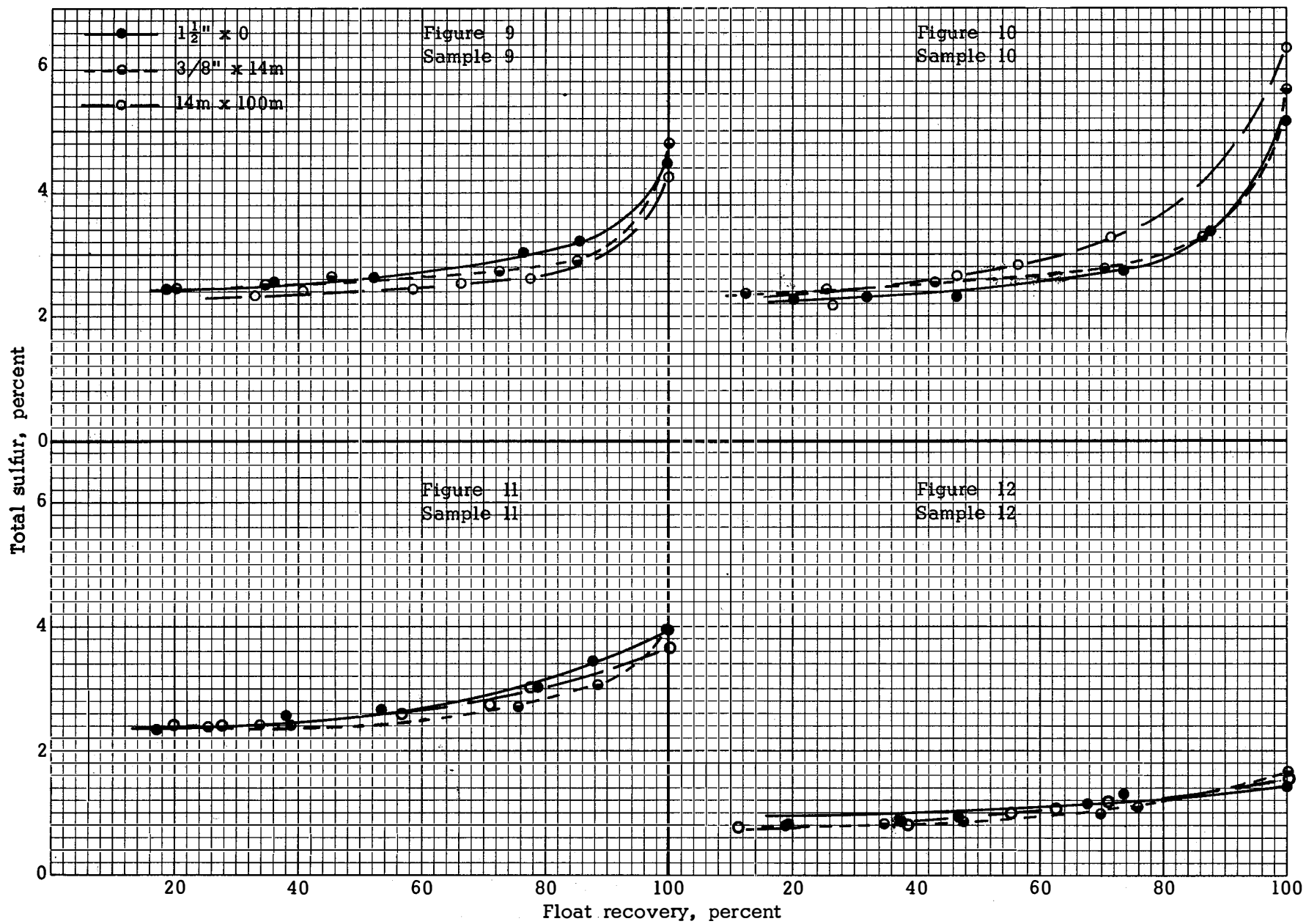
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



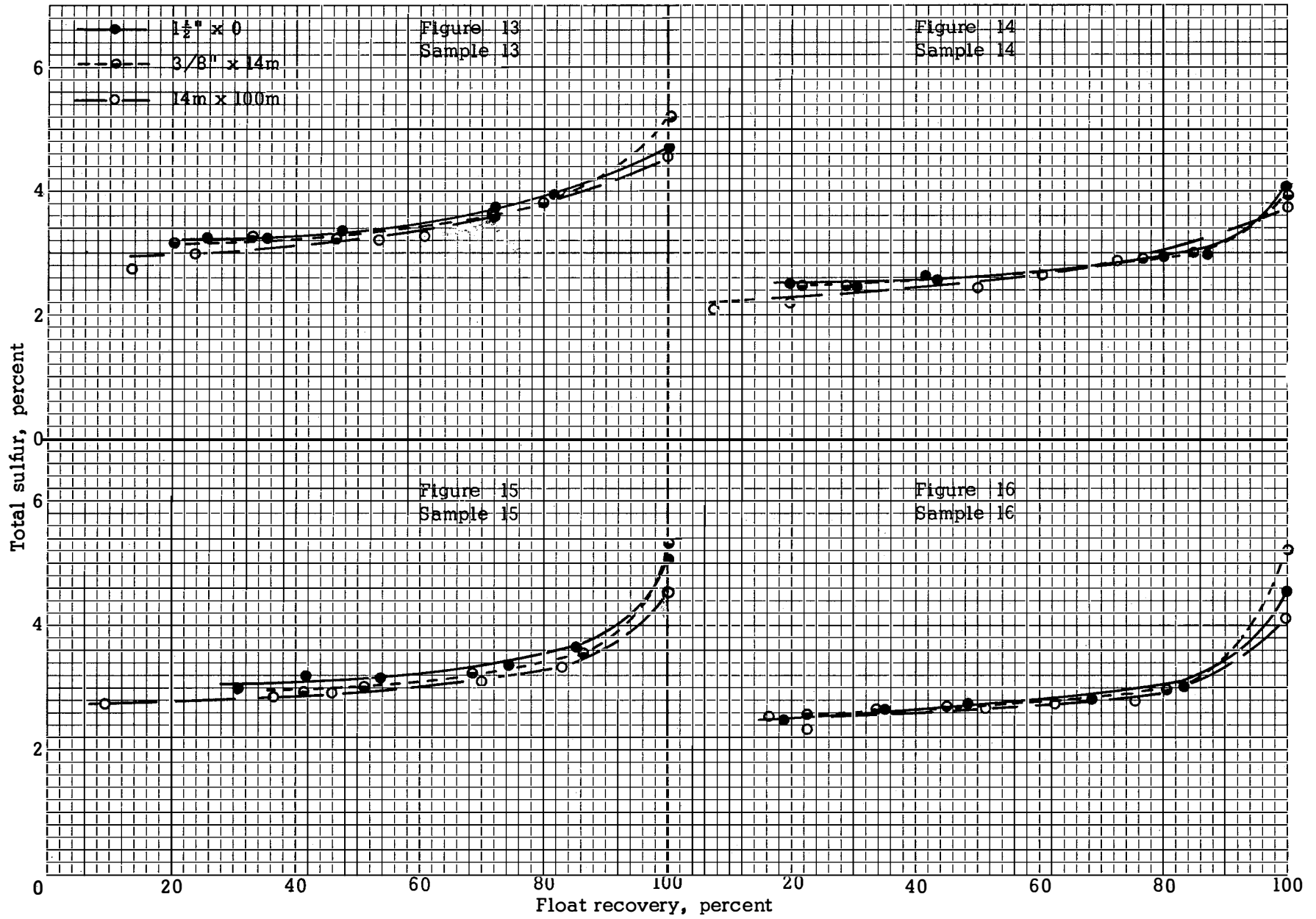
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



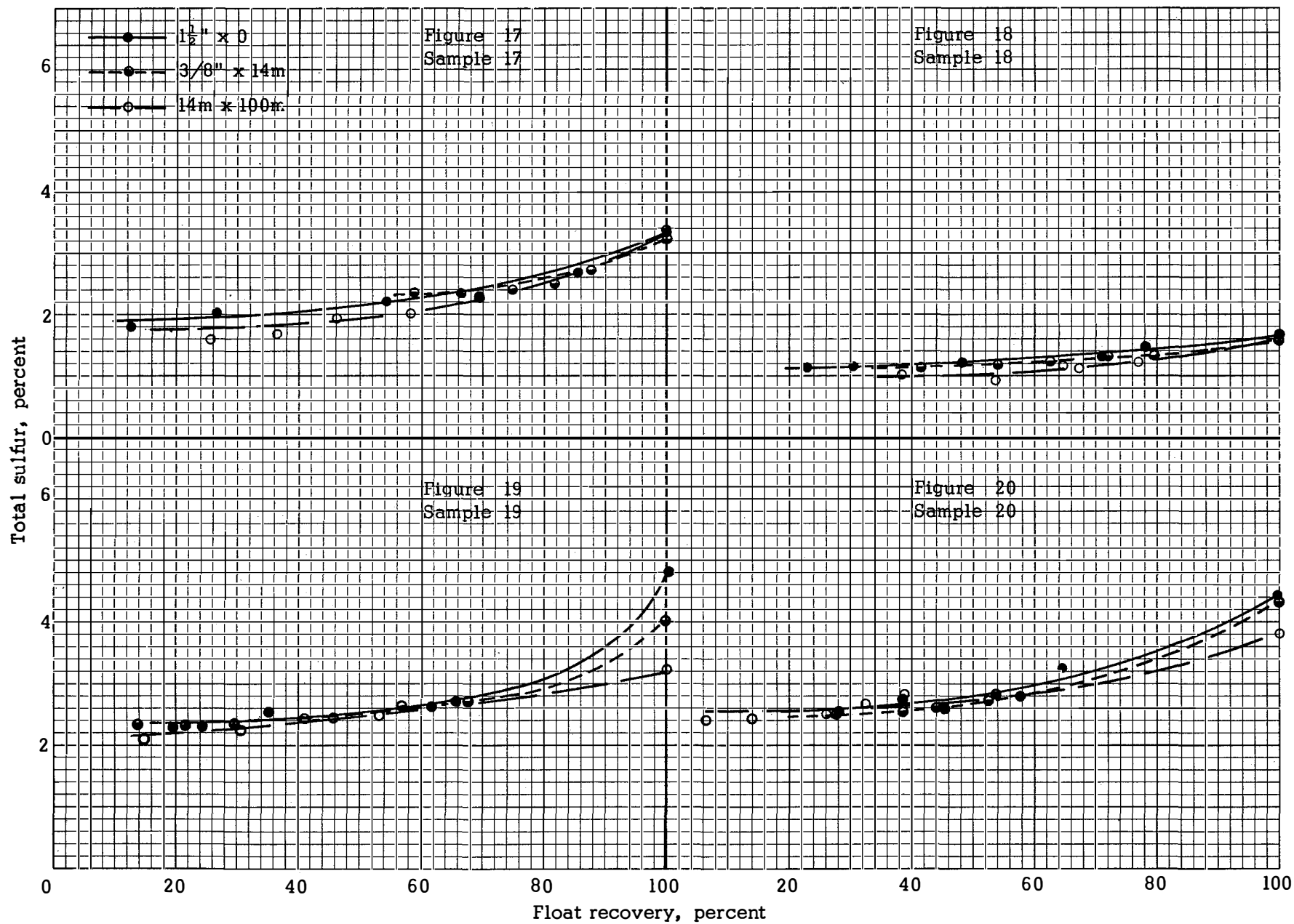
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



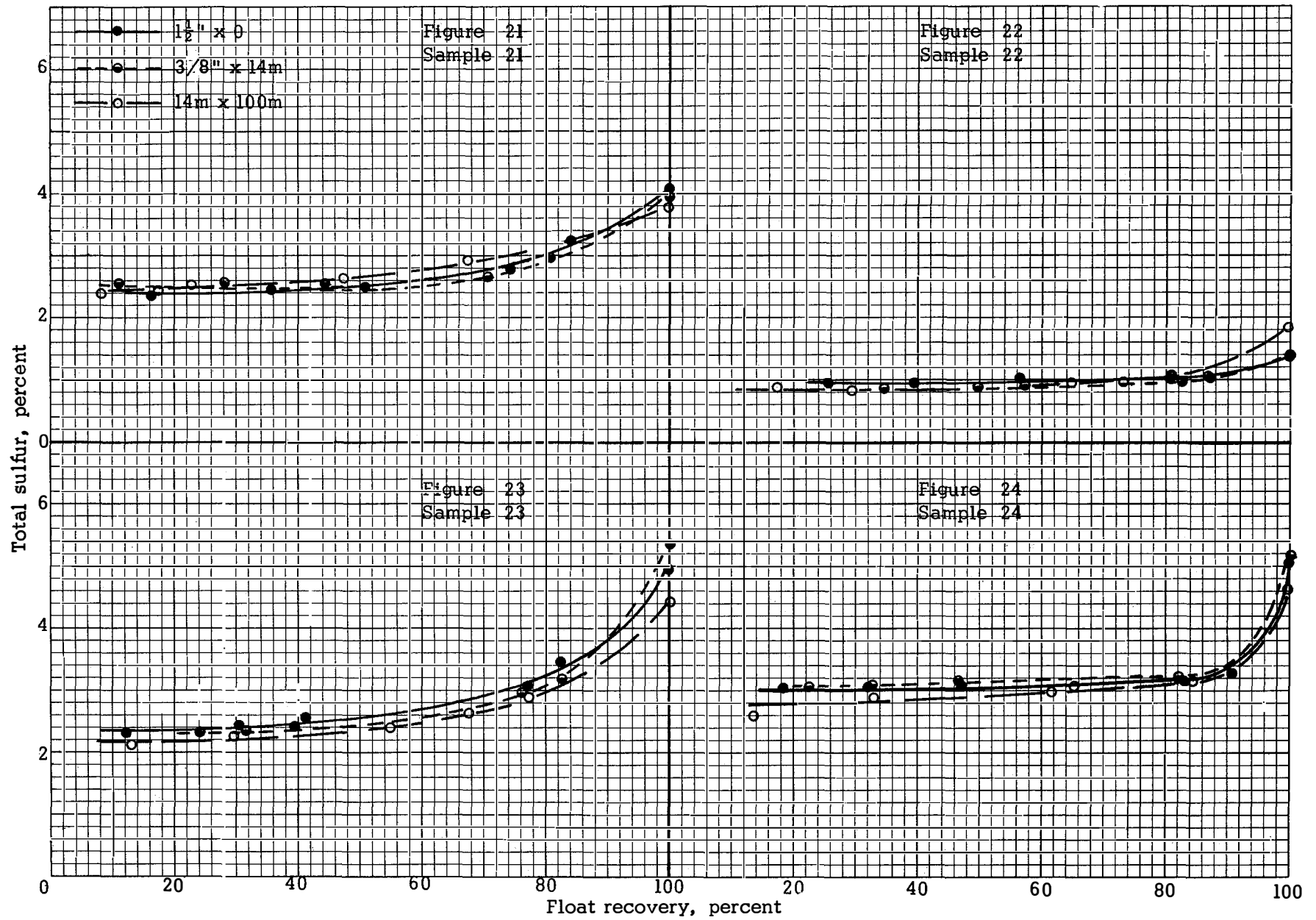
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



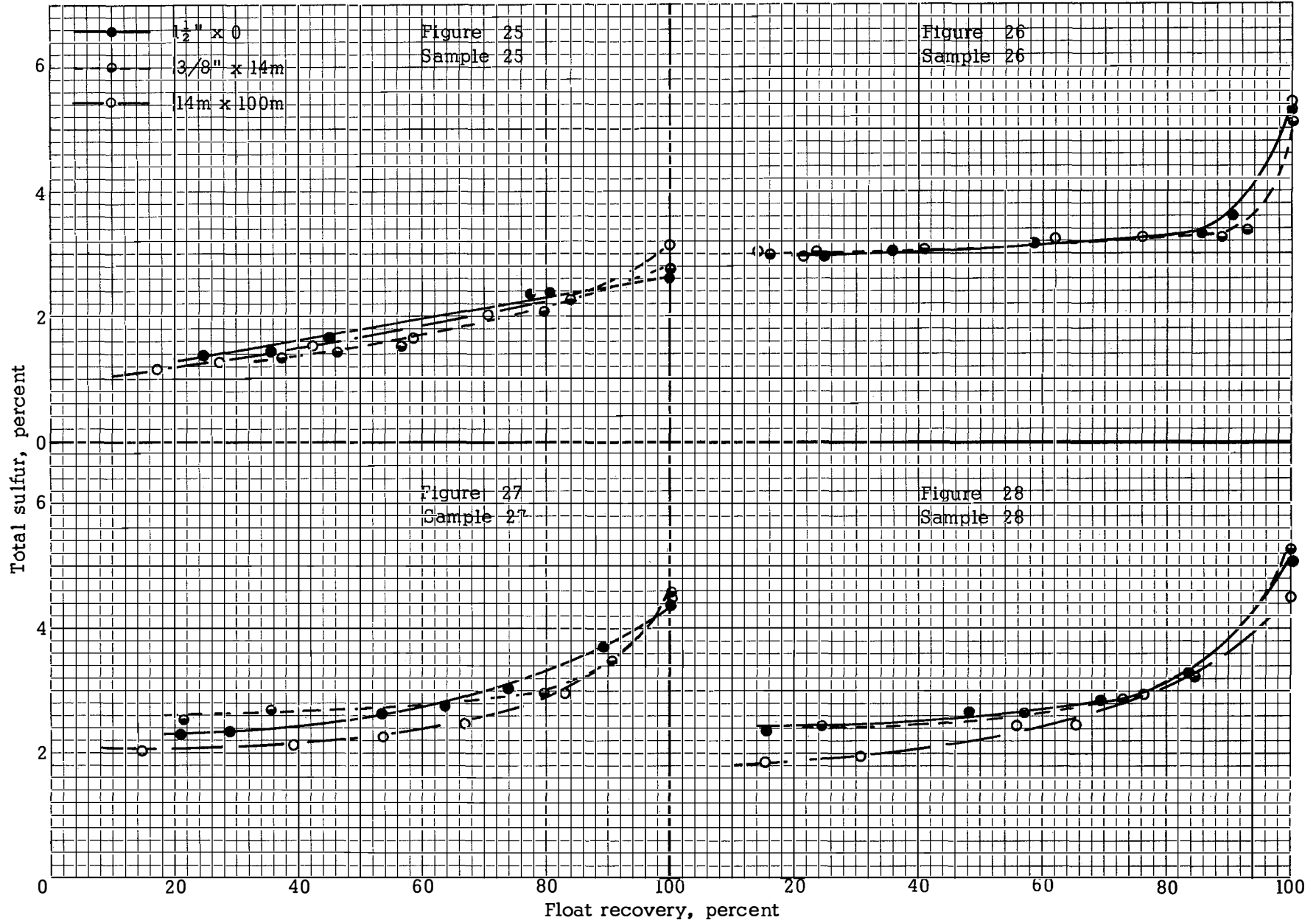
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



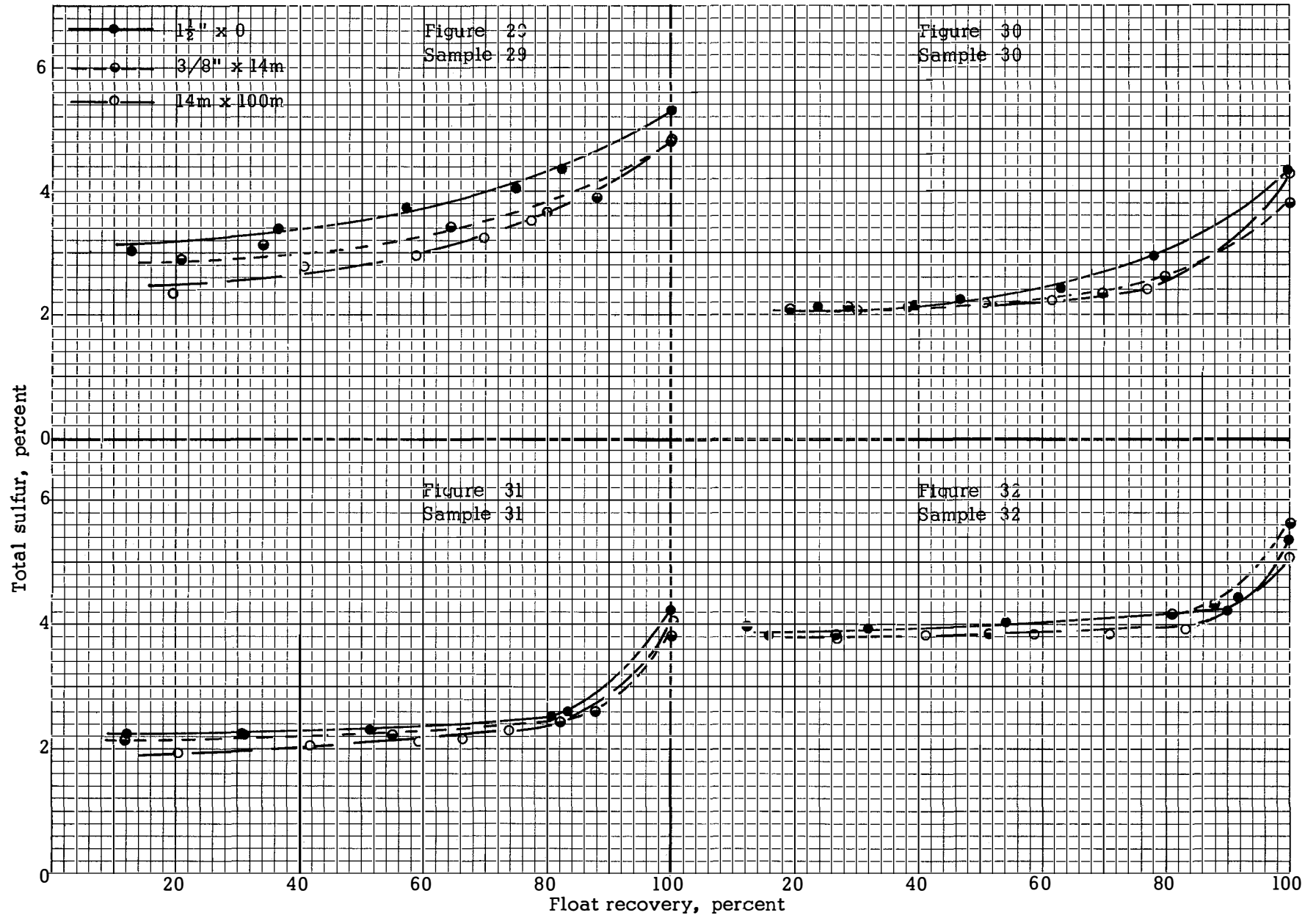
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



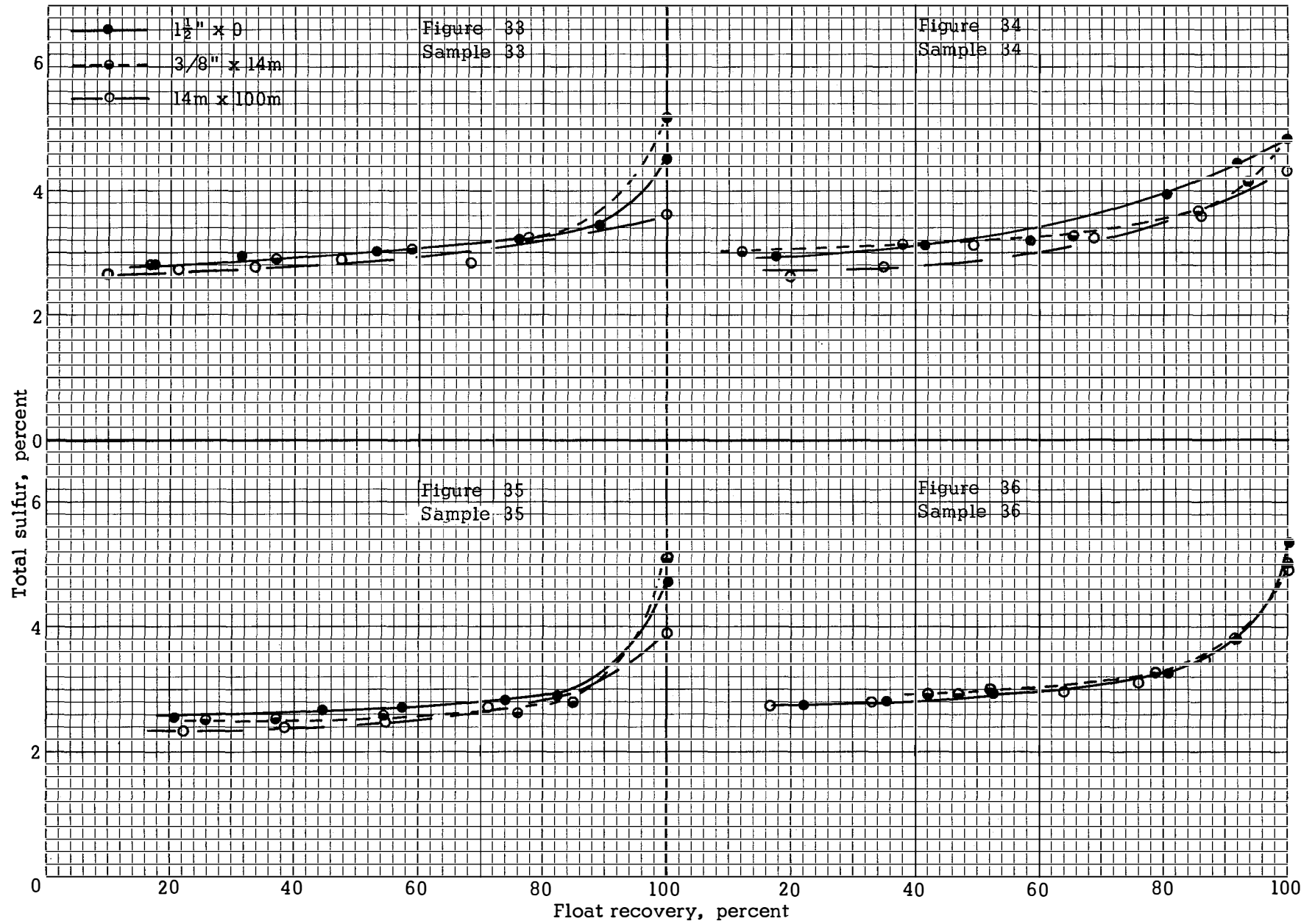
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



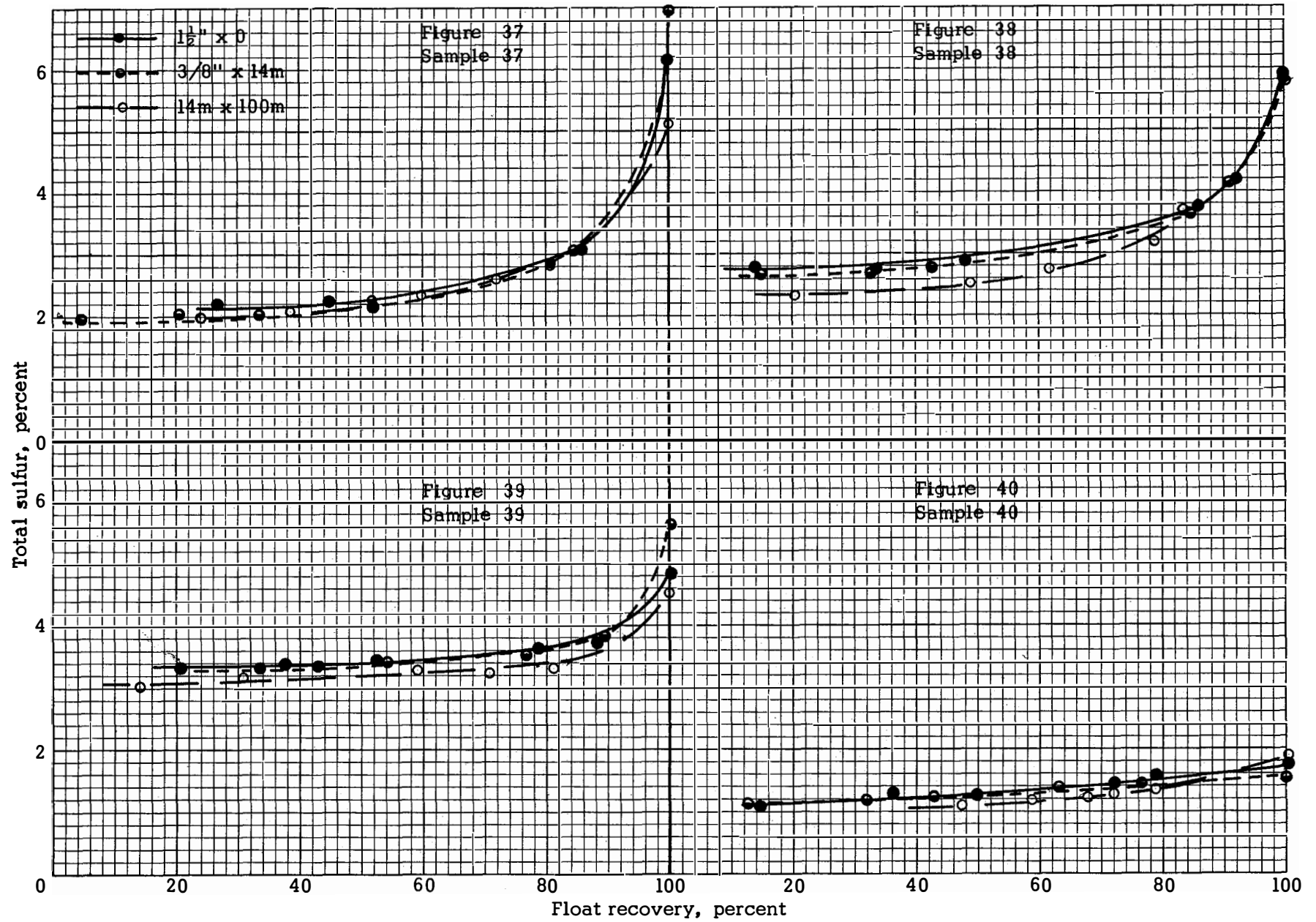
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



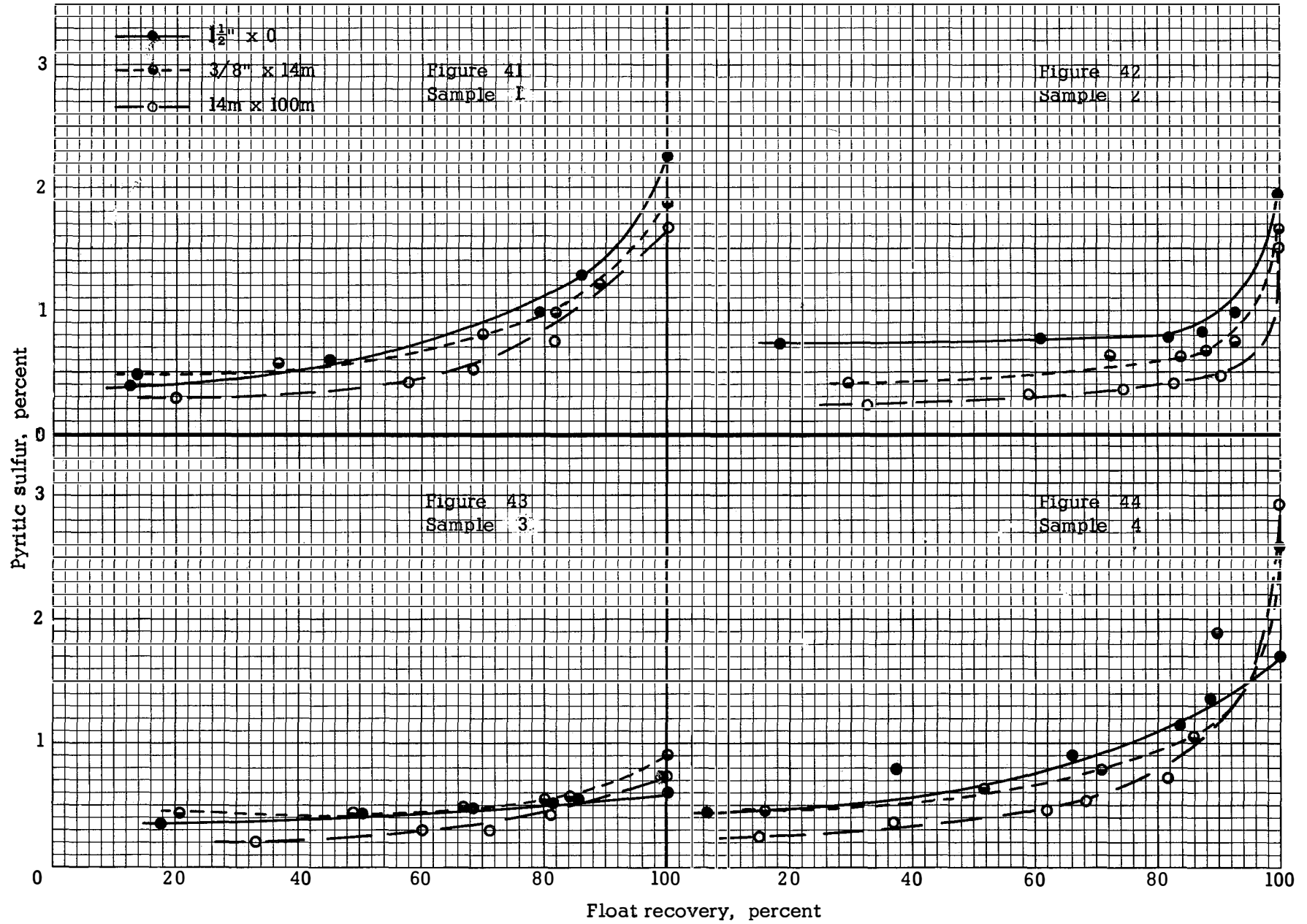
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



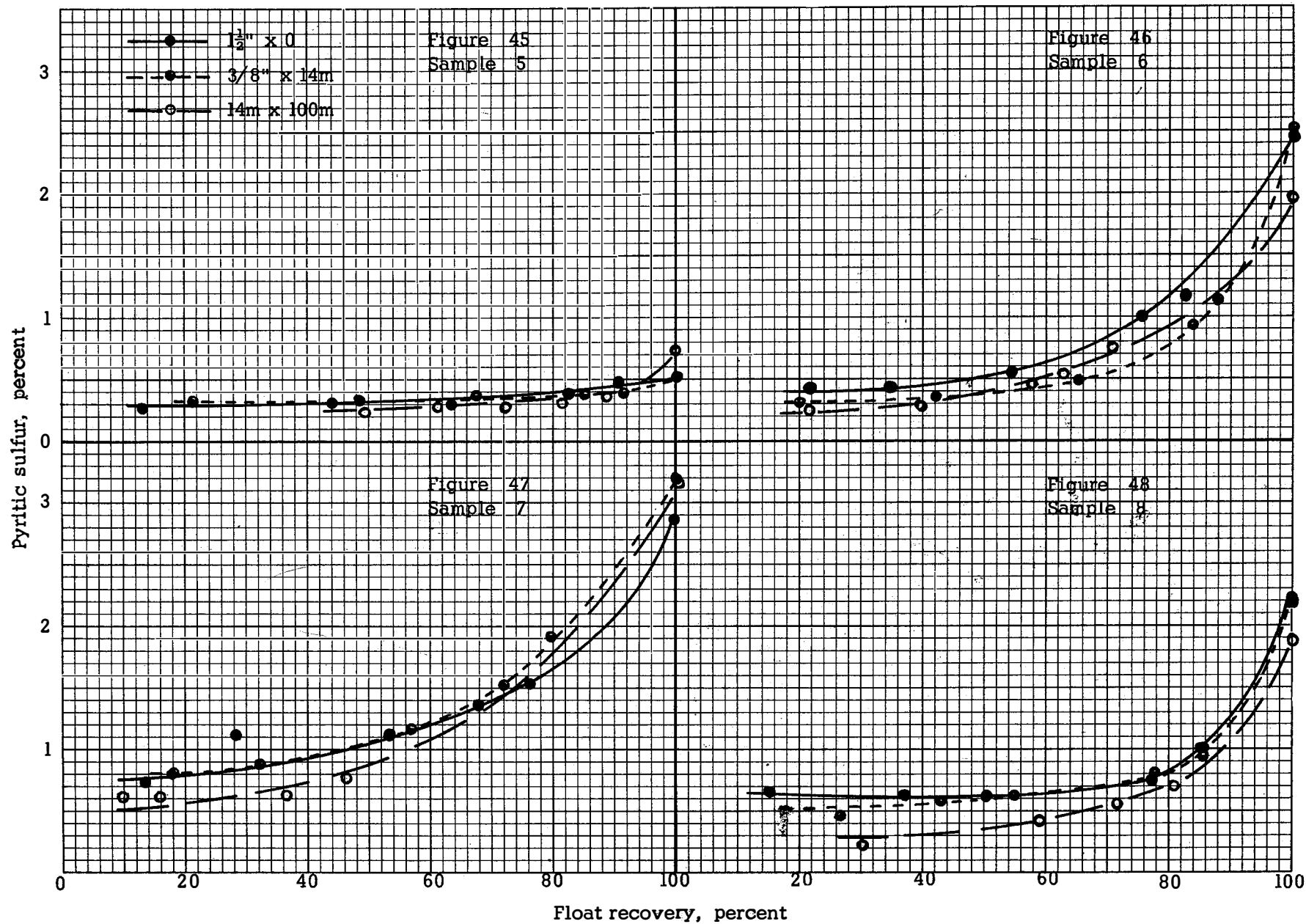
TOTAL SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



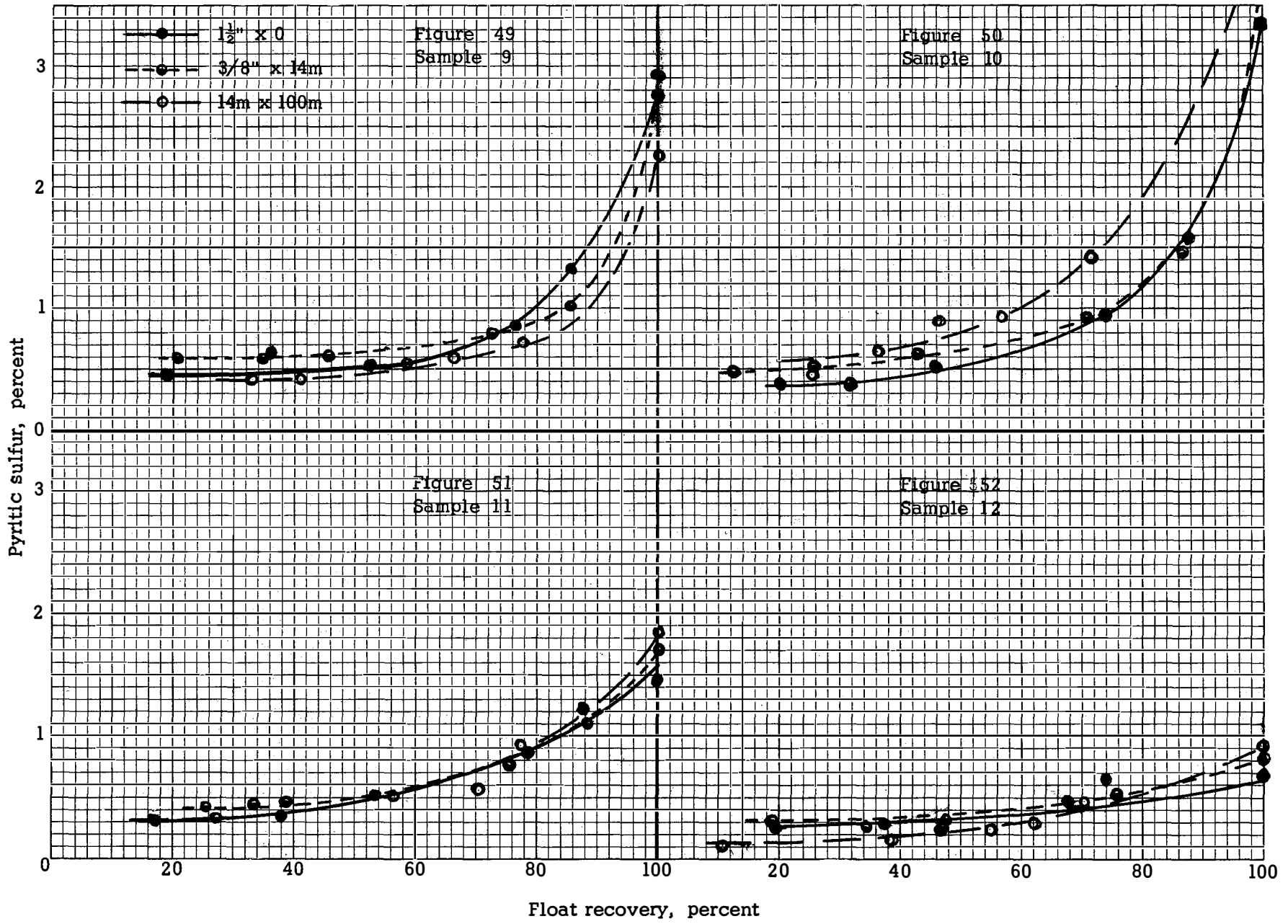
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



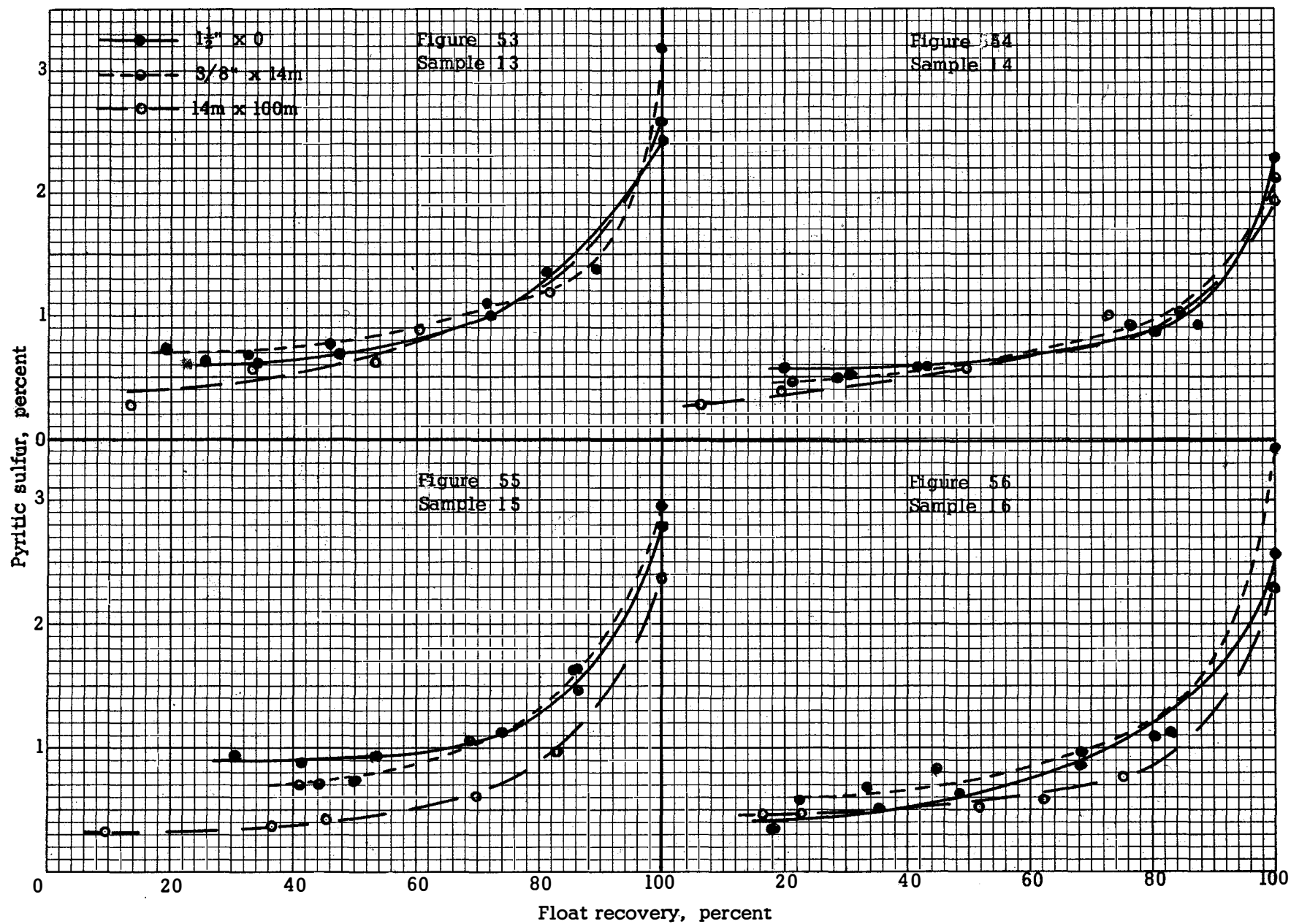
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



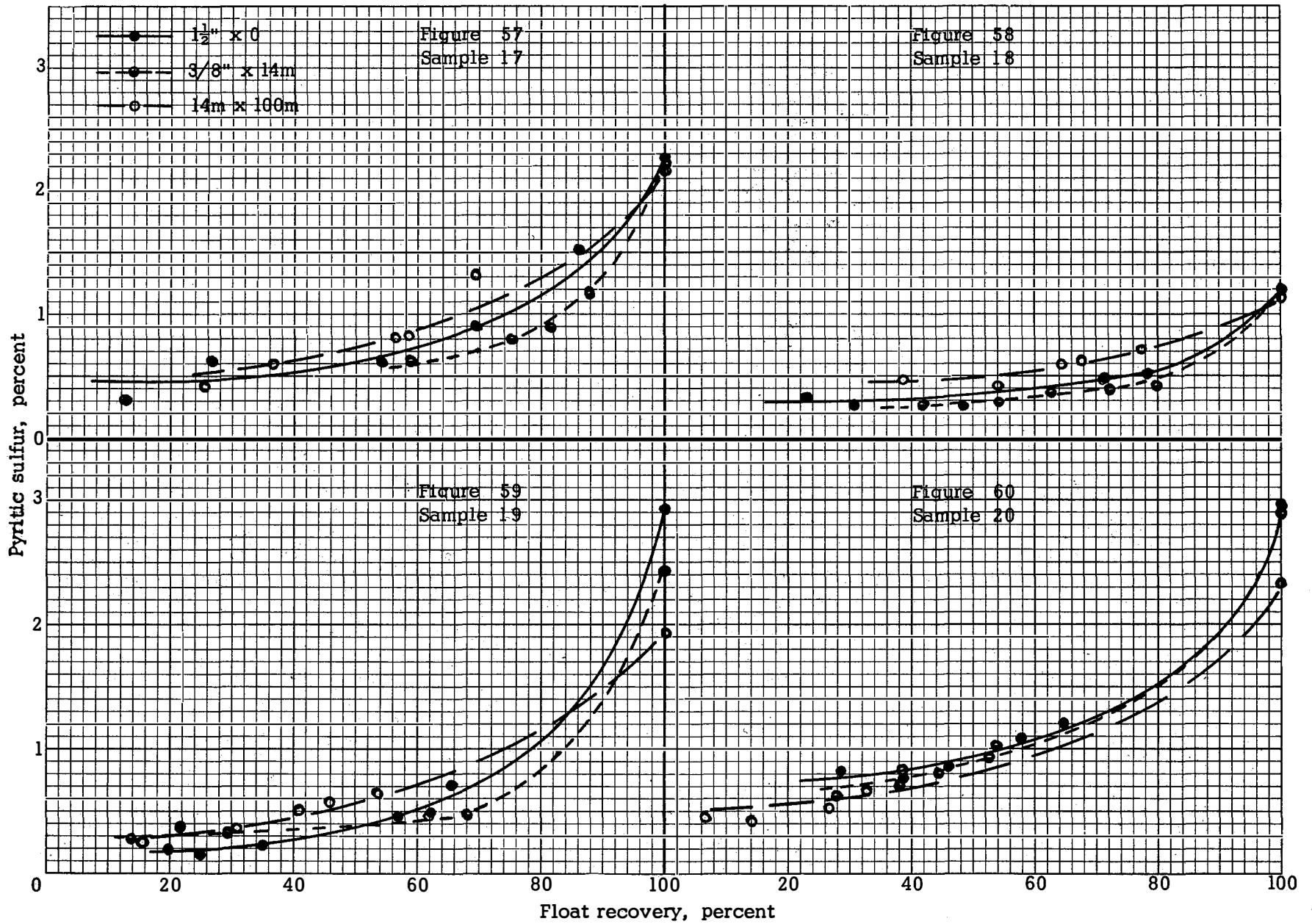
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



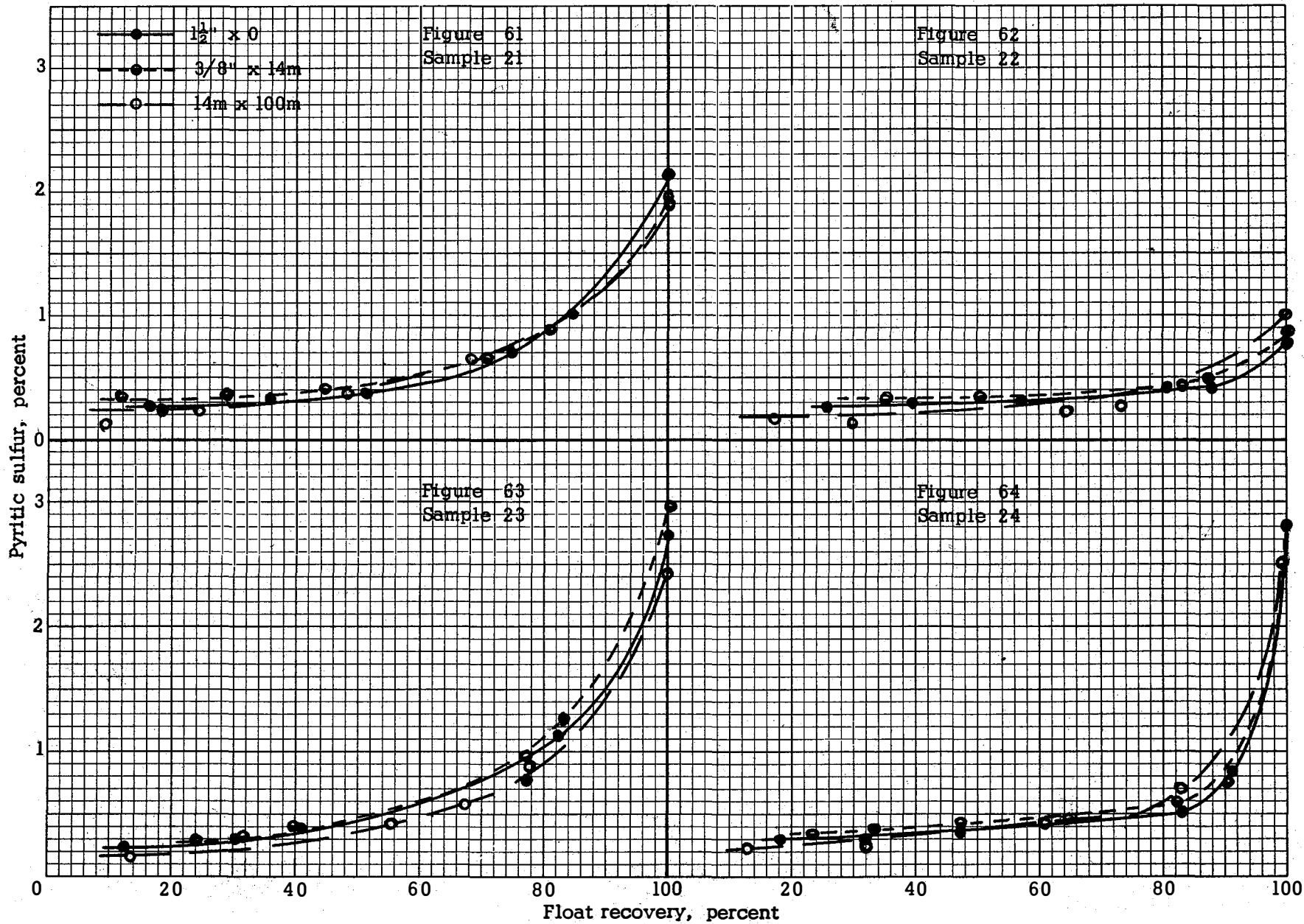
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



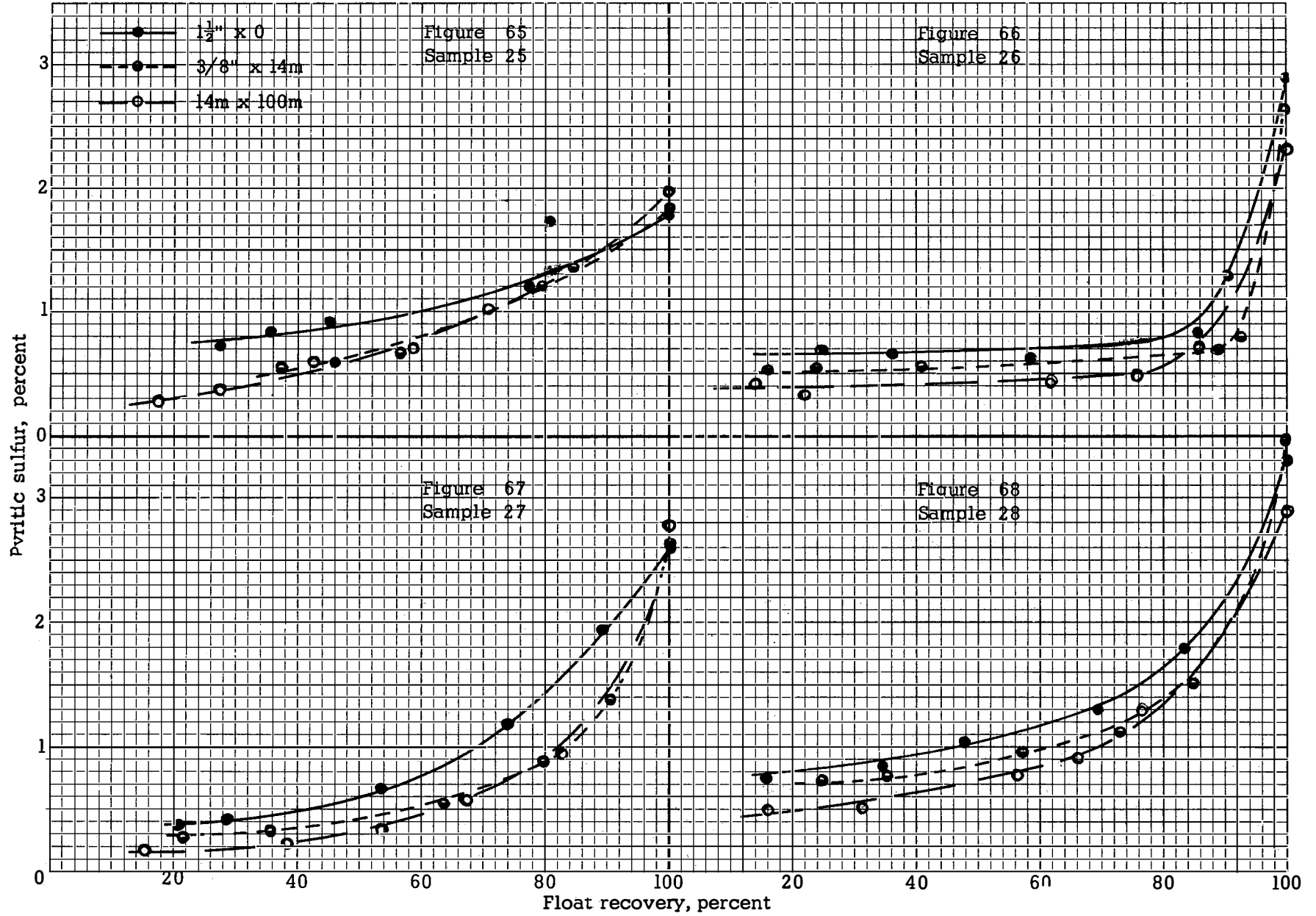
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



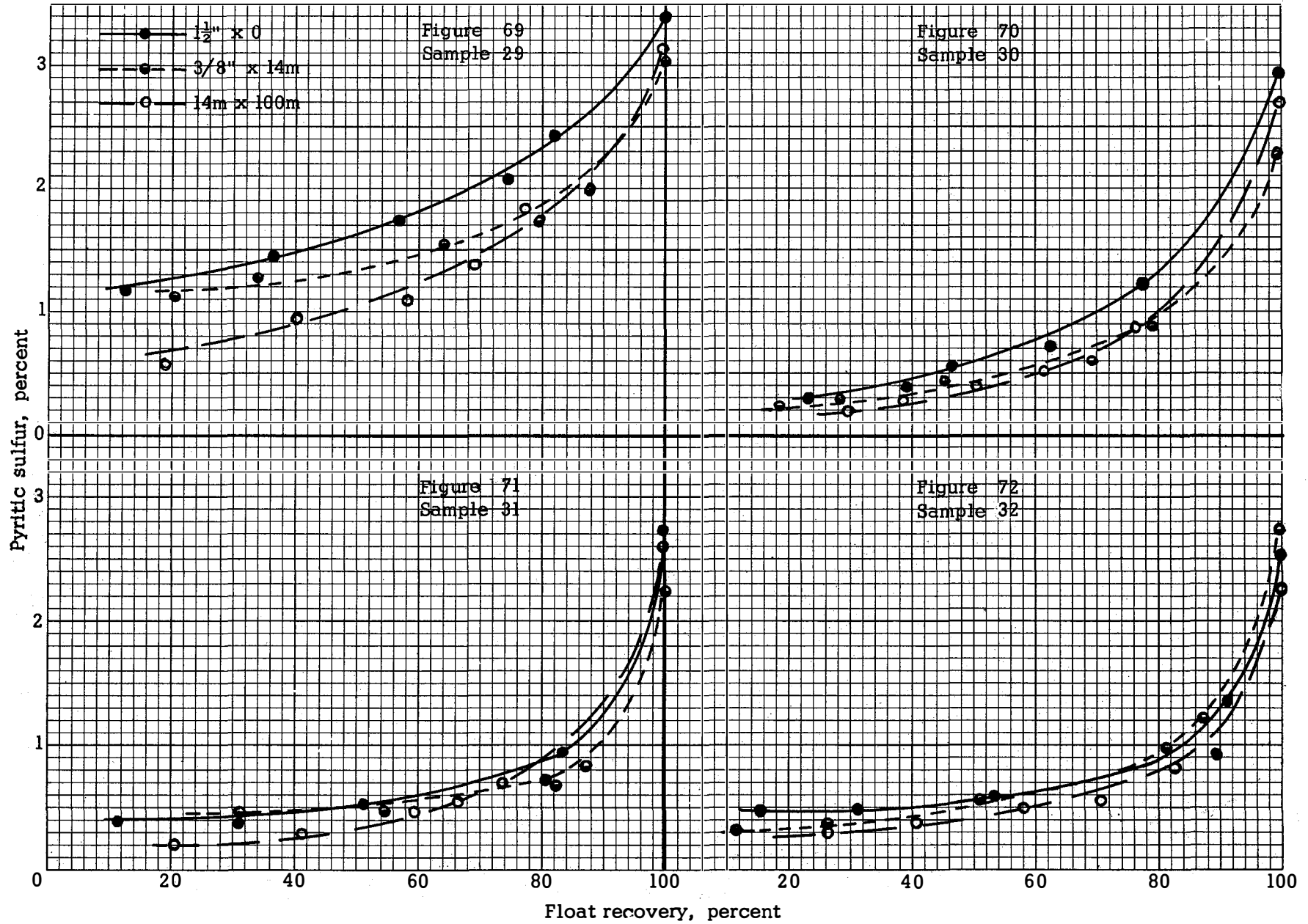
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



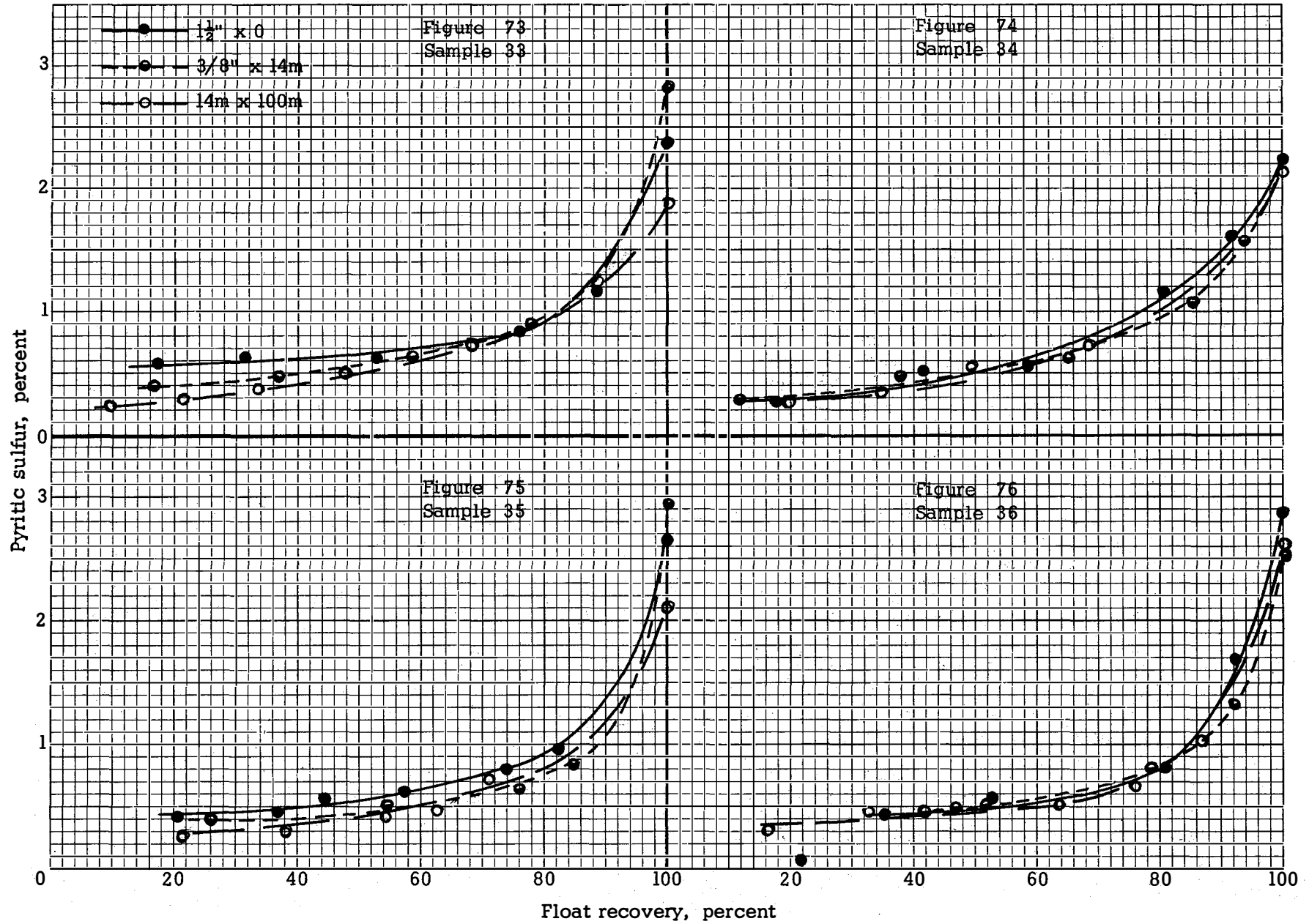
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



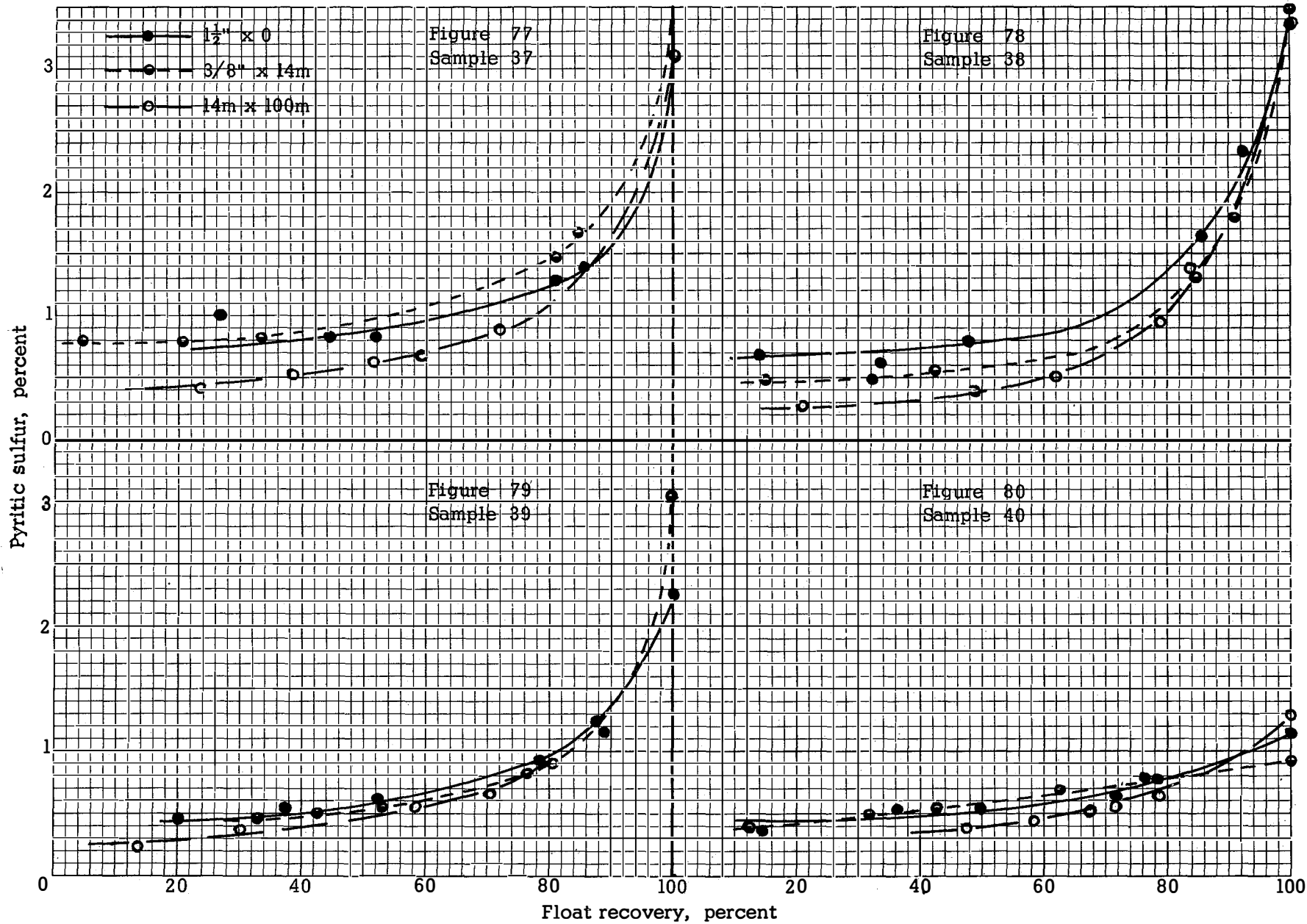
PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



PYRITIC SULFUR IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



ASH IN FLOAT FRACTIONS FOR THREE SIZES OF COAL

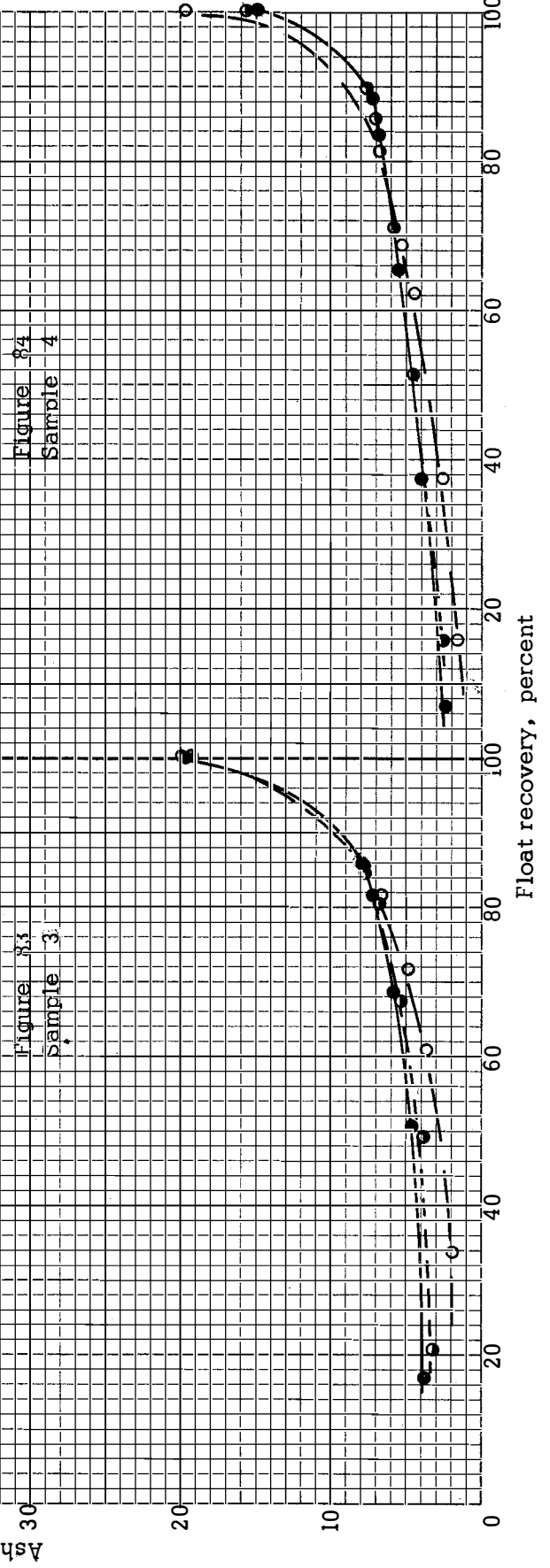
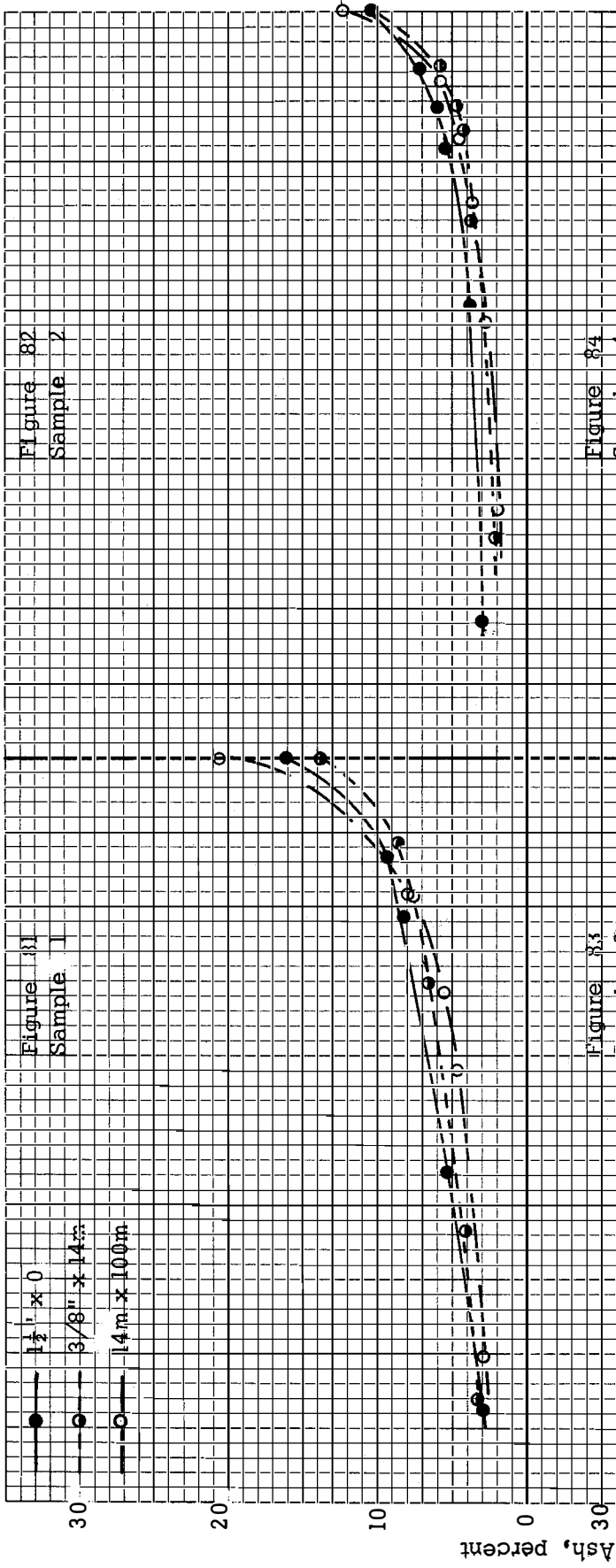


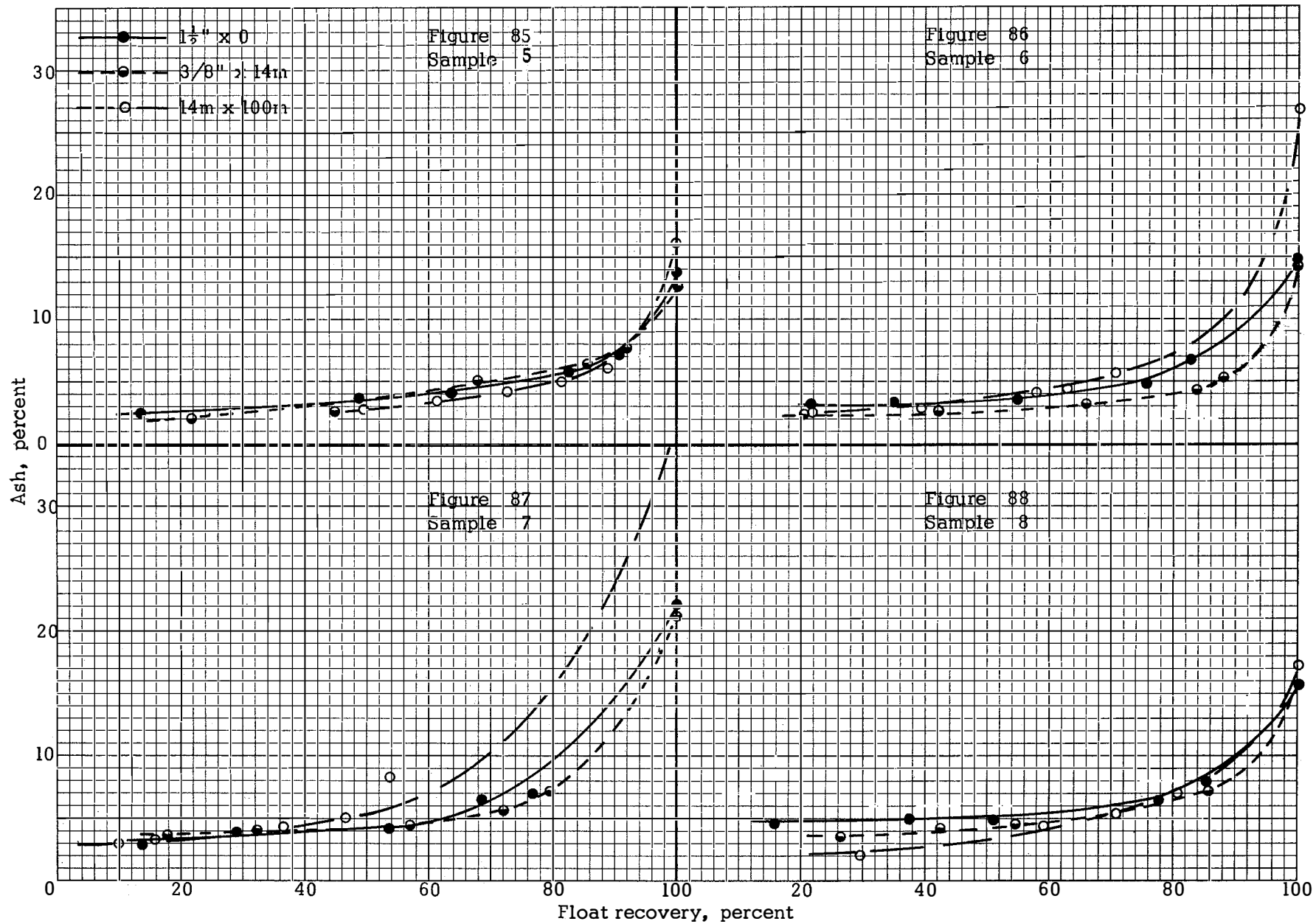
Figure 83
Sample 3

Figure 84
Sample 4

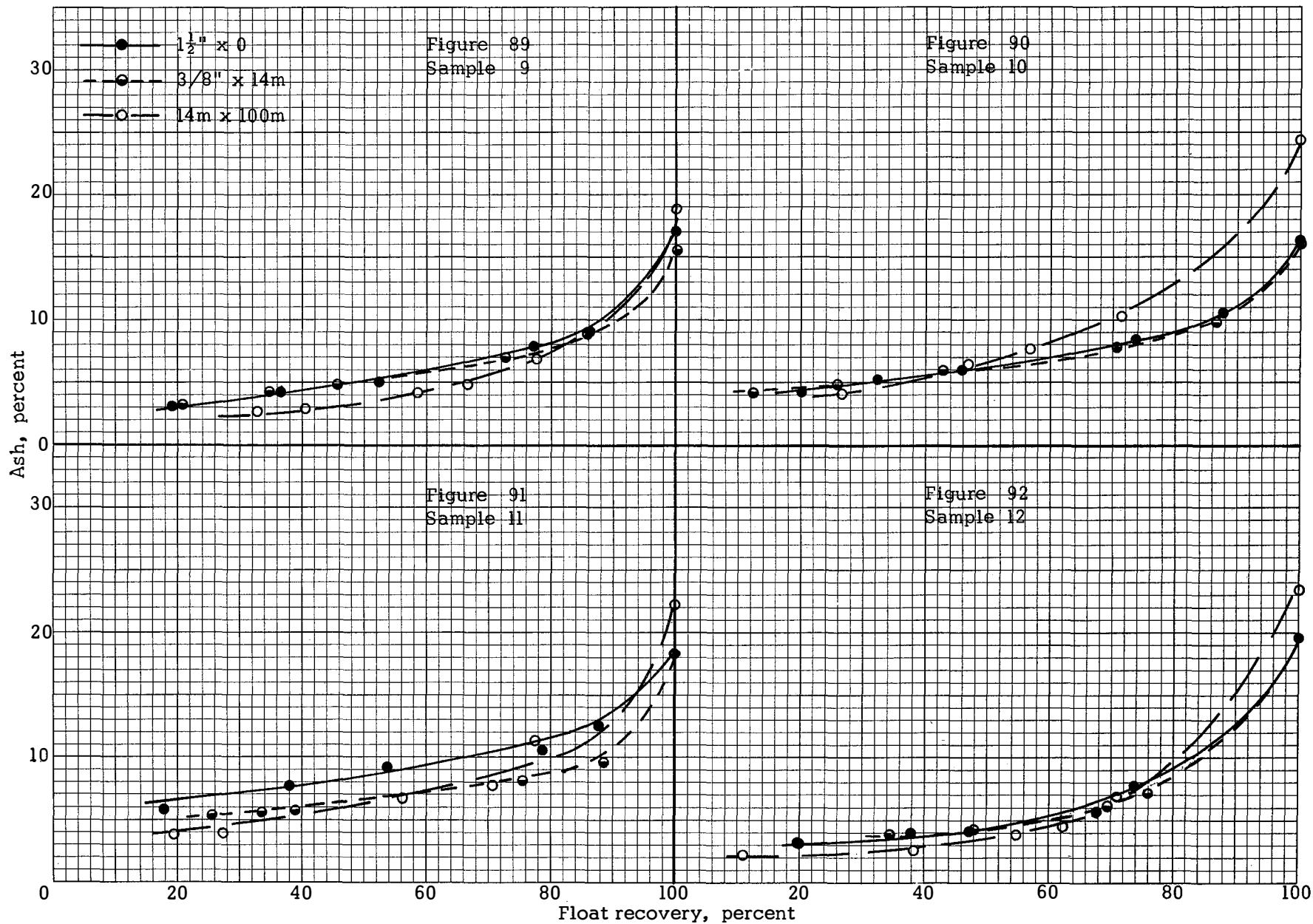
Figure 81
Sample 1

Figure 82
Sample 2

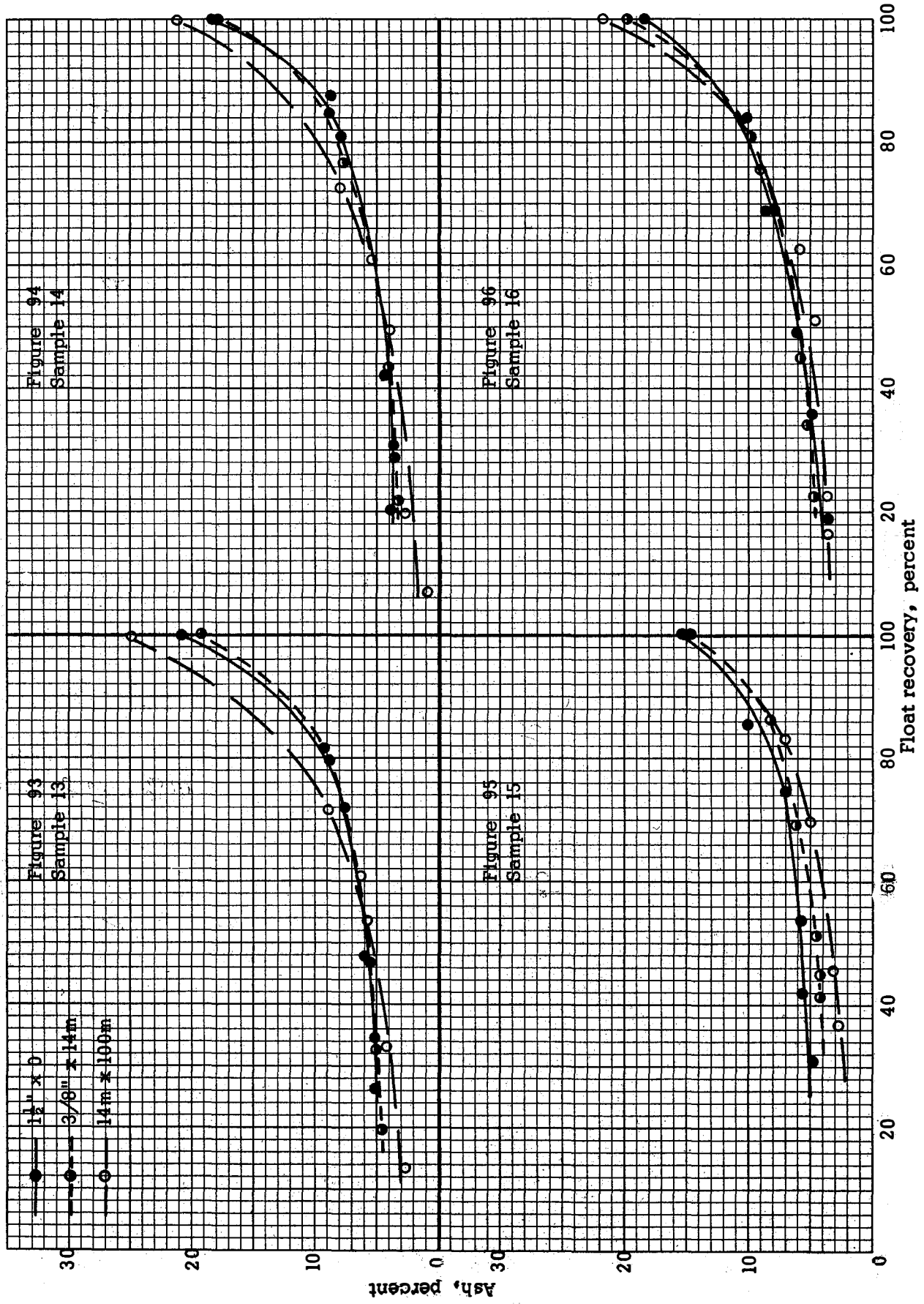
ASH IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



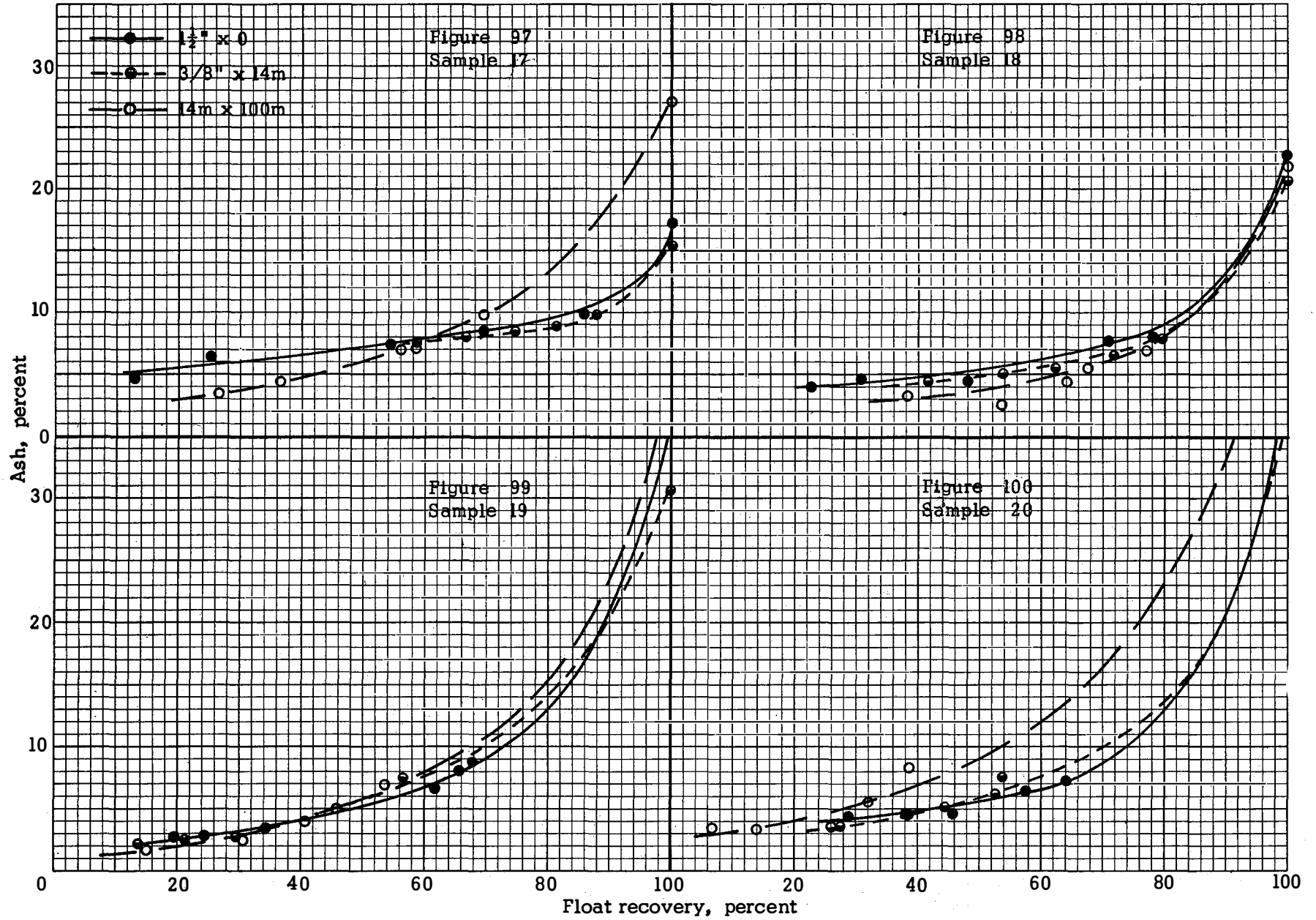
ASH IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



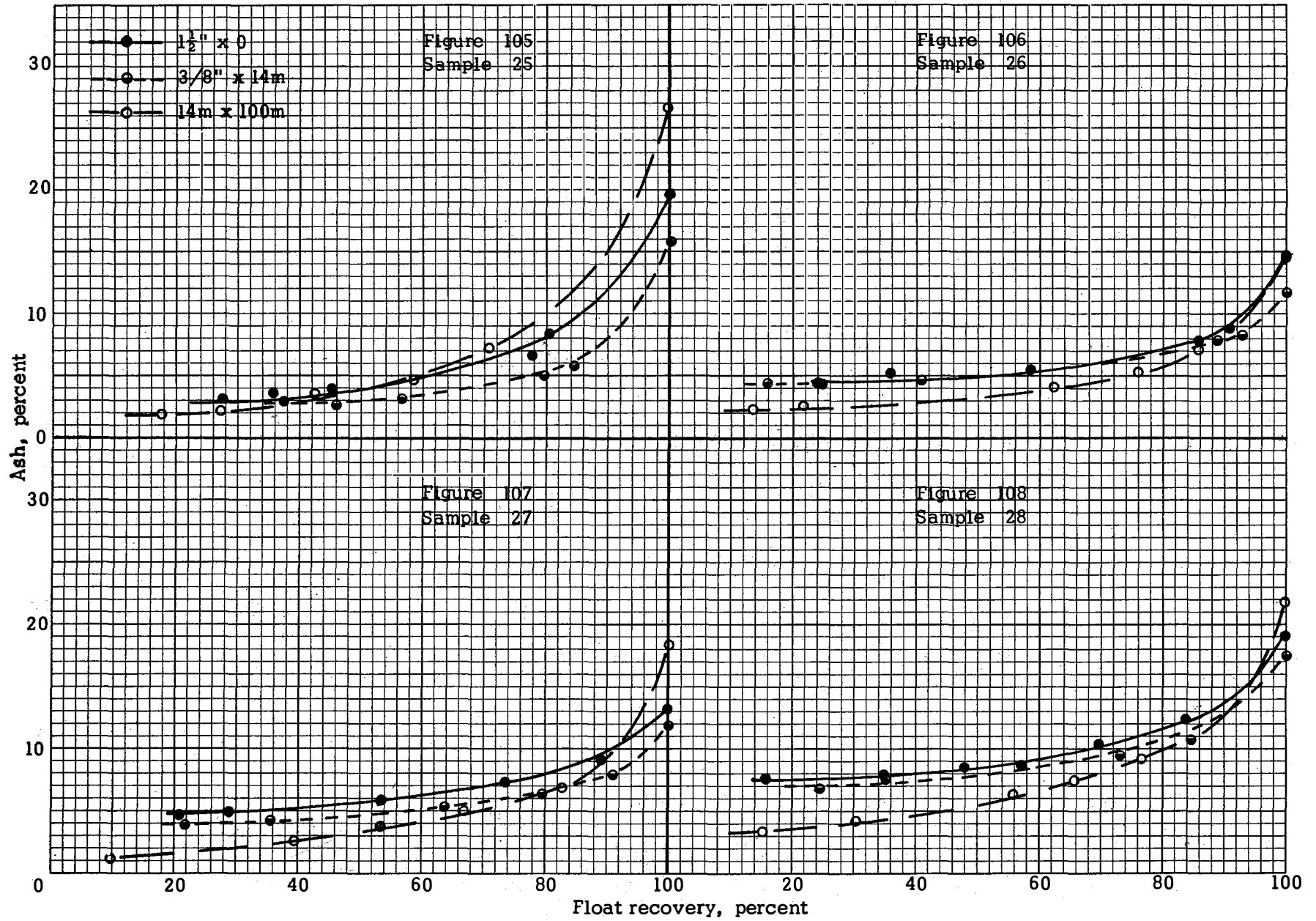
ASH IN FLOT FRACTIONS FOR THREE SIZES OF COAL



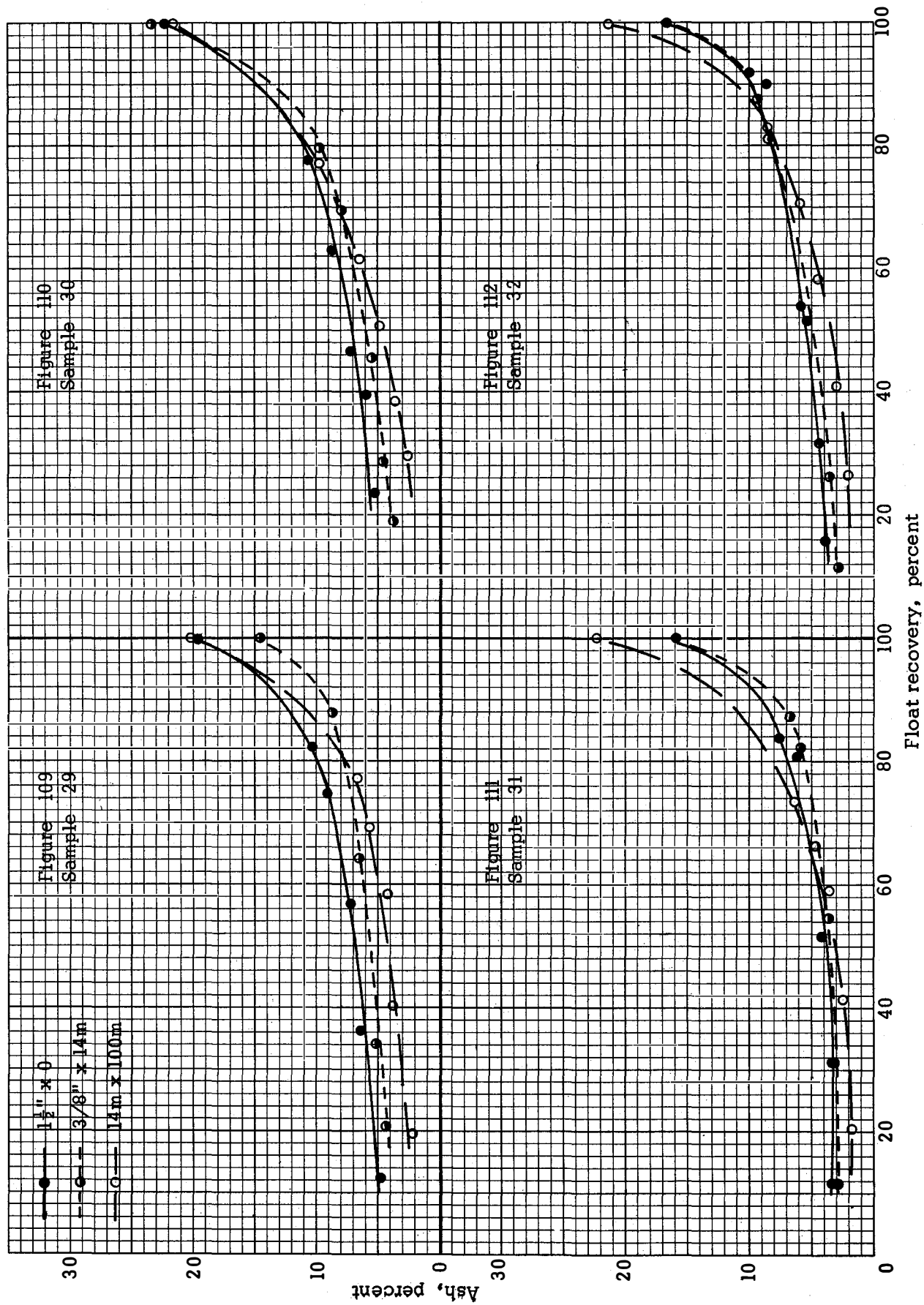
ASH IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



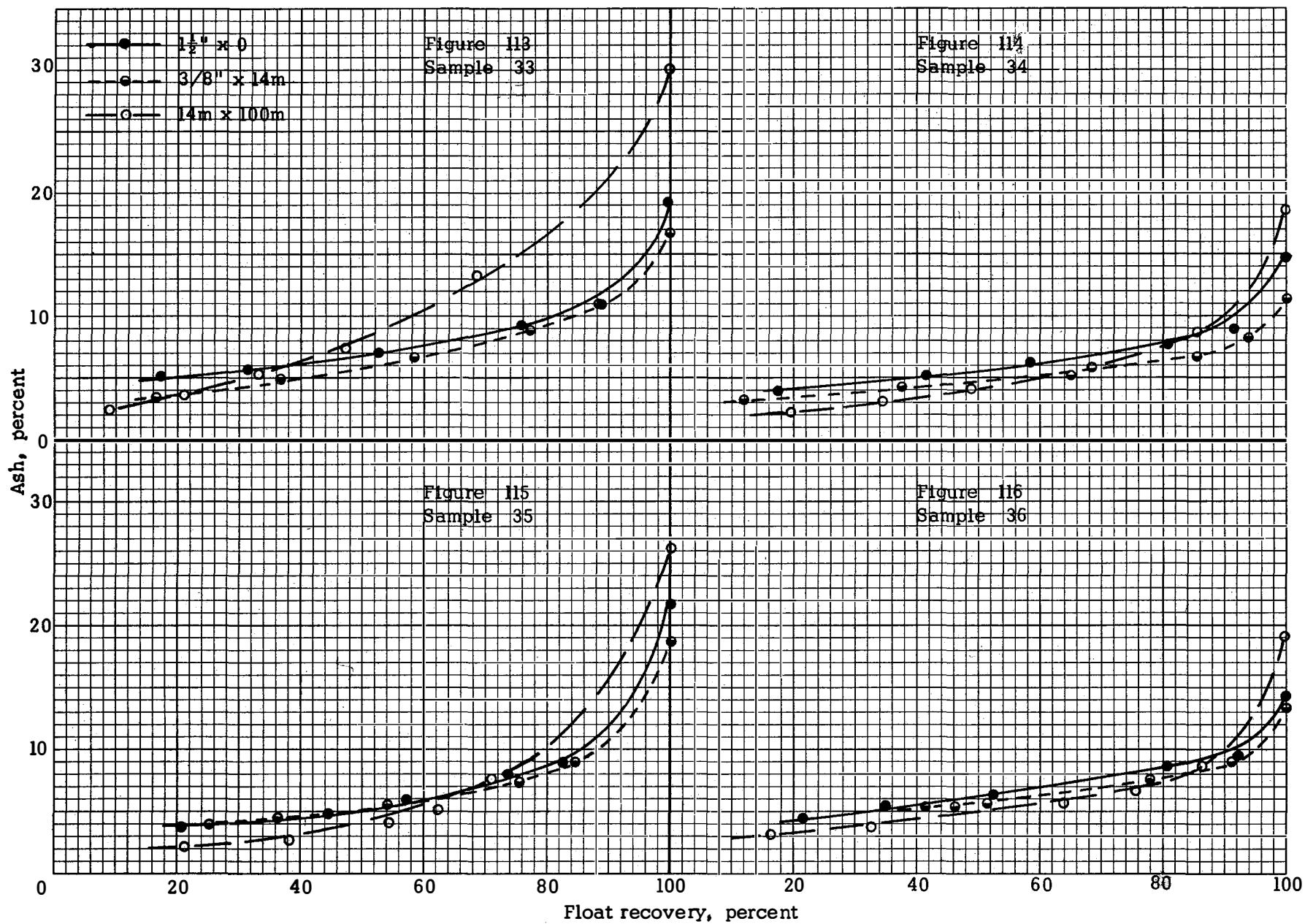
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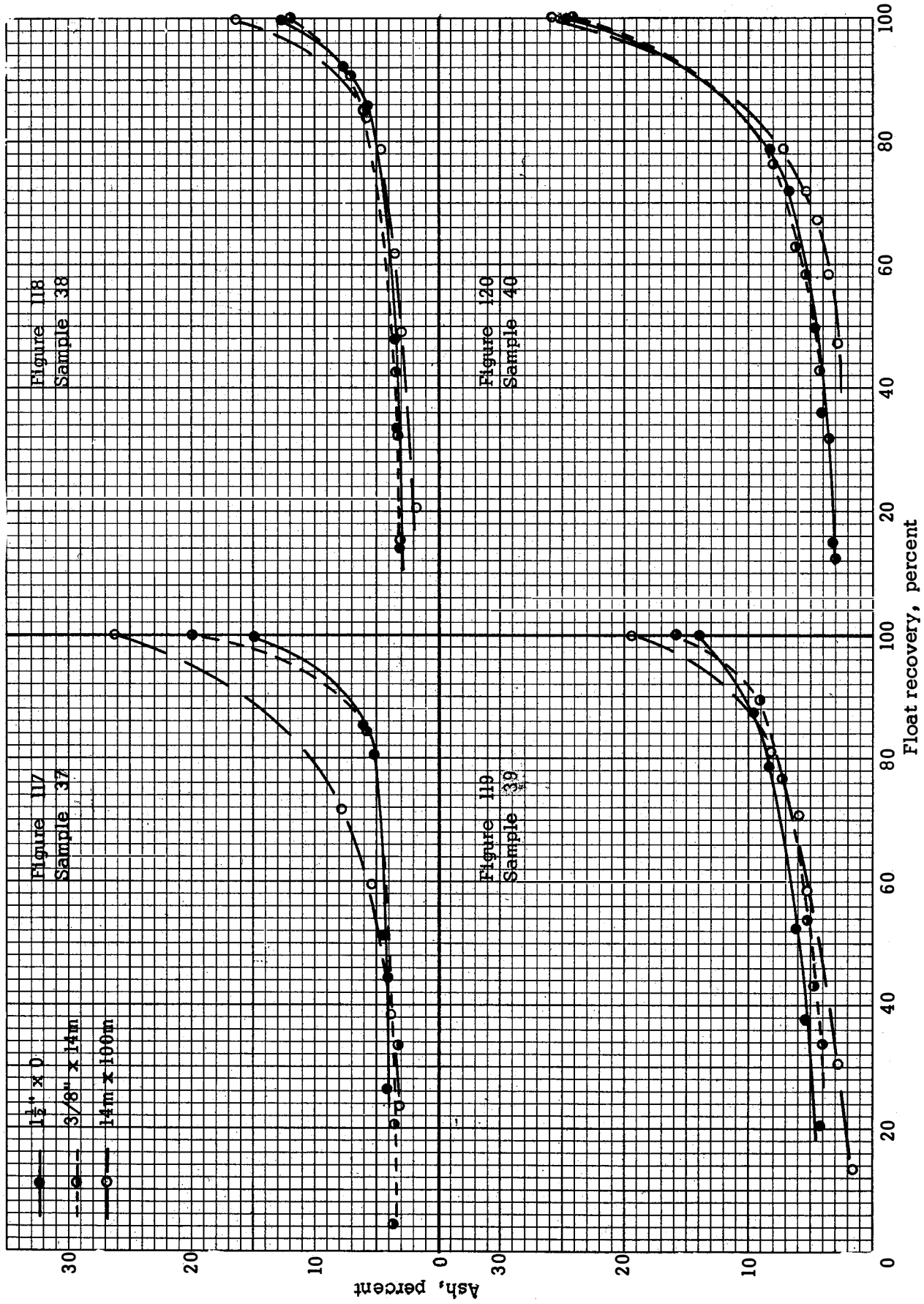
ASH IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



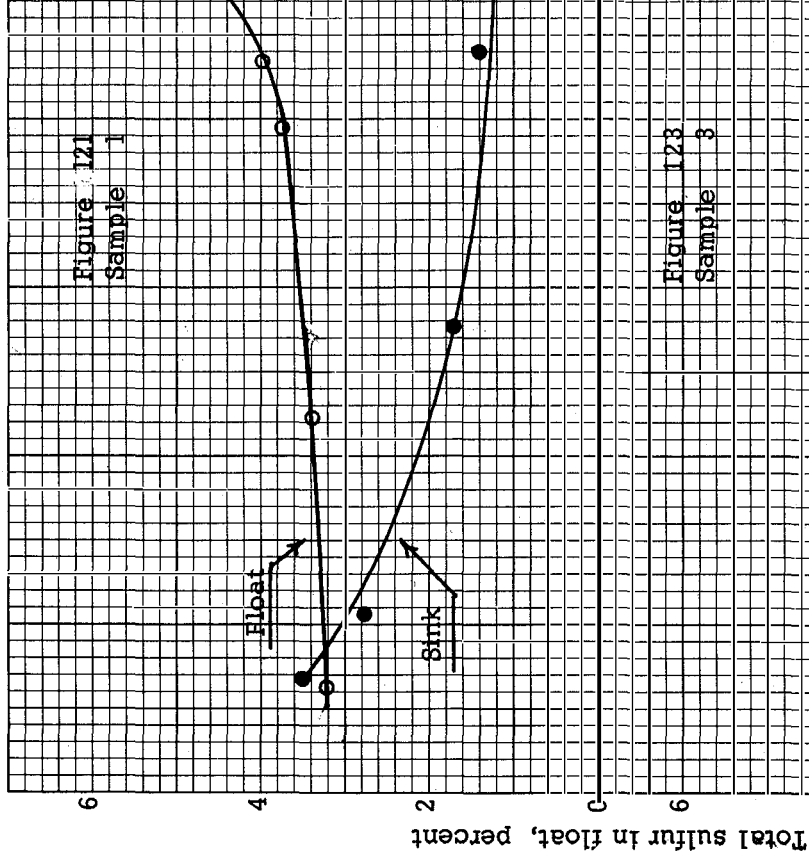
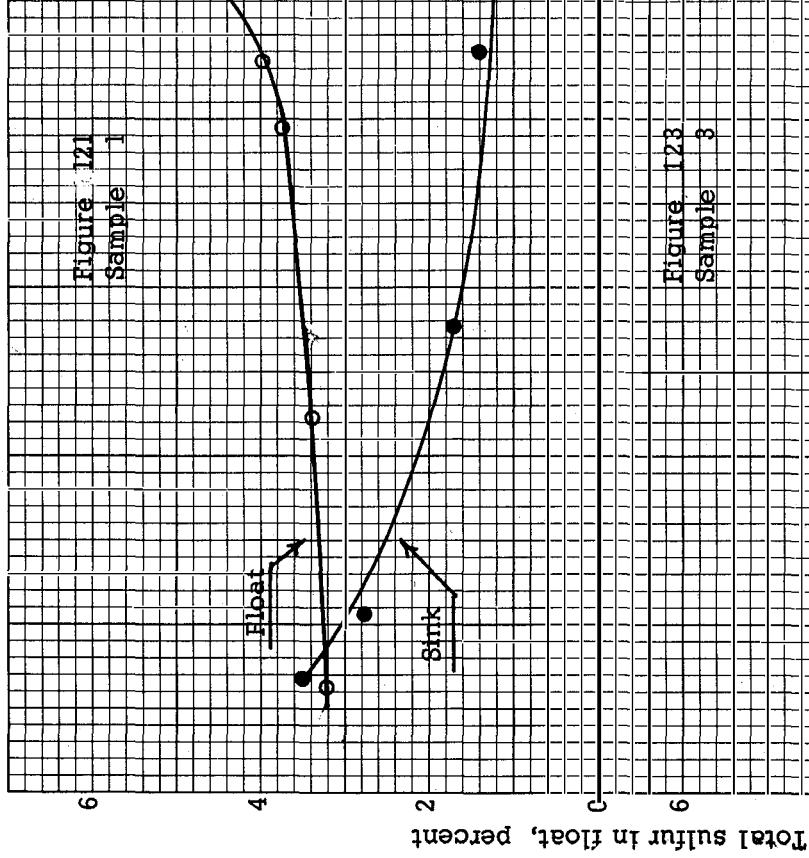
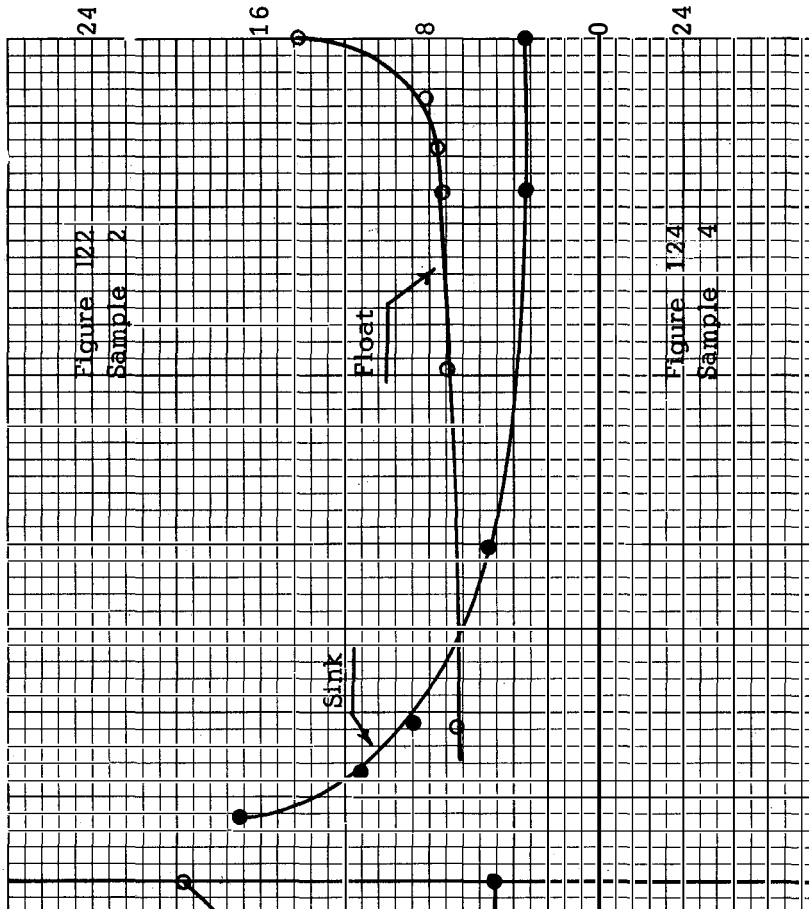
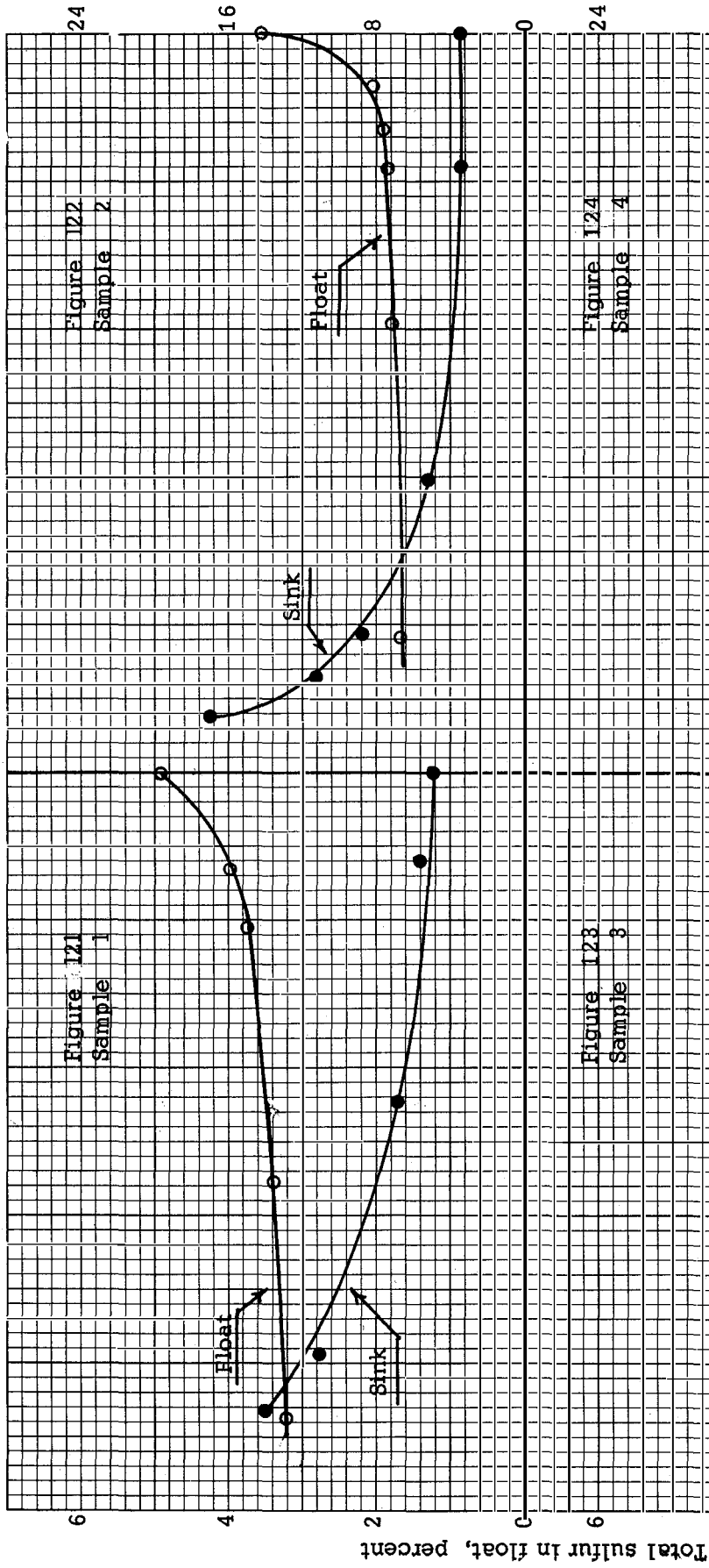
ASH IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



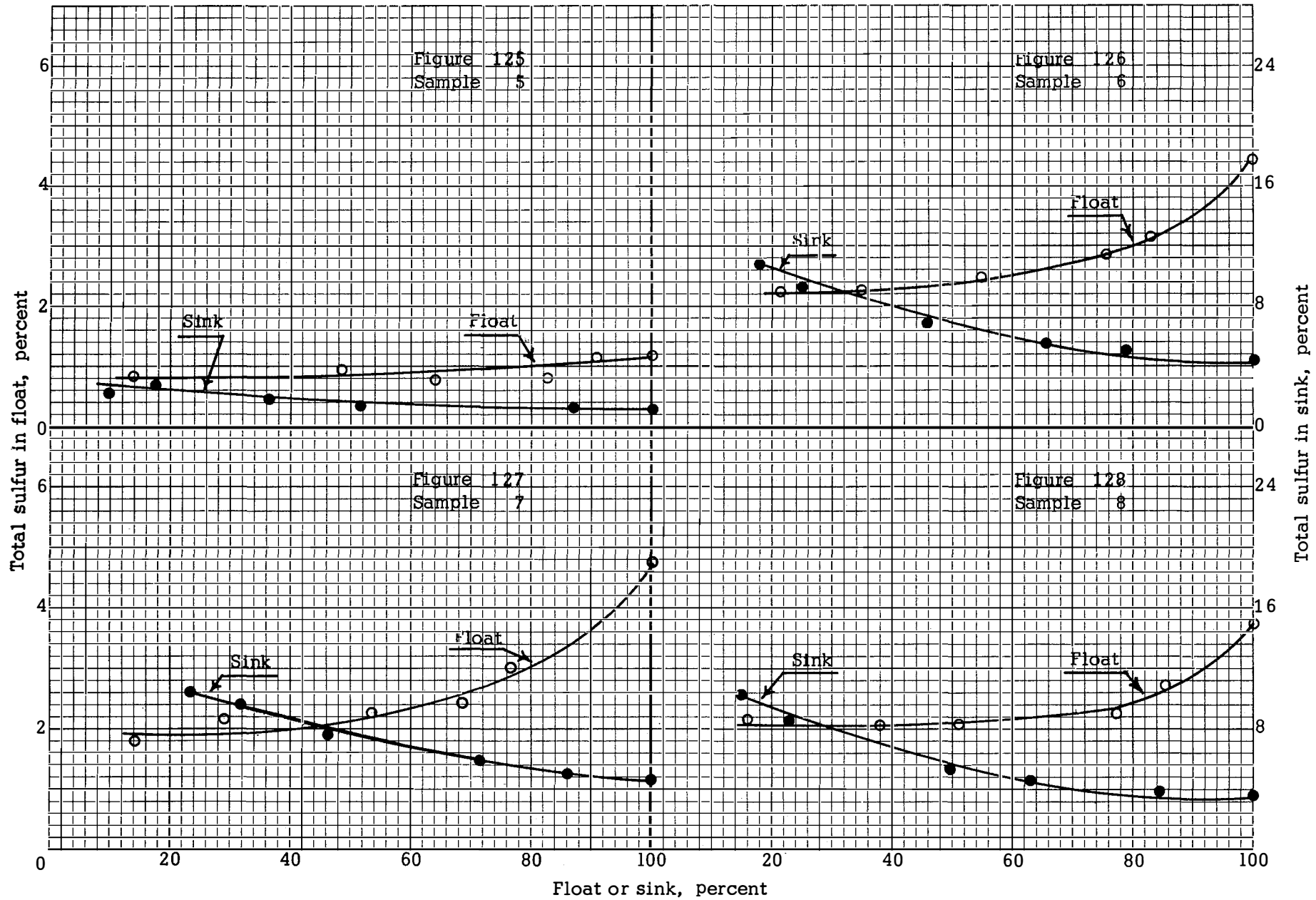
ASH IN FLOAT FRACTIONS FOR THREE SIZES OF COAL



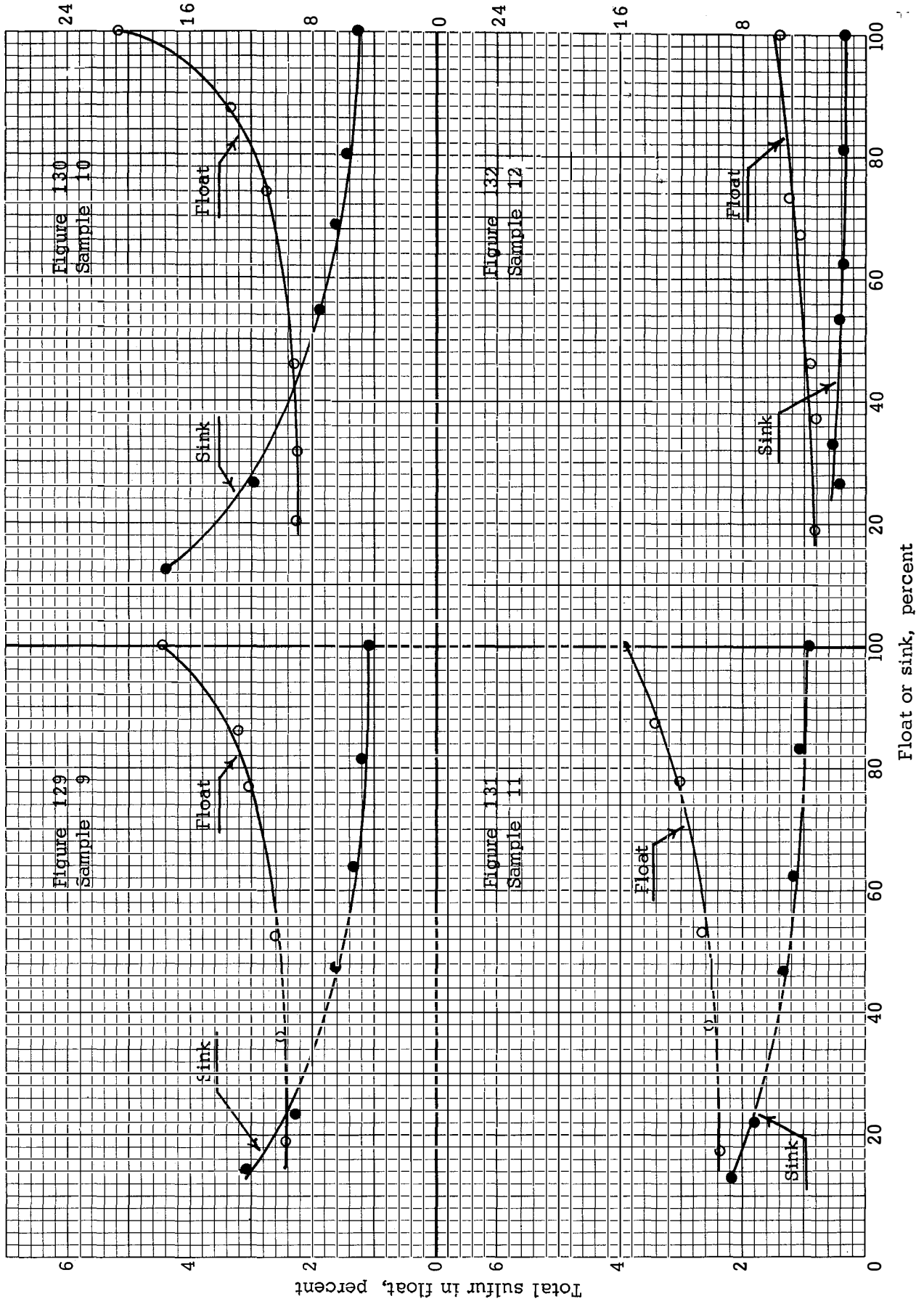
TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



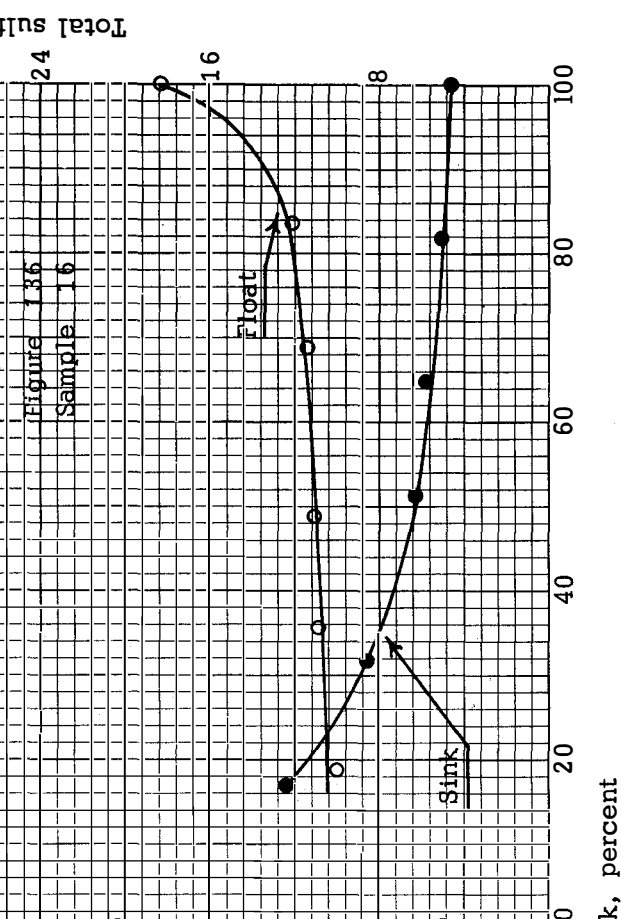
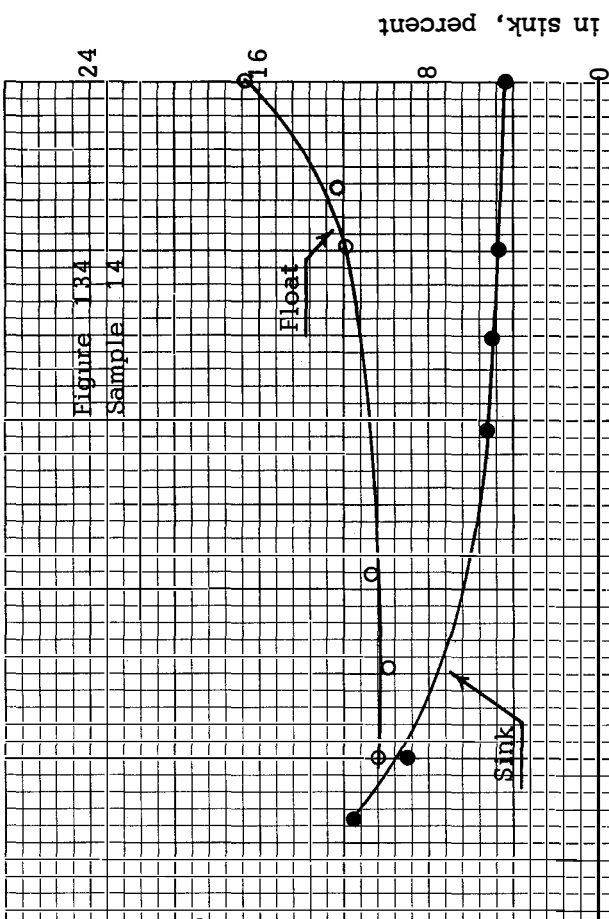
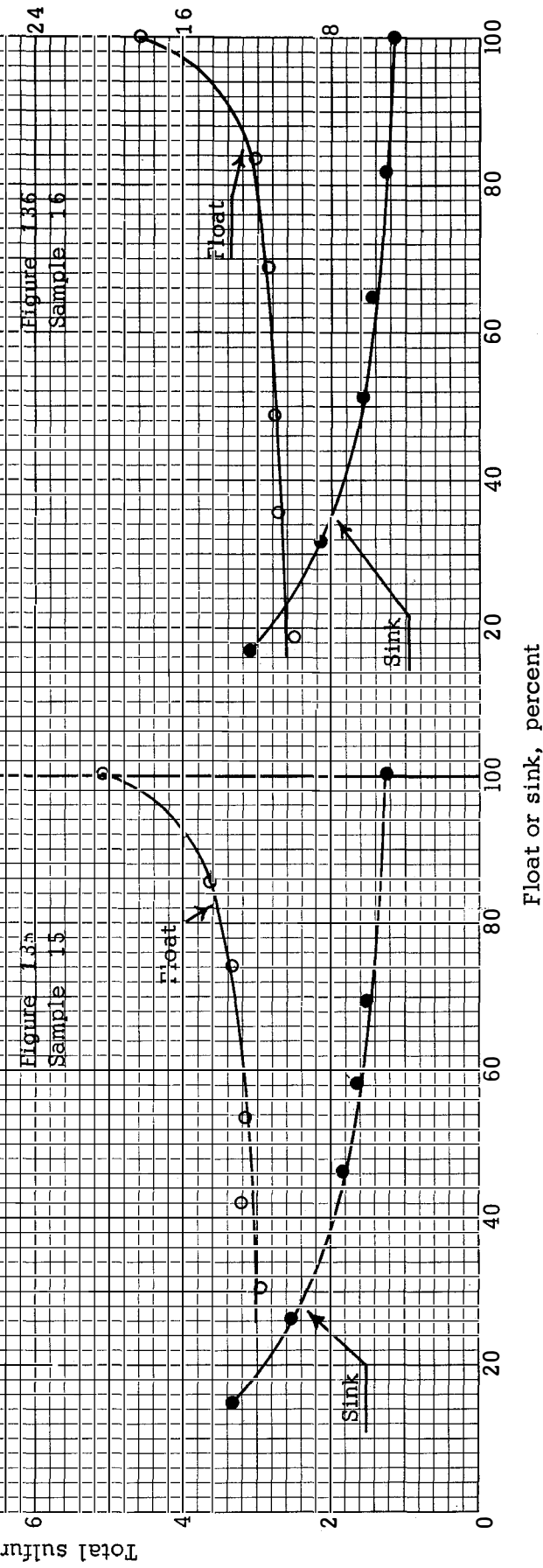
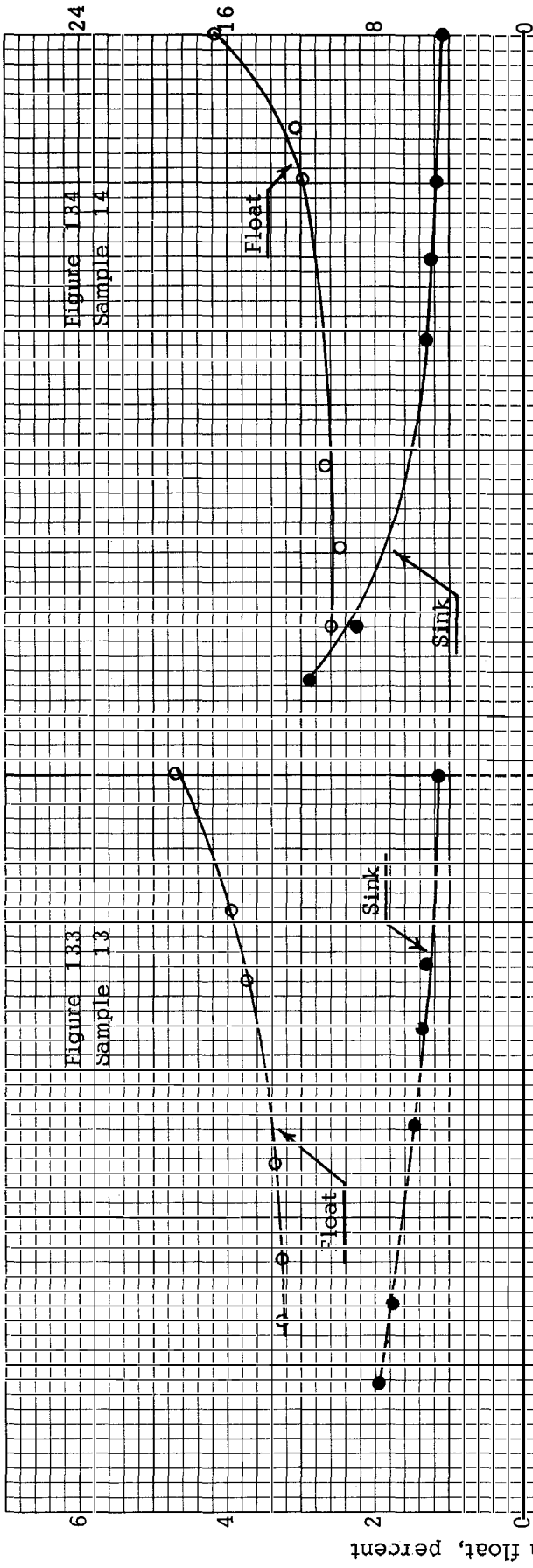
TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



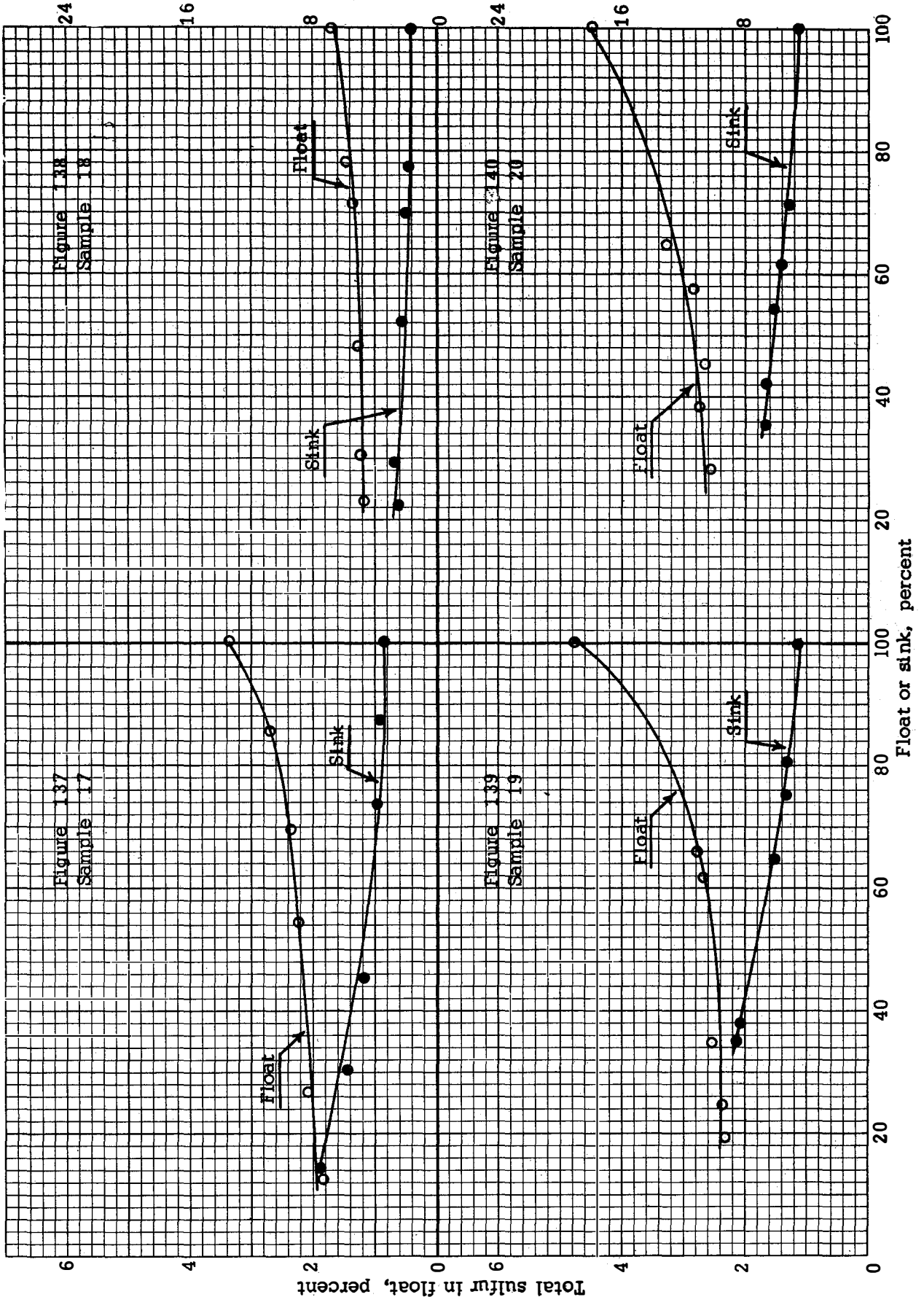
TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



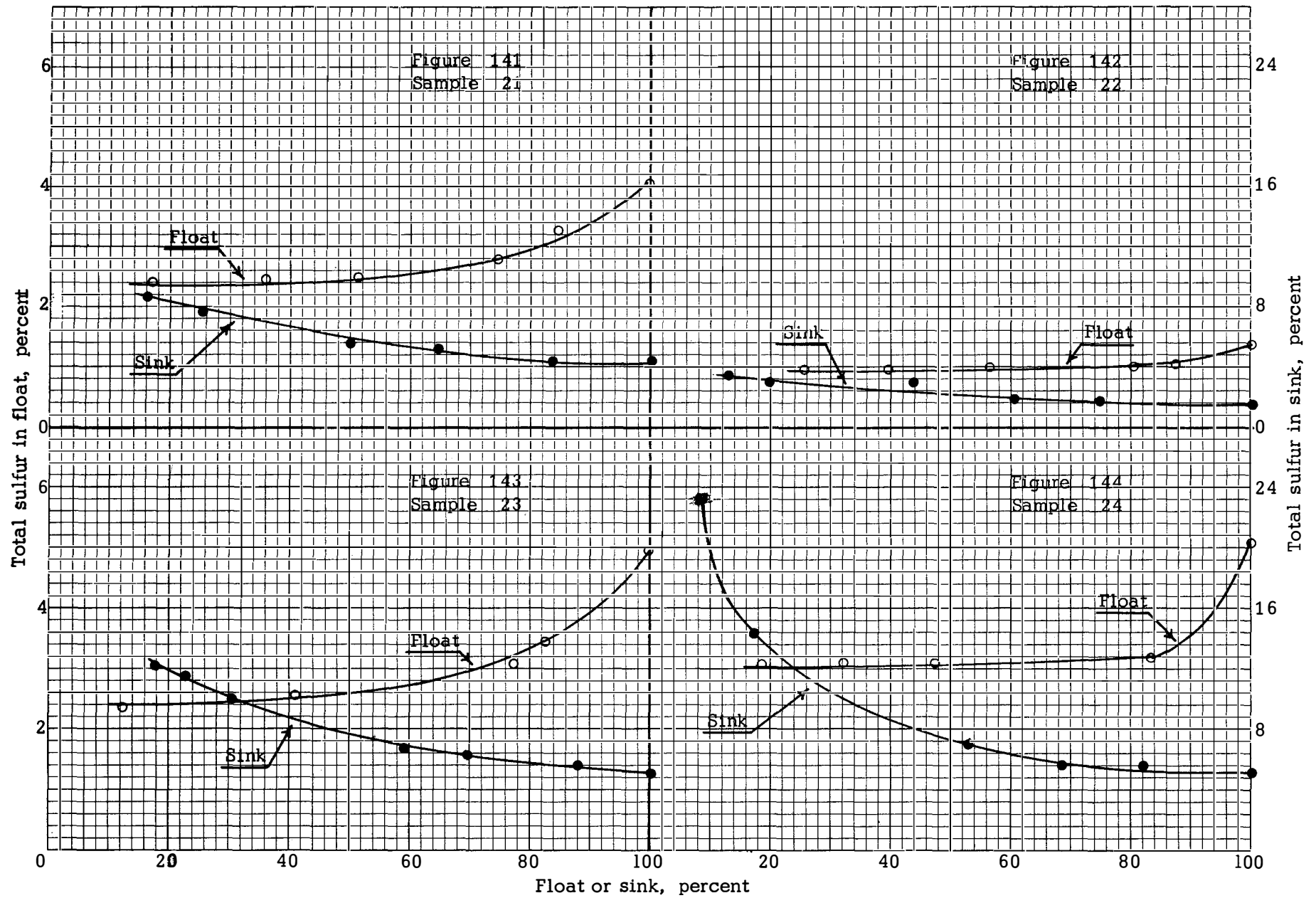
TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



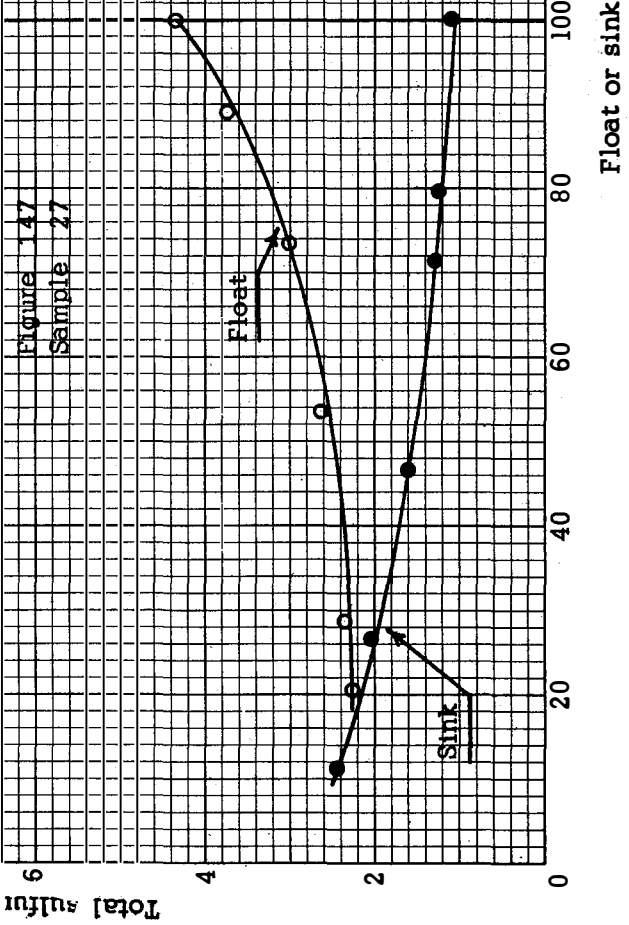
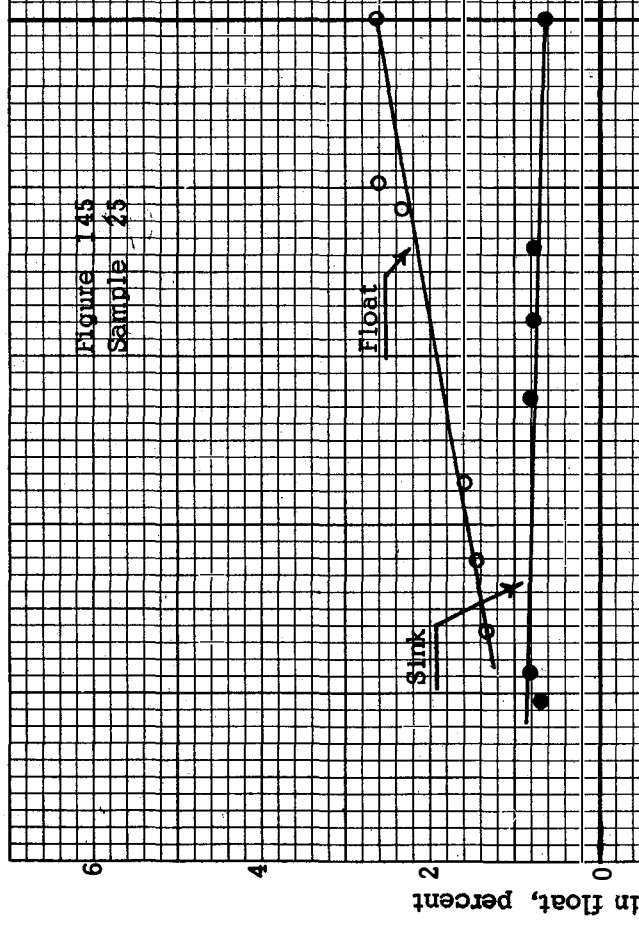
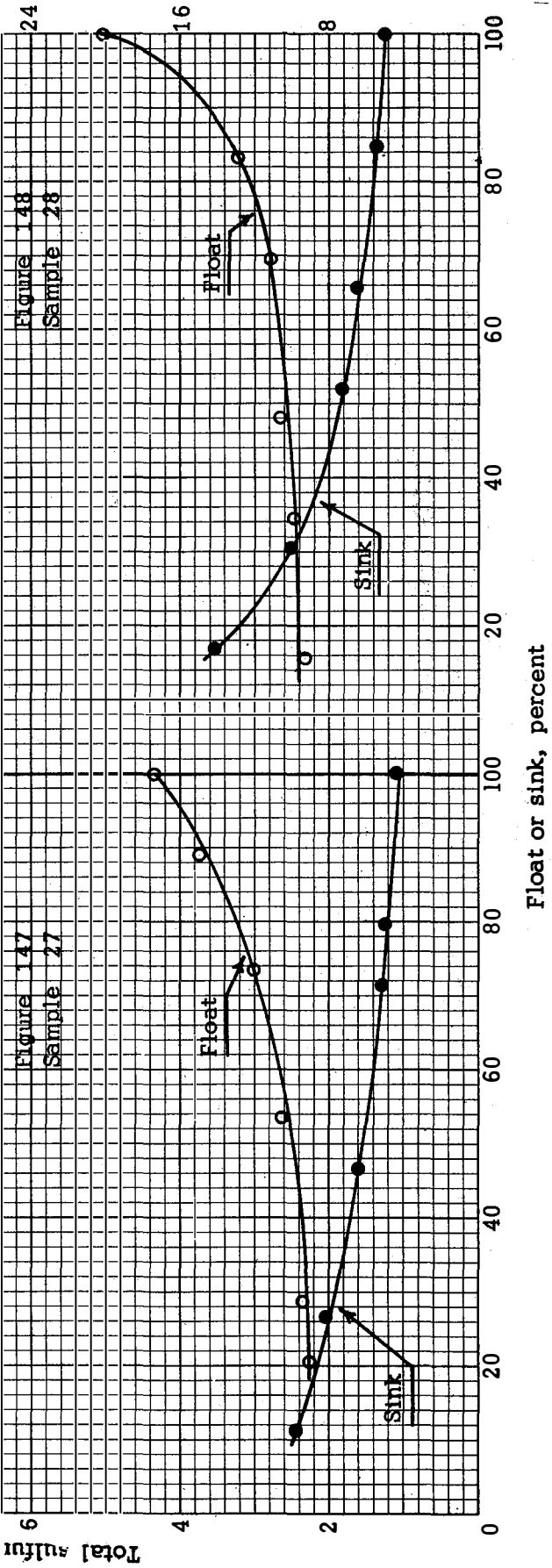
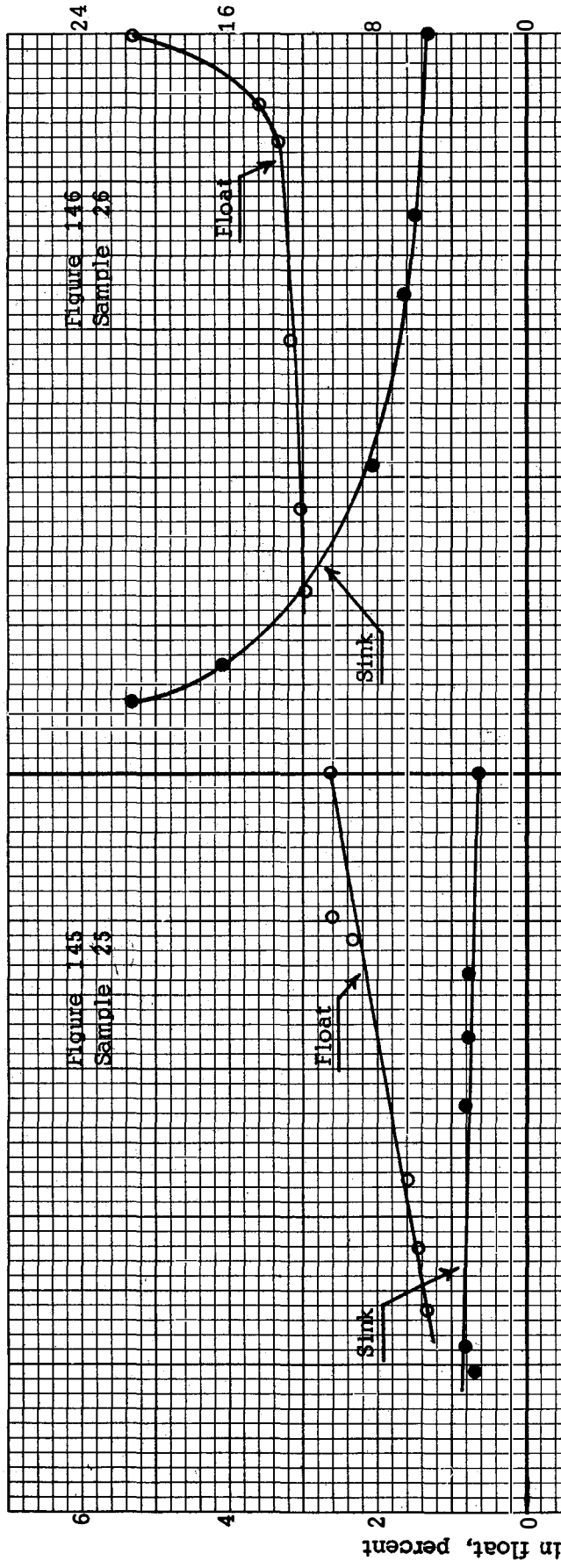
TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



TOTAL SULFUR IN FLOAT AND SINK ($1\frac{1}{2}$ " x 0 COAL)



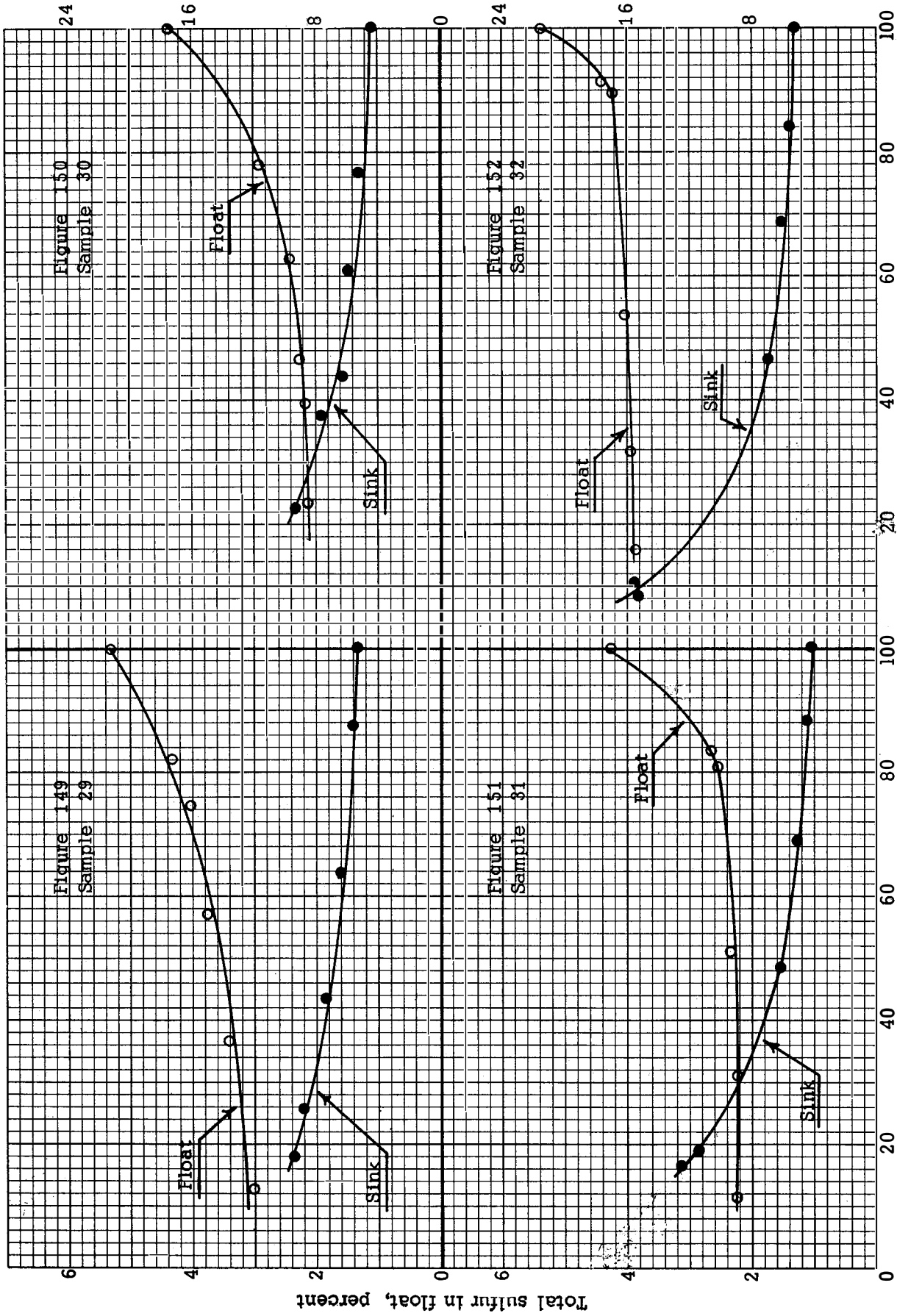
TOTAL SULFUR IN FLOAT AND SINK ($1\frac{1}{2}$ " x 0 COAL)



Total sulfur in sink, percent

Float or sink, percent

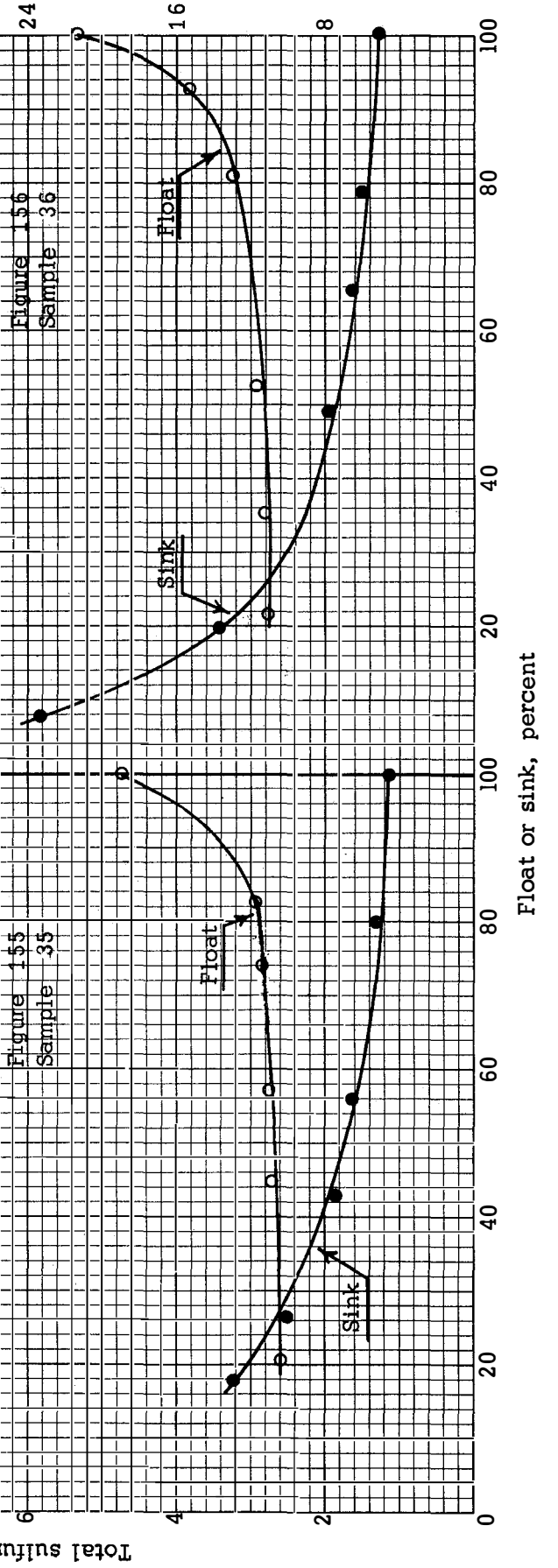
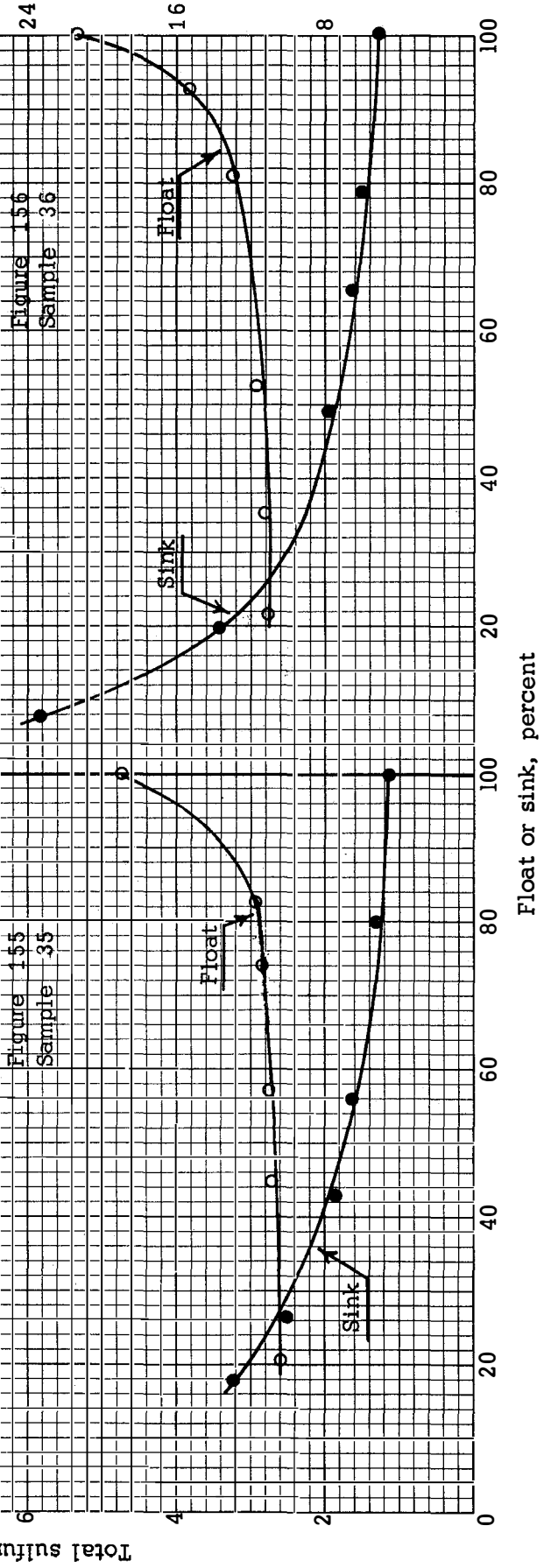
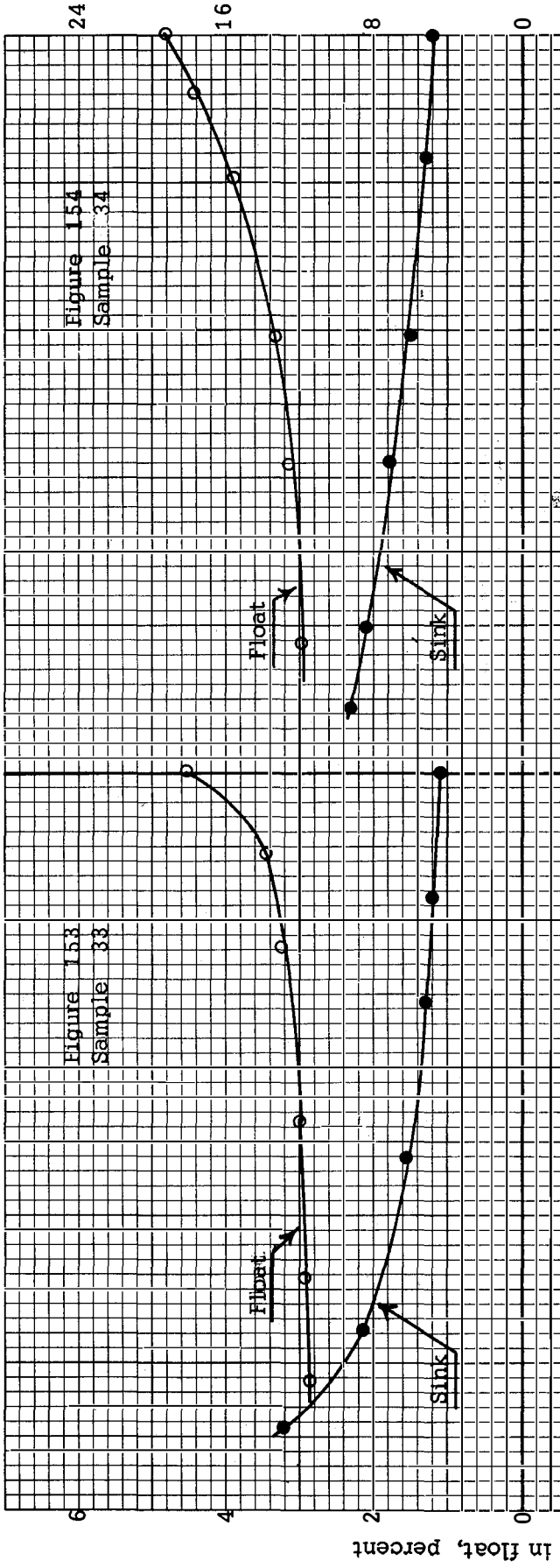
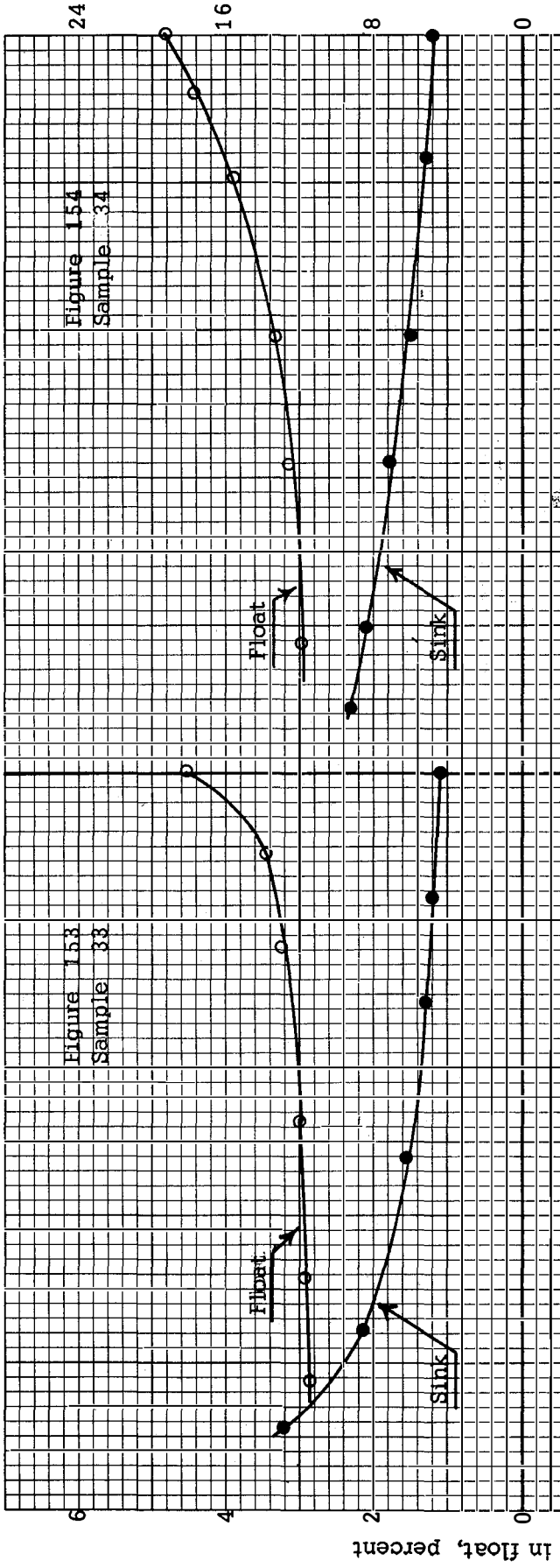
TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



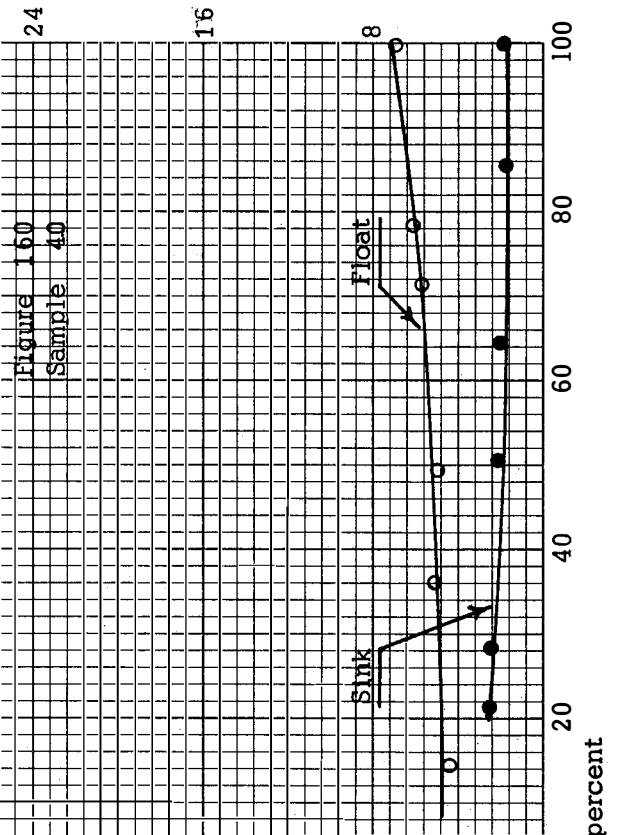
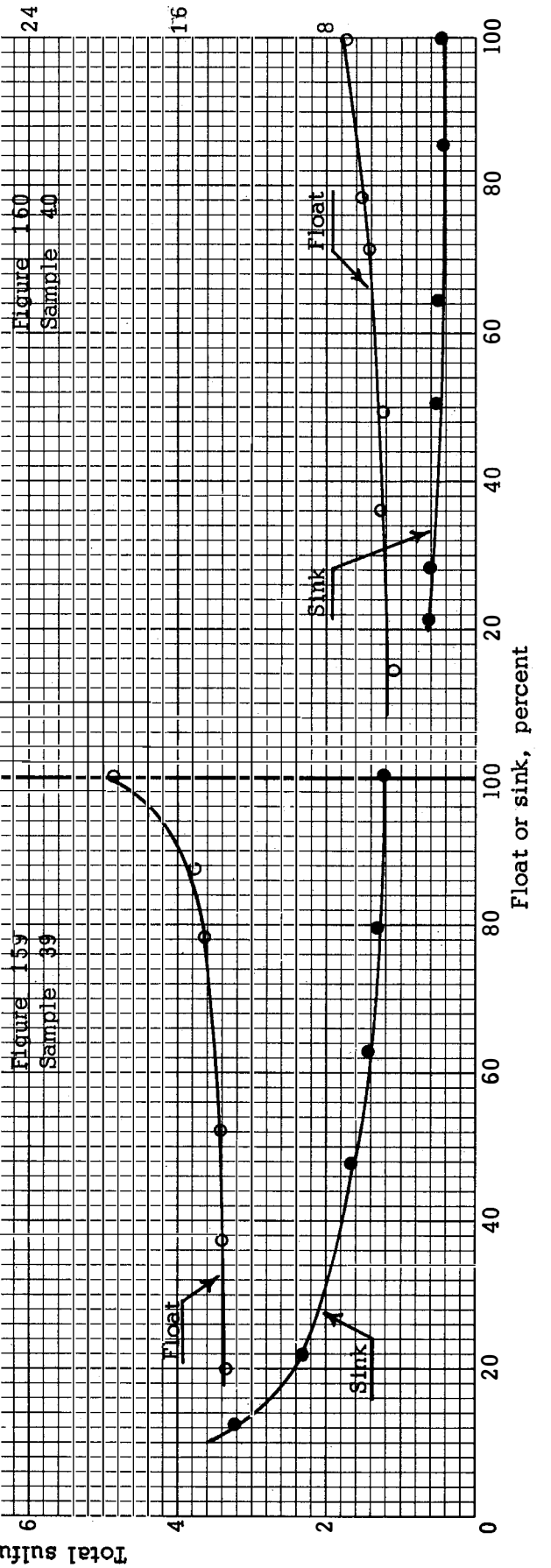
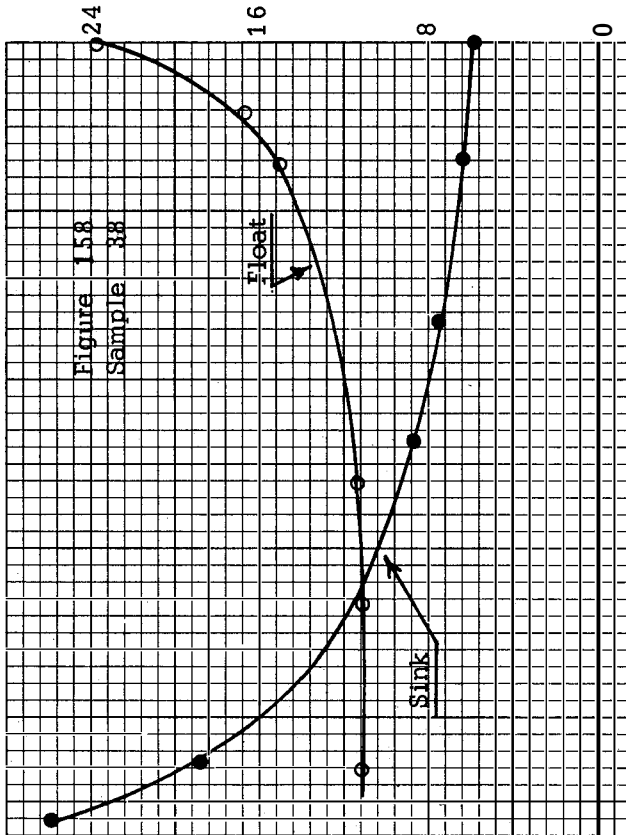
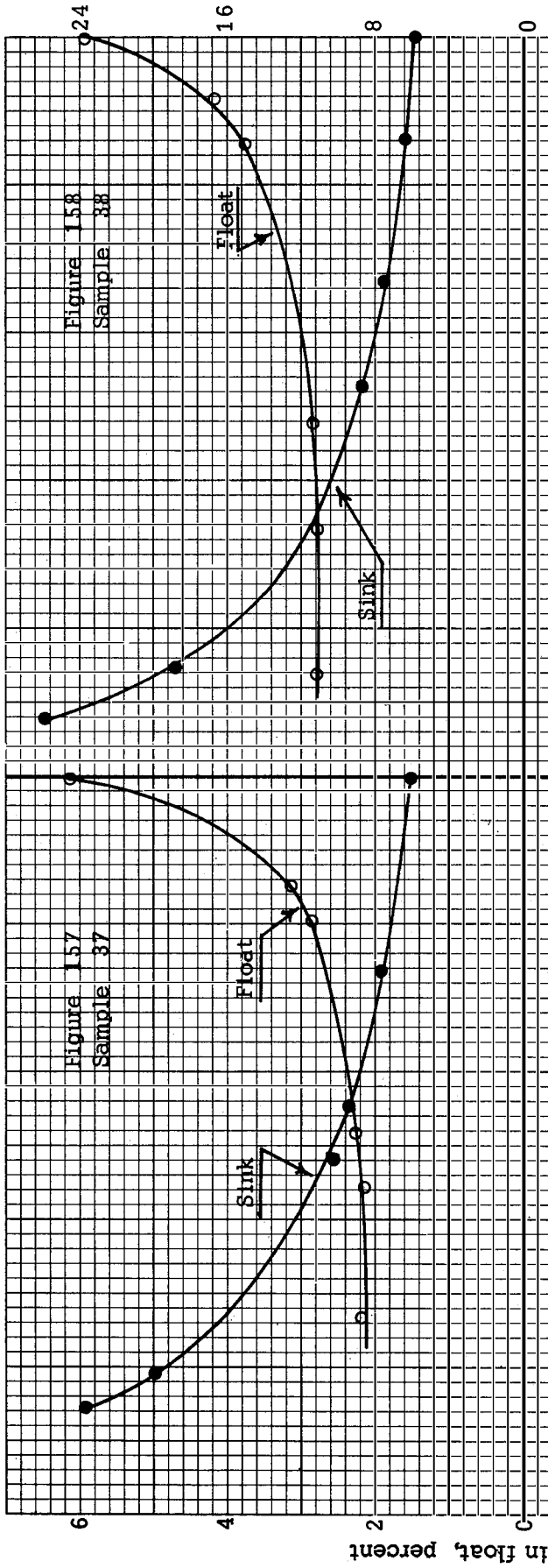
Total sulfur in sink, percent

Float or sink, percent

TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



TOTAL SULFUR IN FLOAT AND SINK (1½" x 0 COAL)

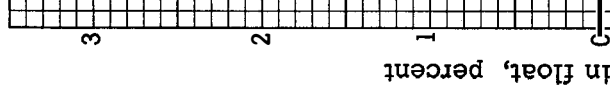
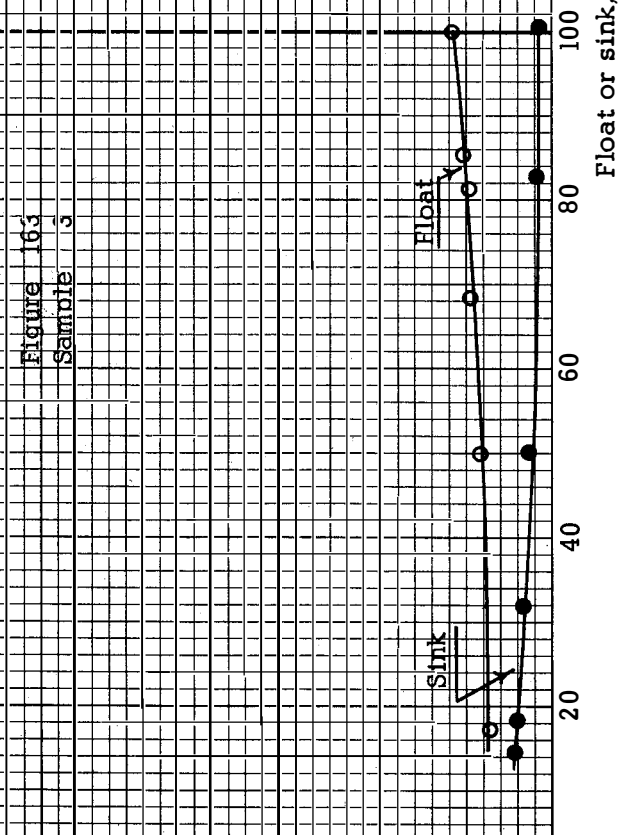
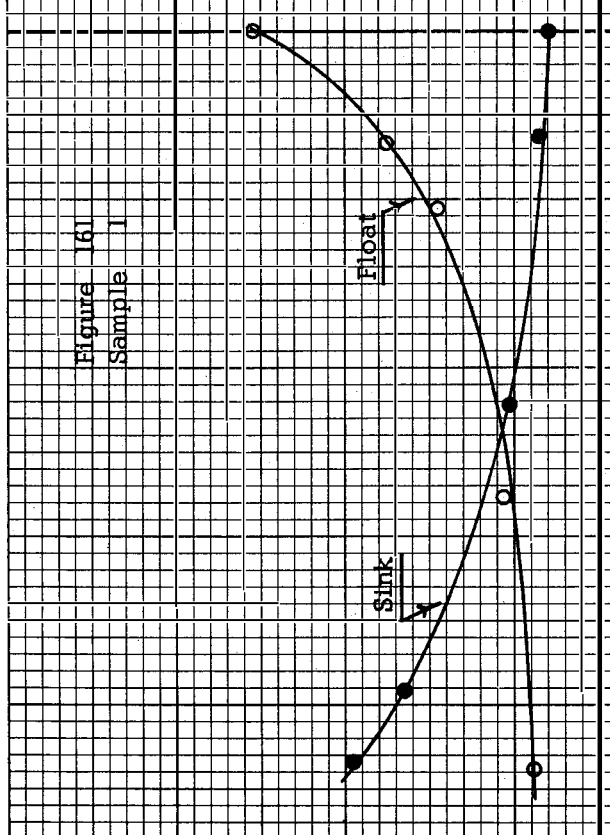
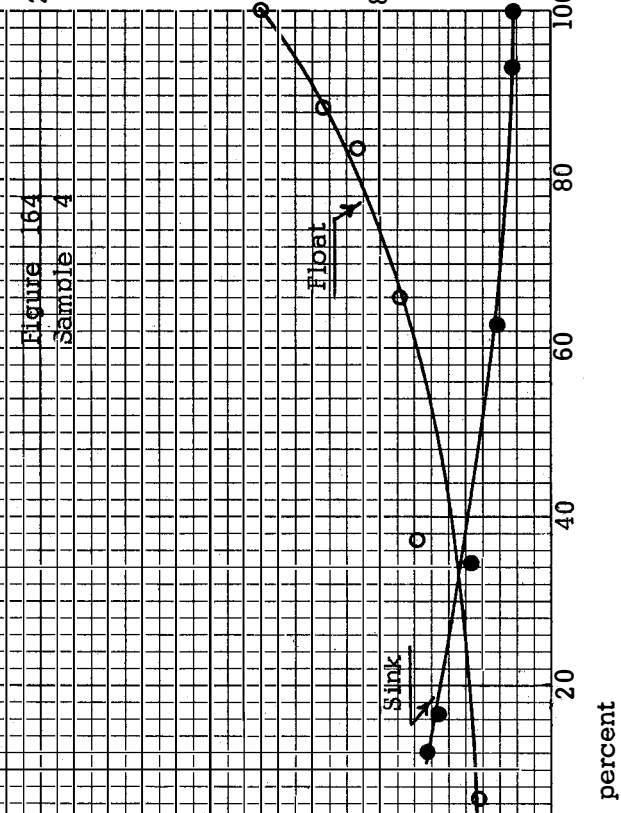
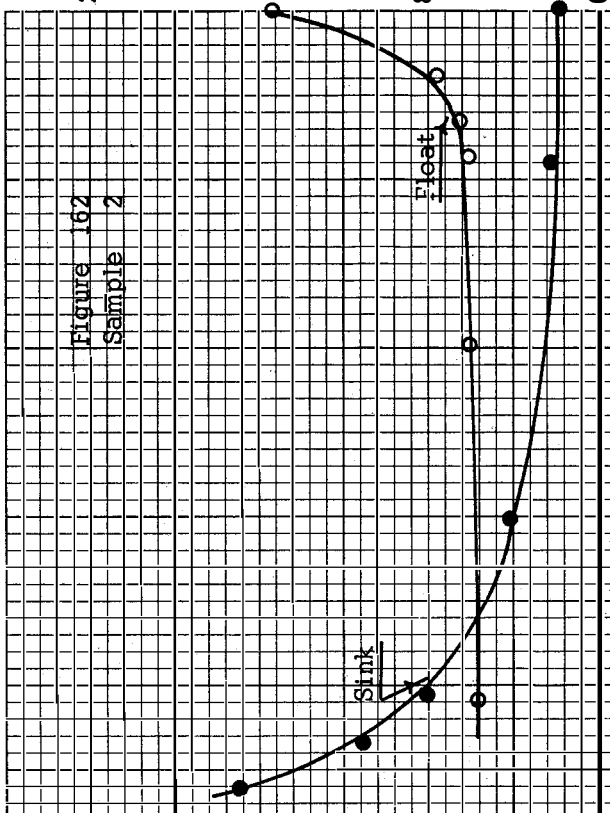
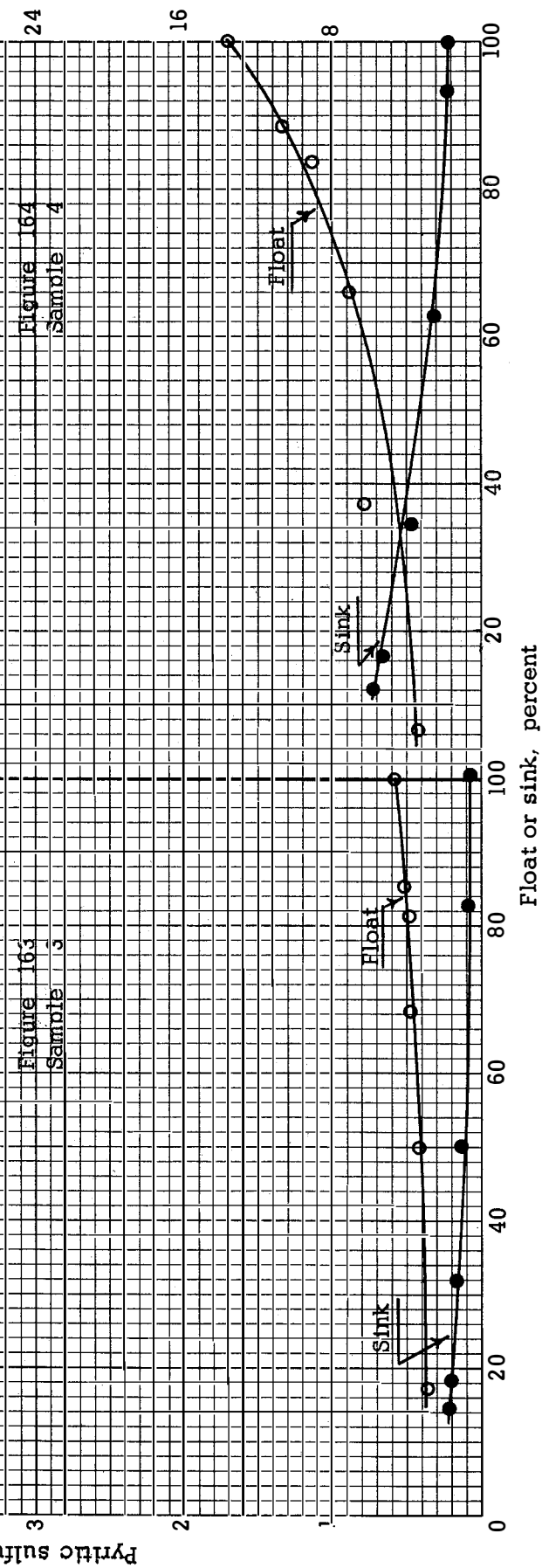
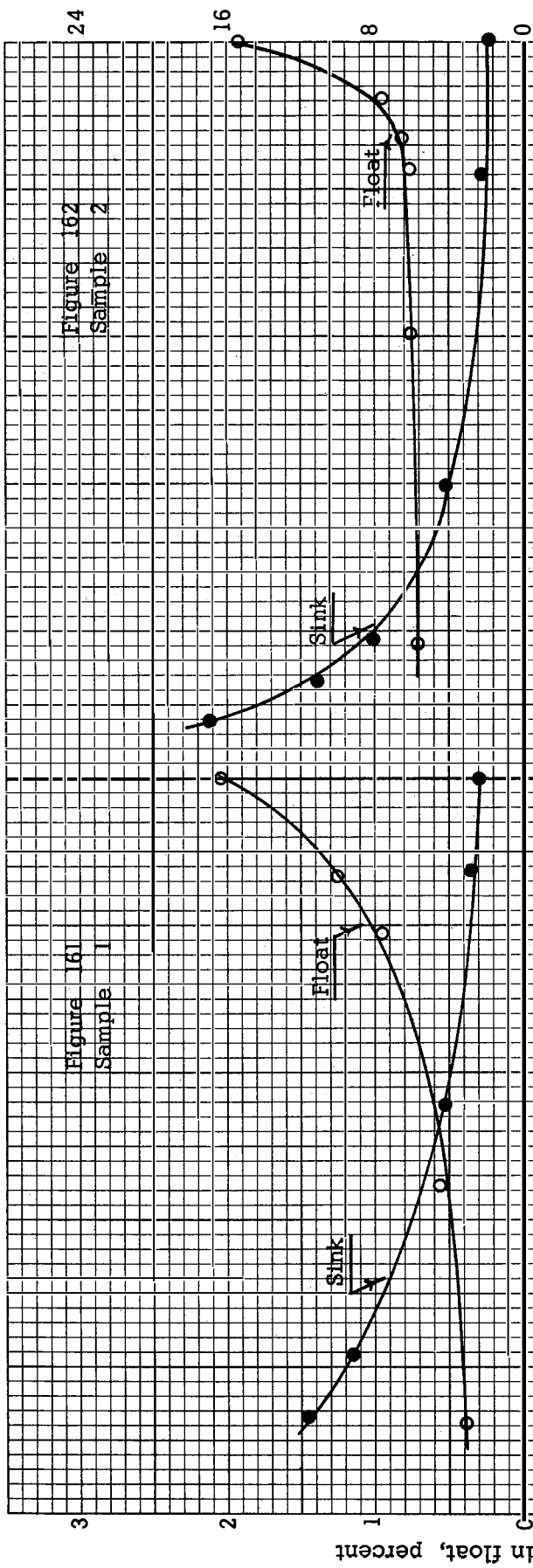


Total sulfur in sink, percent

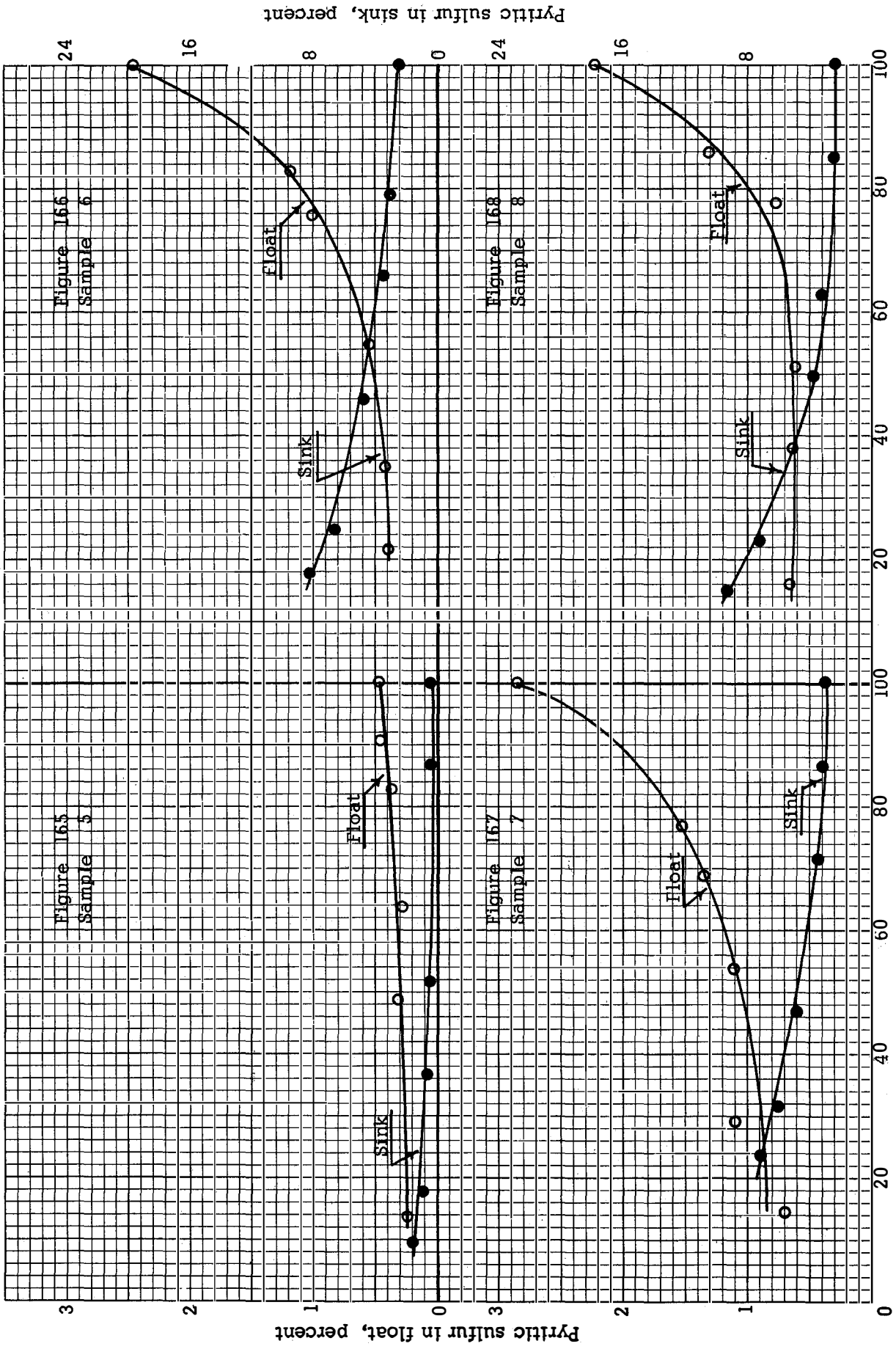
Total sulfur in float, percent

Float or sink, percent

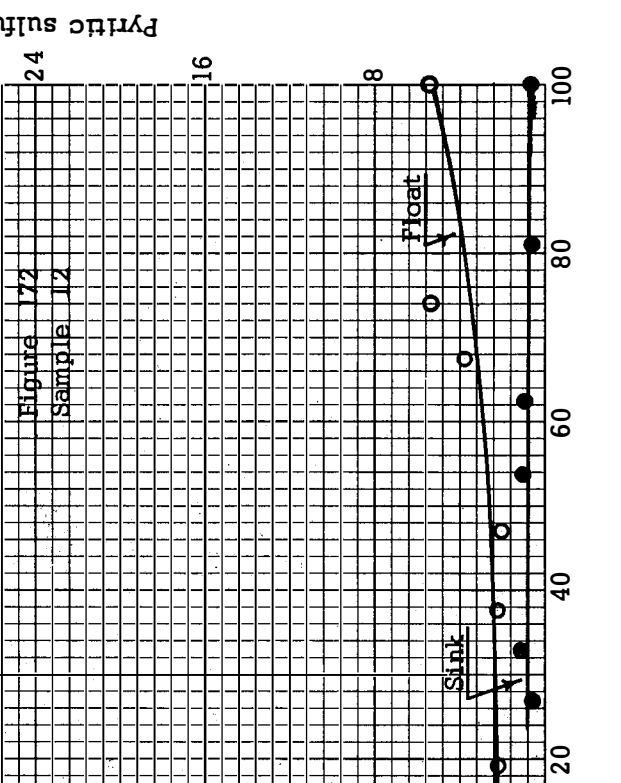
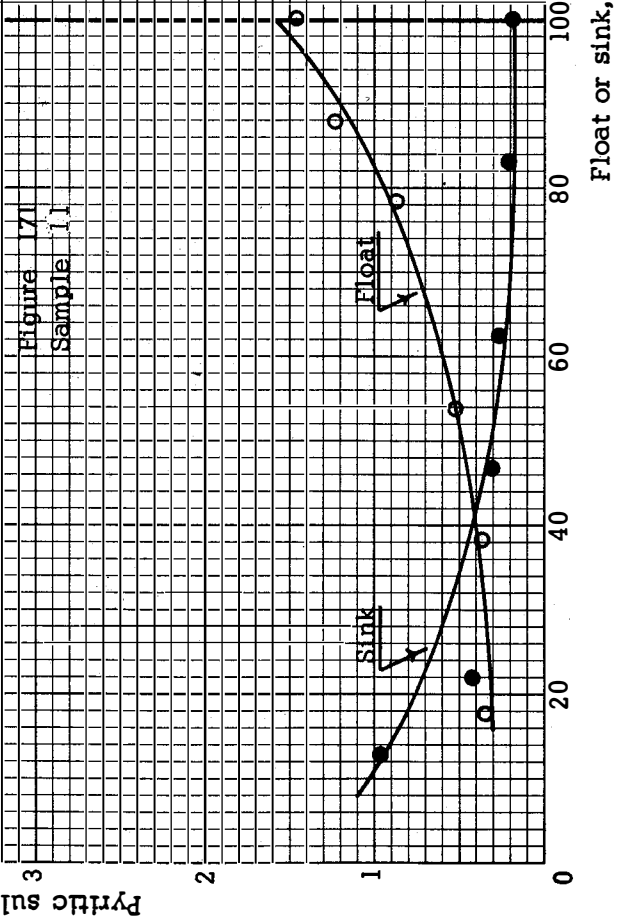
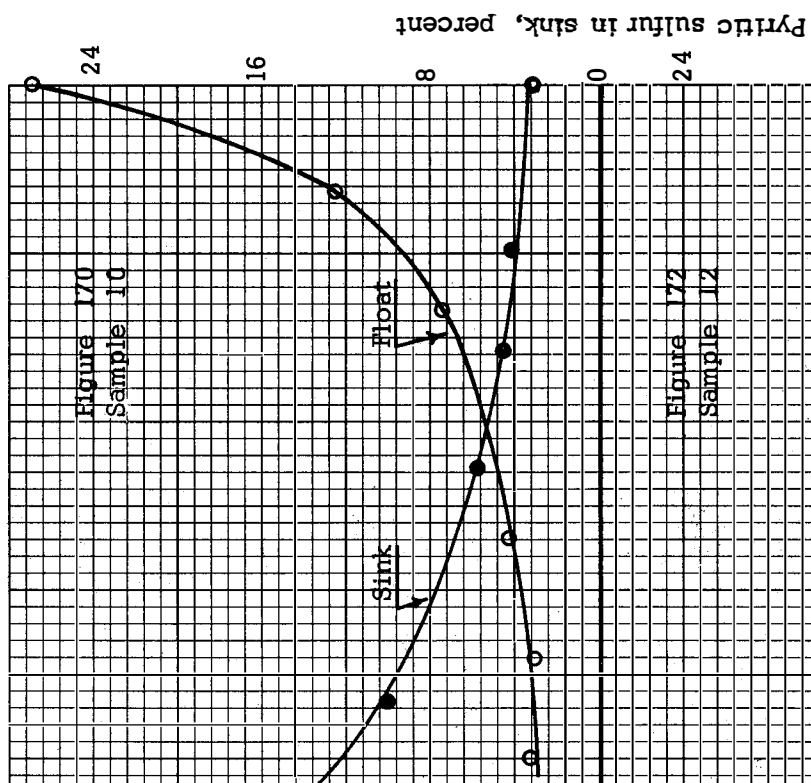
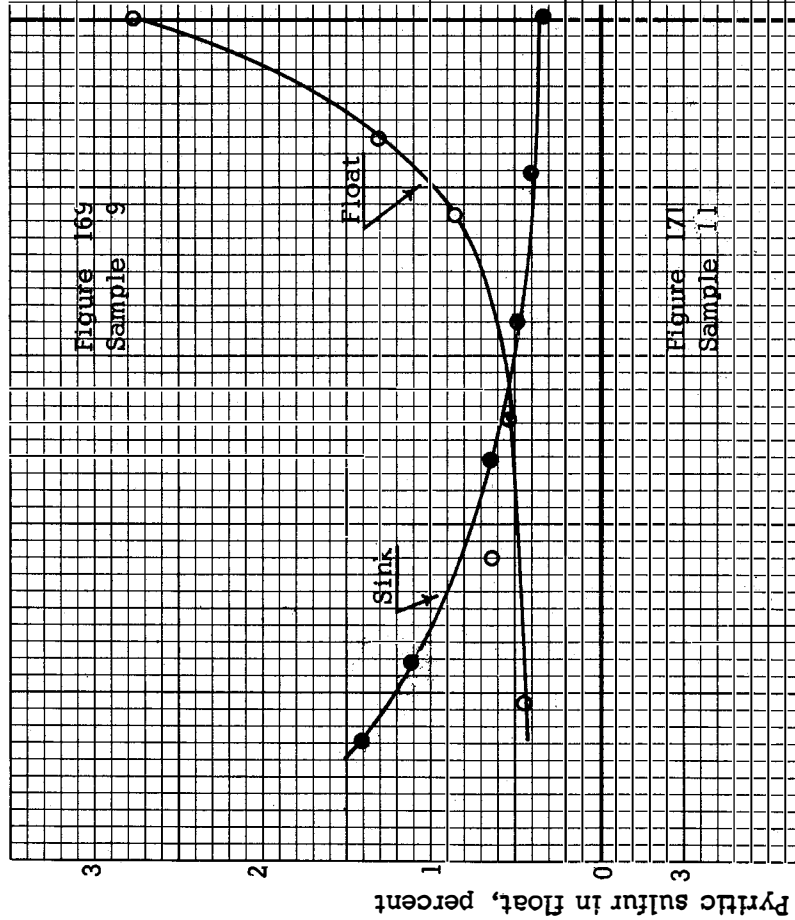
PYRITIC SULFUR IN FLOAT AND SINK ($1\frac{1}{2}$ " x 0 COAL)



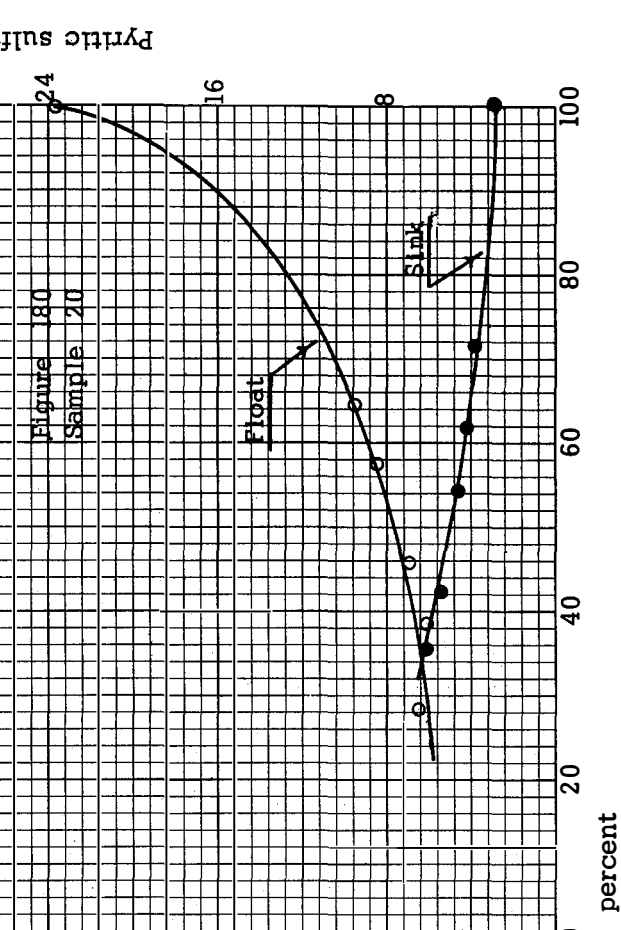
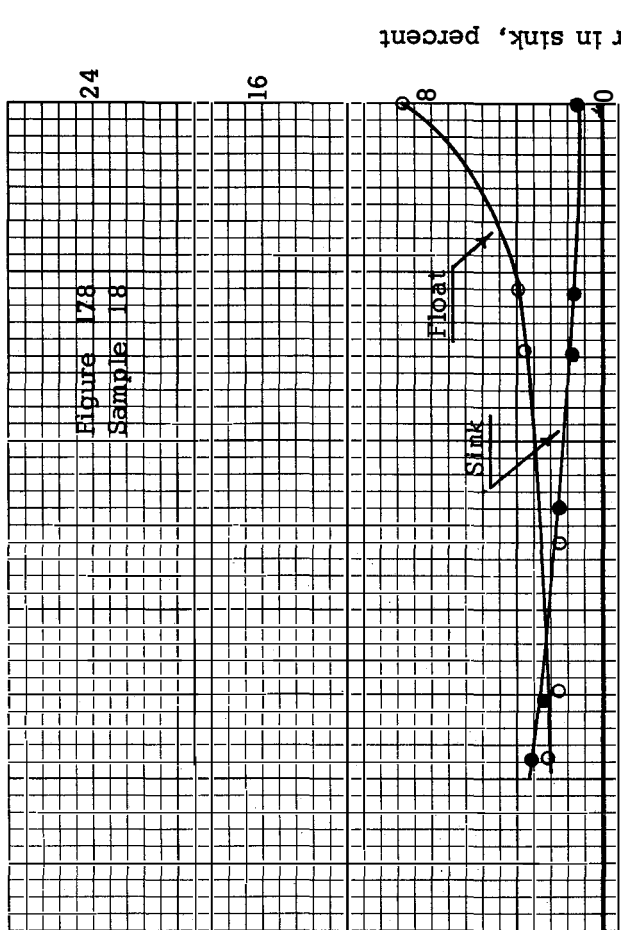
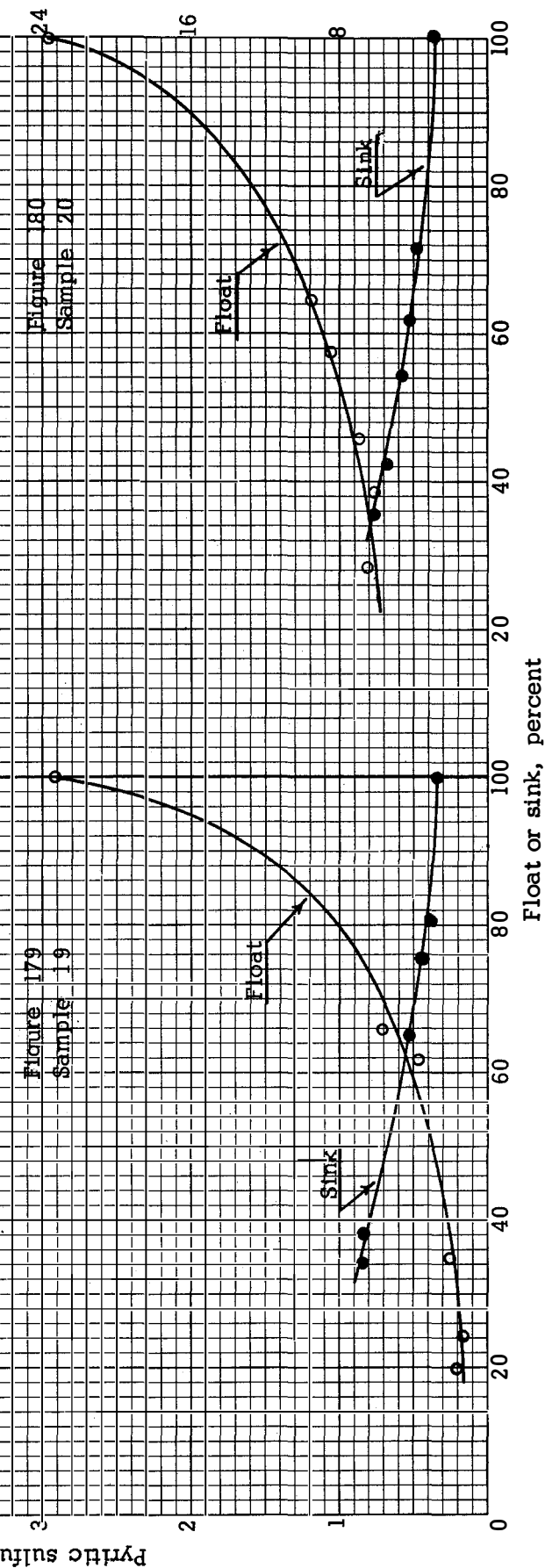
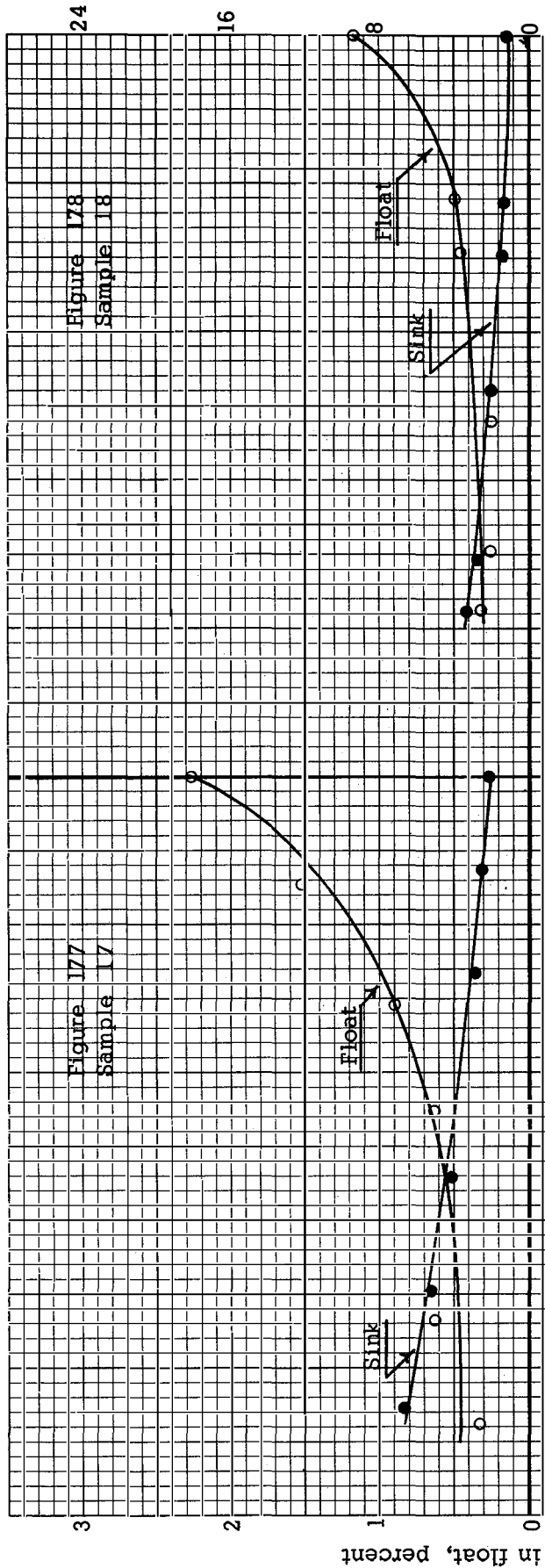
PYRITIC SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



PYRITIC SULFUR IN FLOAT AND SINK (1 1/2" x 0 COAL)



PYRITIC SULFUR IN FLOAT AND SINK (1½" x 0 COAL)

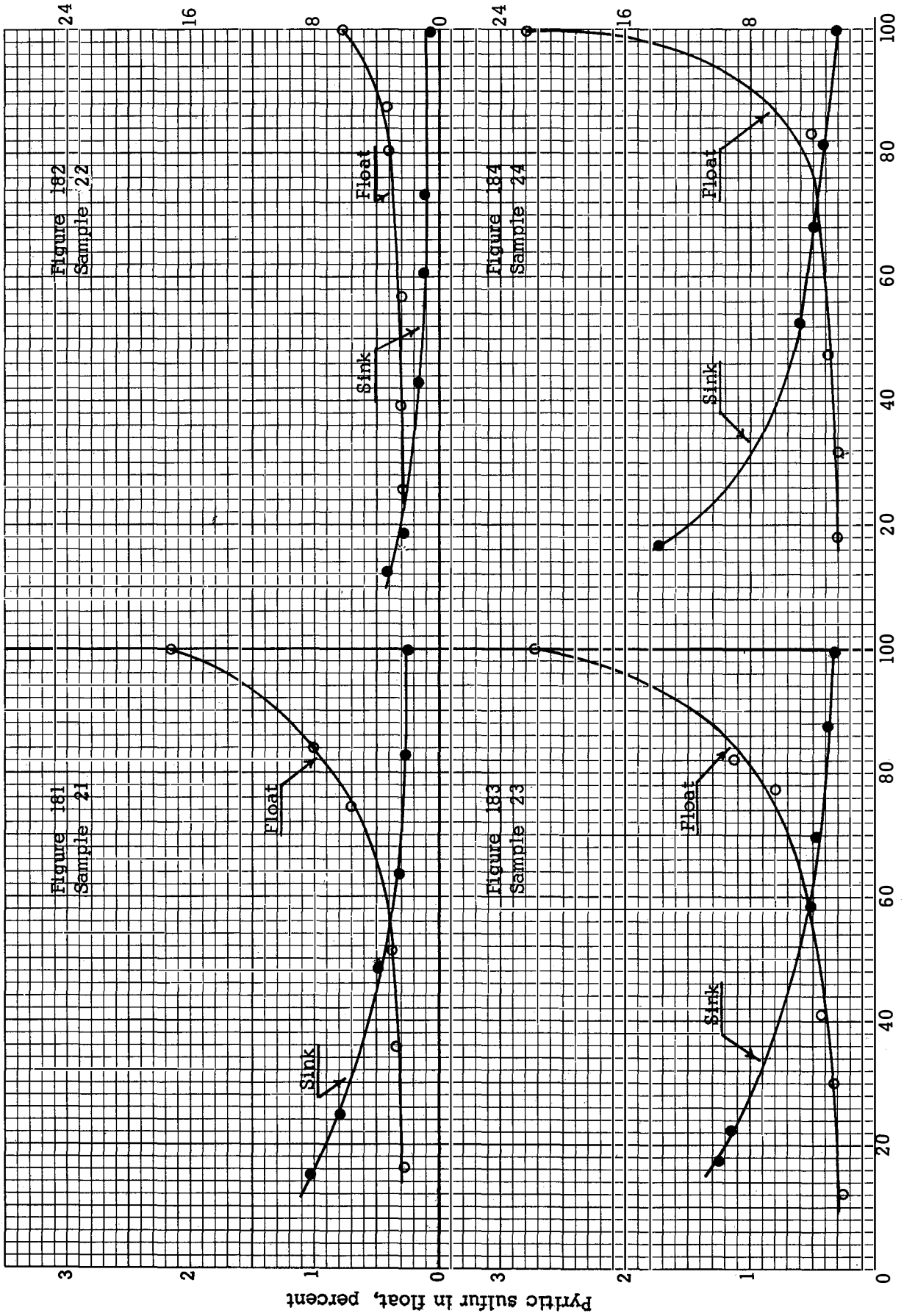


Pyritic sulfur in sink, percent

Pyritic sulfur in float, percent

Float or sink, percent

PYRITIC SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



Pyritic sulfur in sink, percent

Figure 181
Sample 21

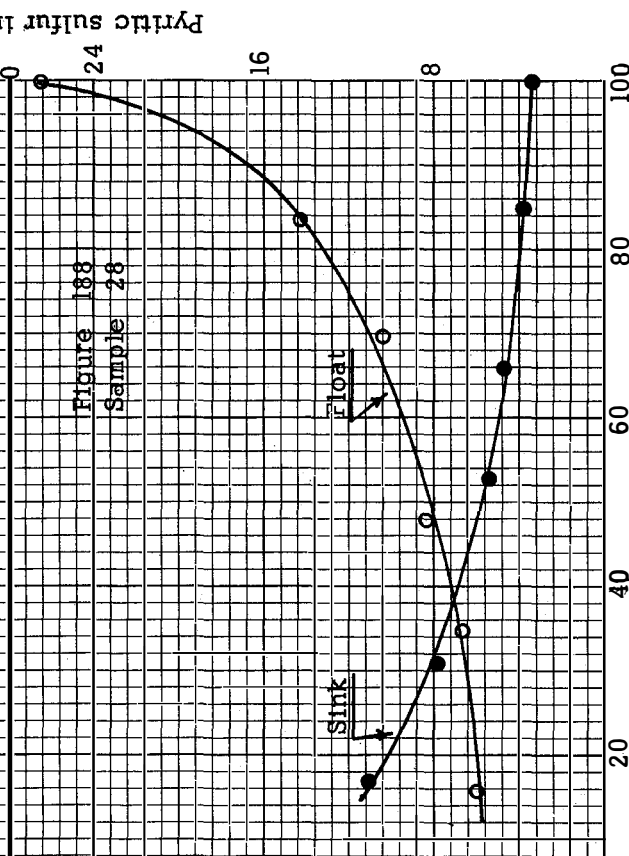
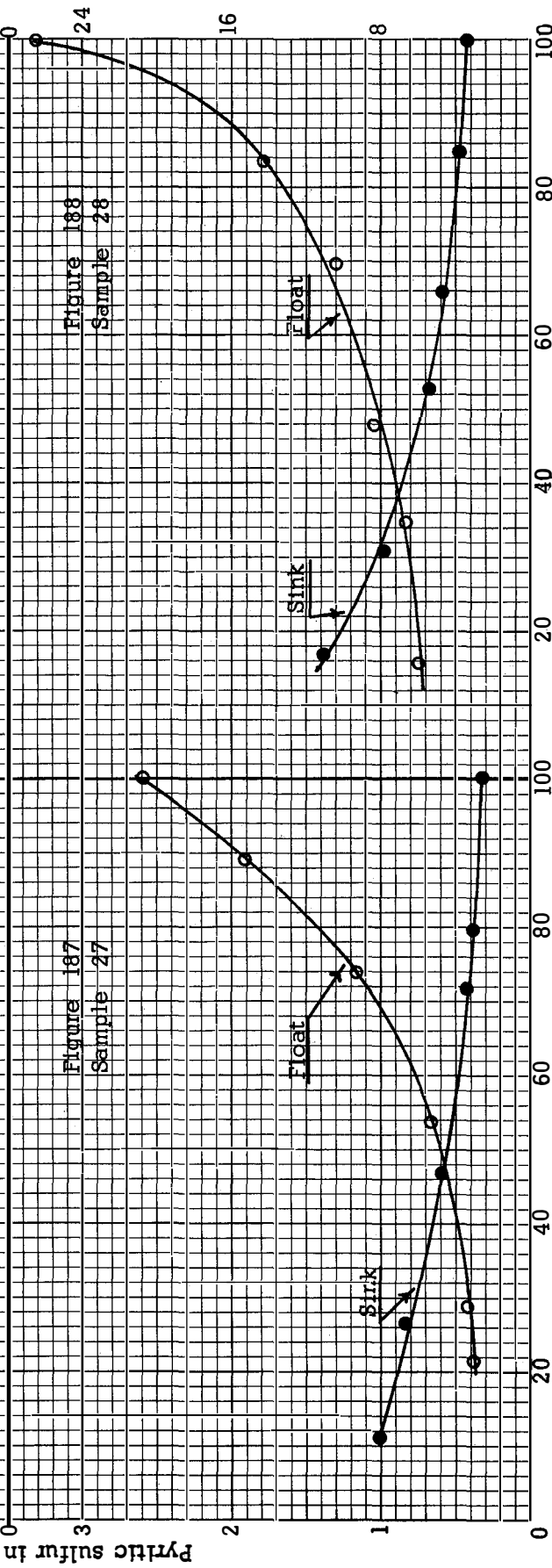
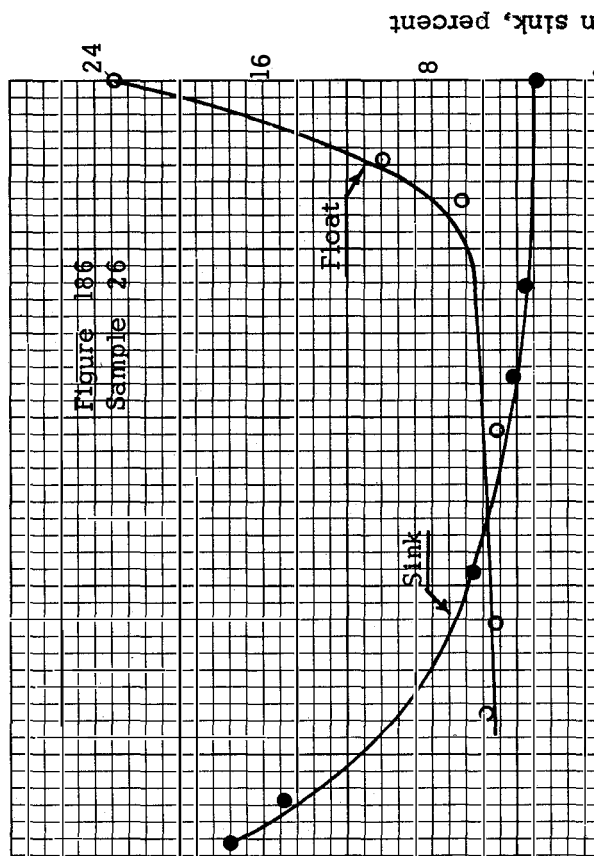
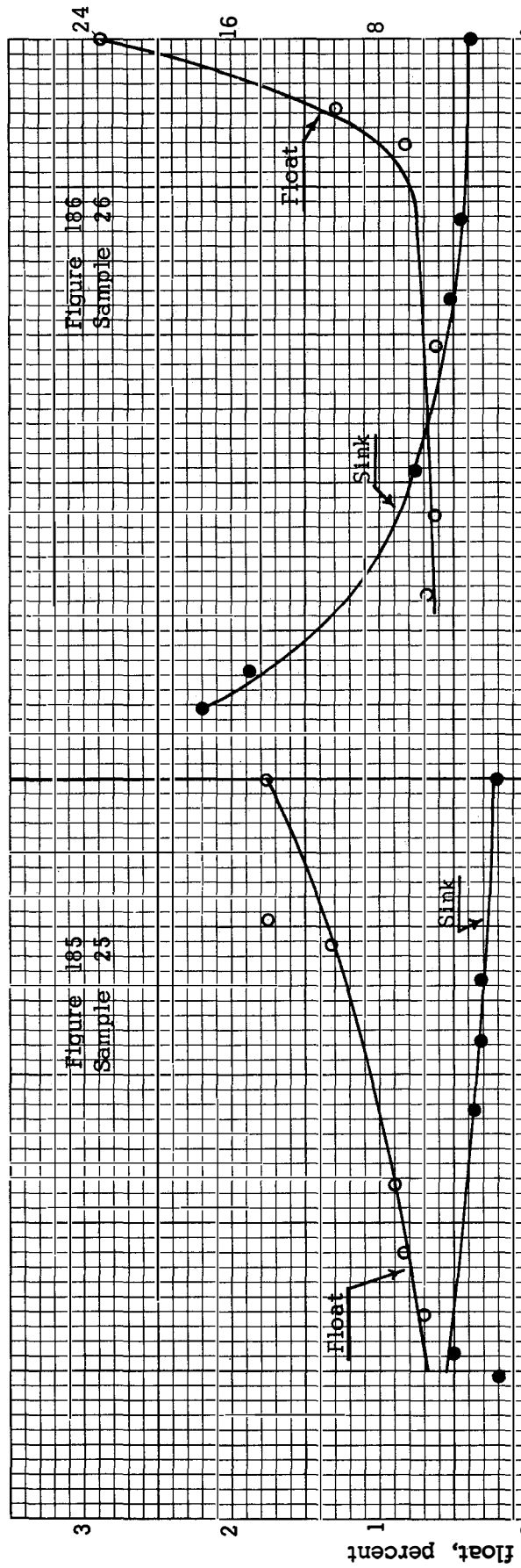
Figure 182
Sample 22

Figure 183
Sample 23

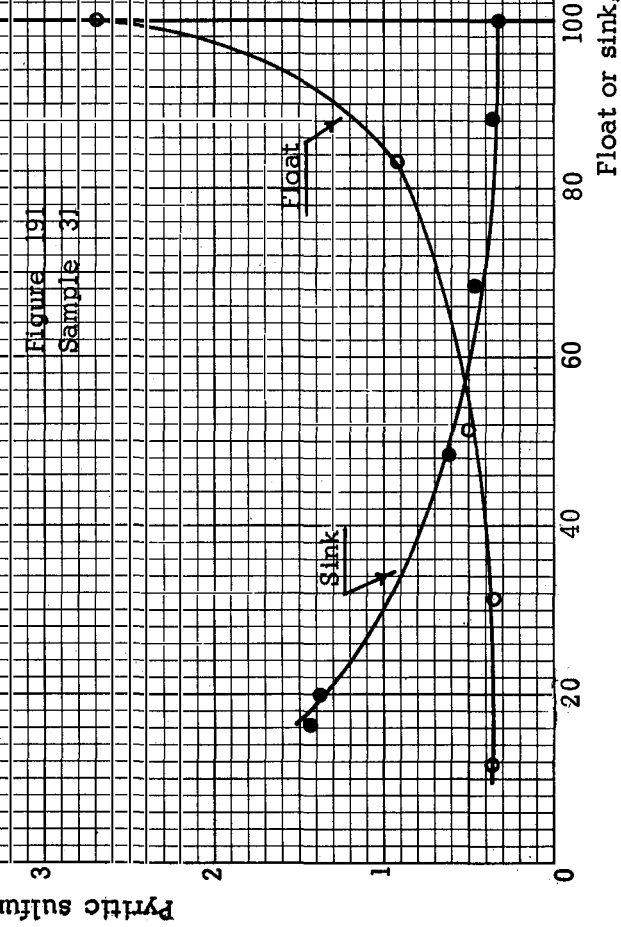
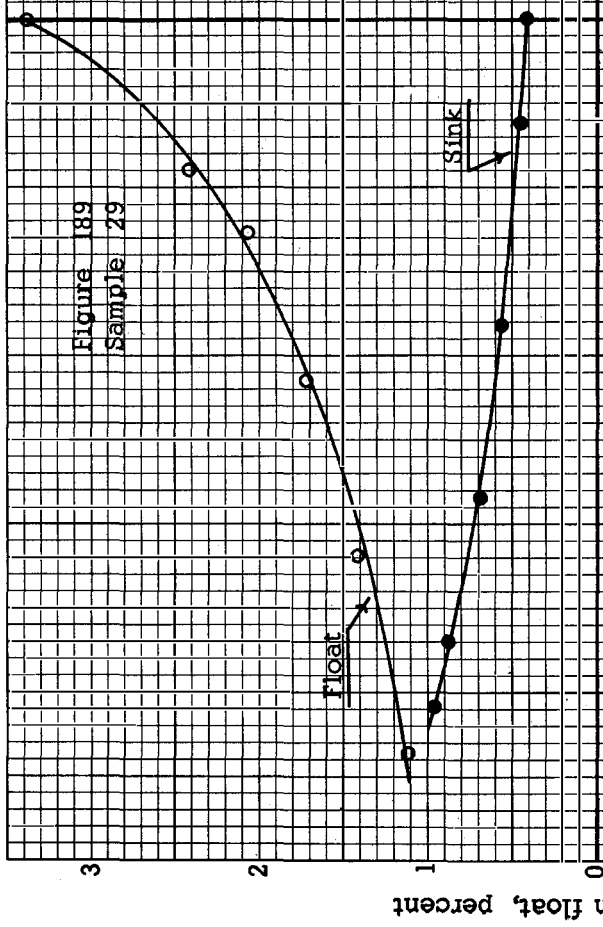
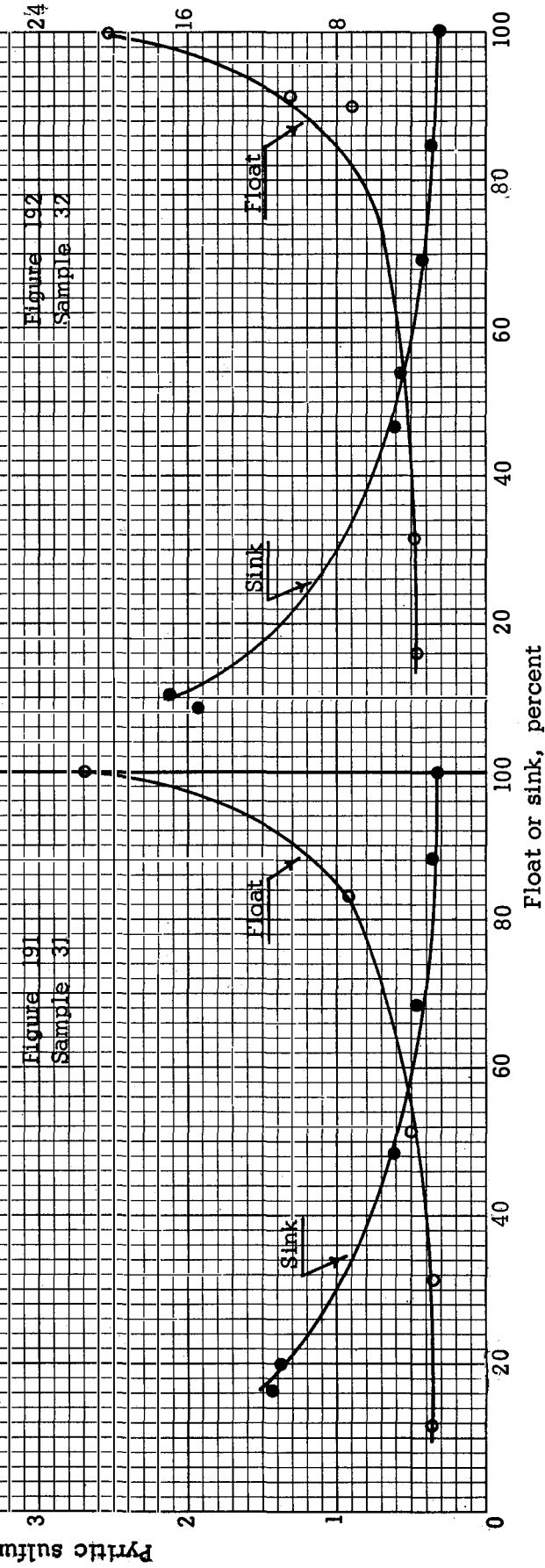
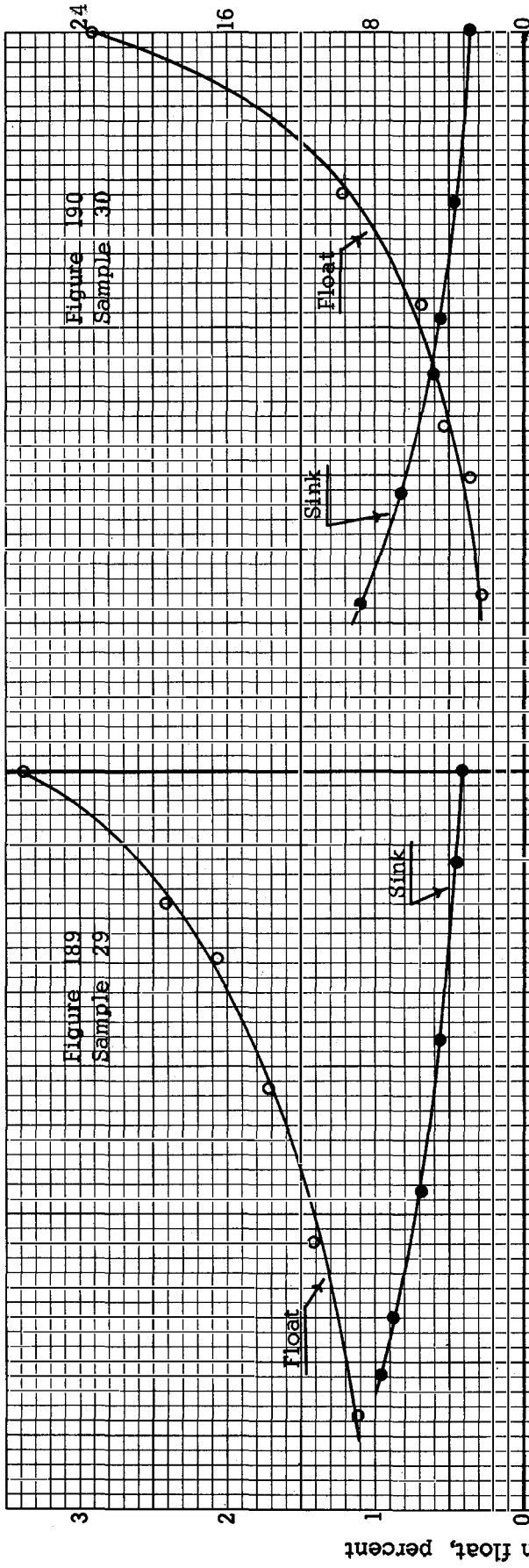
Figure 184
Sample 24

Float or sink, percent

PYRITIC SULFUR IN FLOAT AND SINK (1½" x 0 COAL)



PYRITIC SULFUR IN FLOAT AND SINK (1½" x 0 COAL)

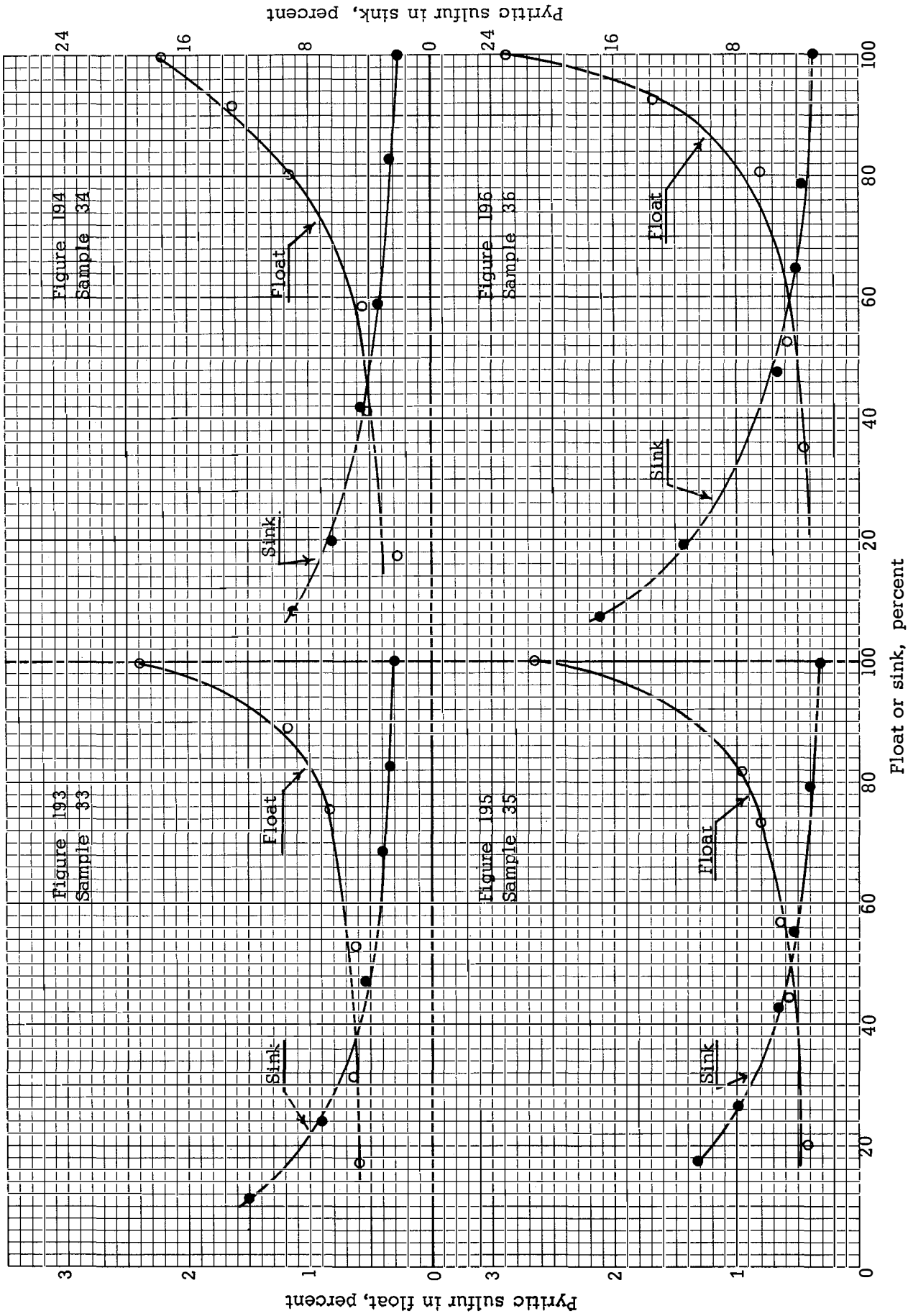


Pyritic sulfur in sink, percent

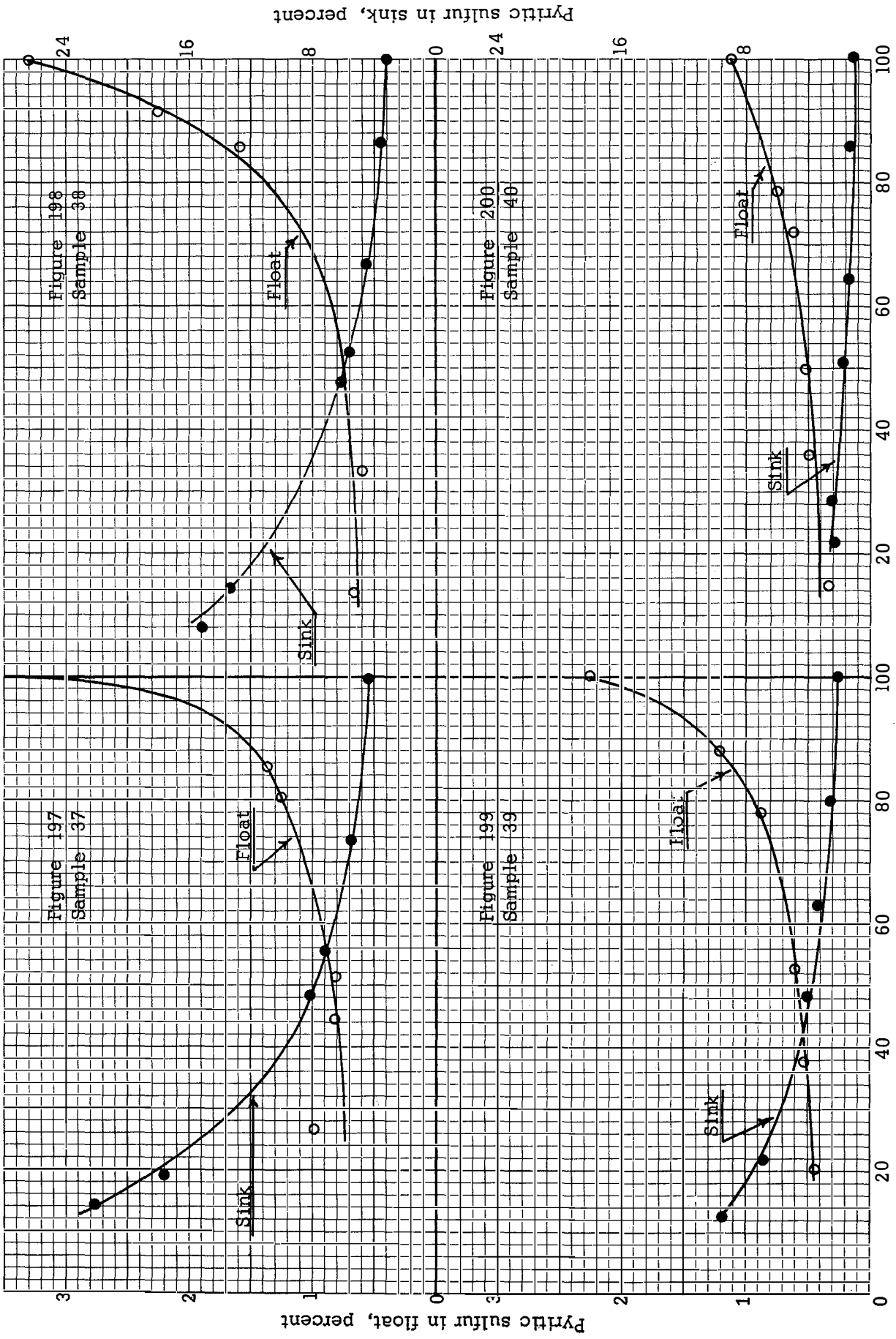
Float or sink, percent

Pyritic sulfur in float, percent

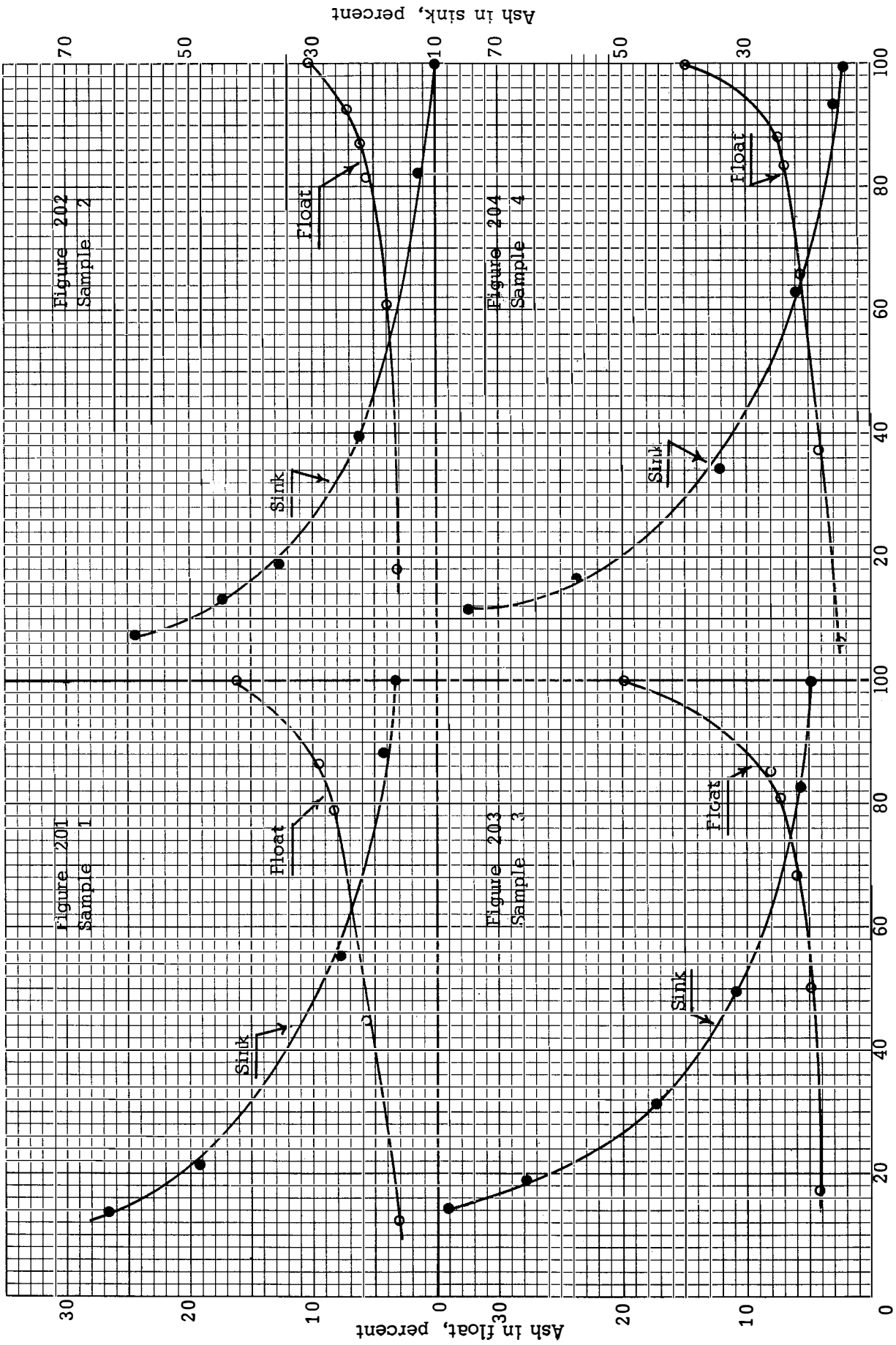
PYRITIC SULFUR IN FLOAT AND SINK ($1\frac{1}{2}$ " x 0 COAL)



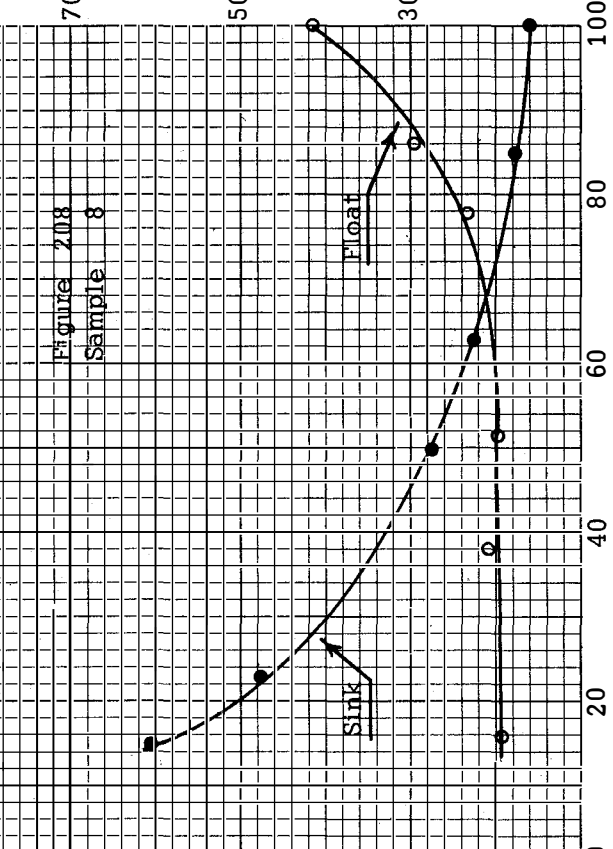
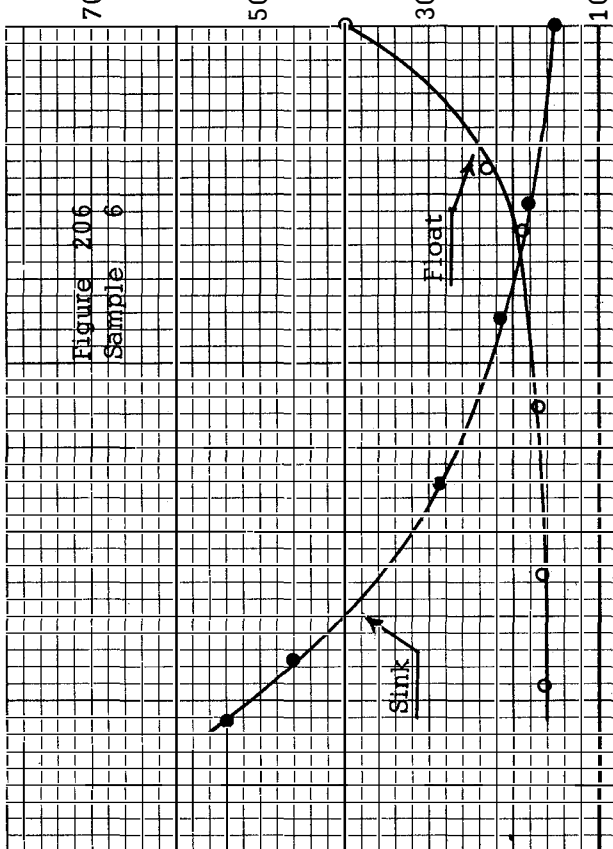
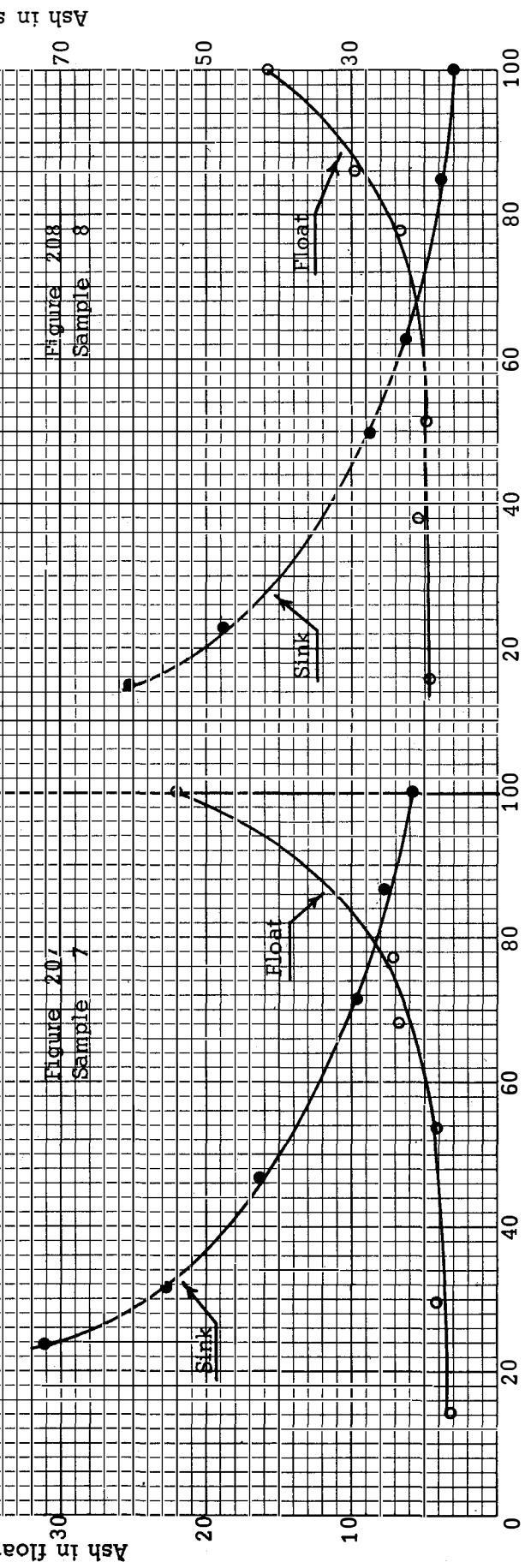
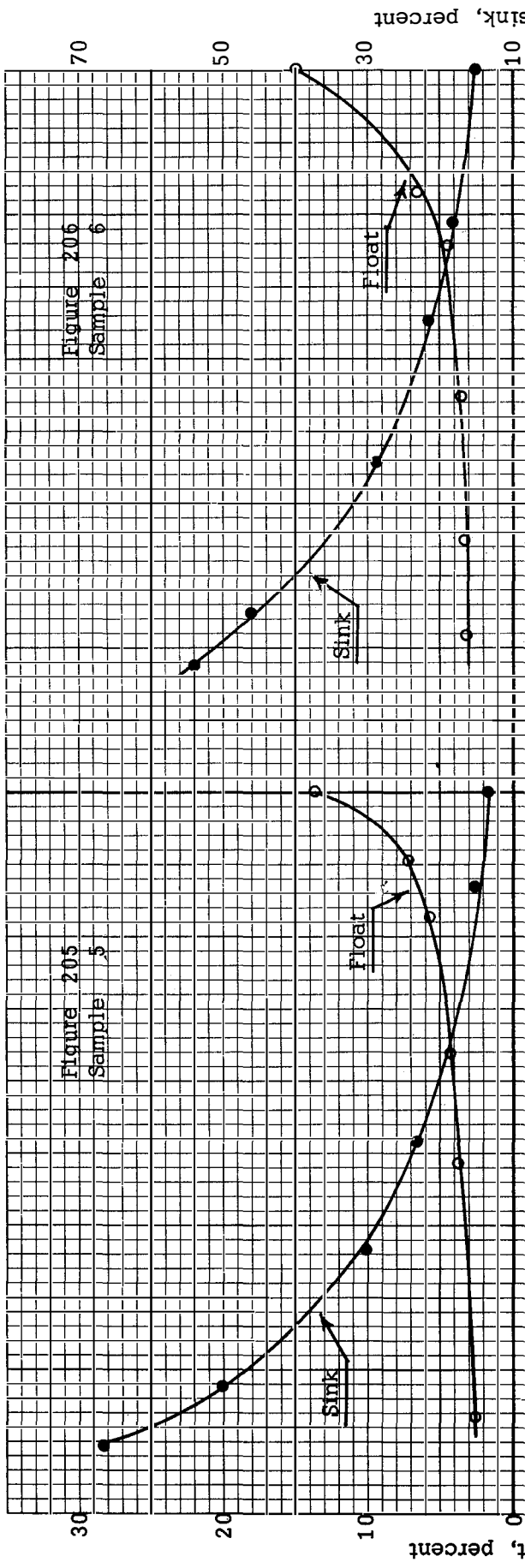
PYRITIC SULFUR IN FLOAT AND SINK ($1\frac{1}{2}$ " x 0 COAL)



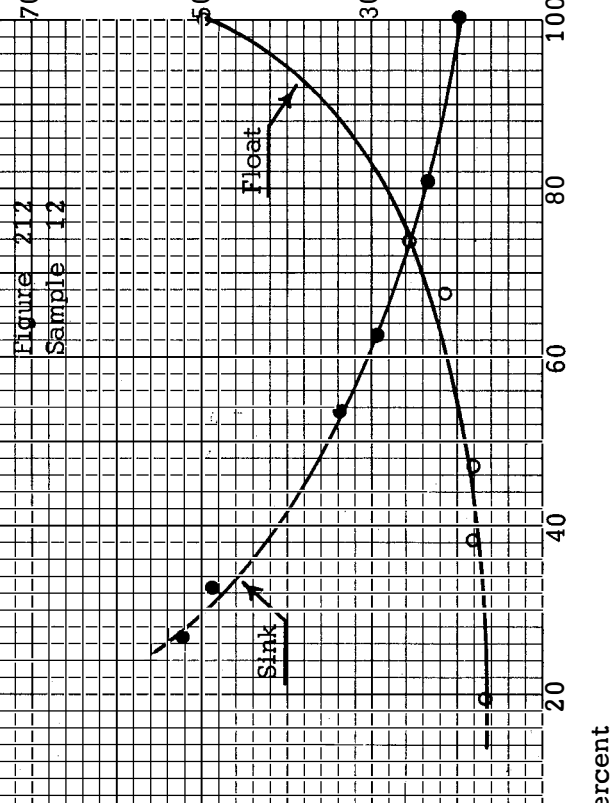
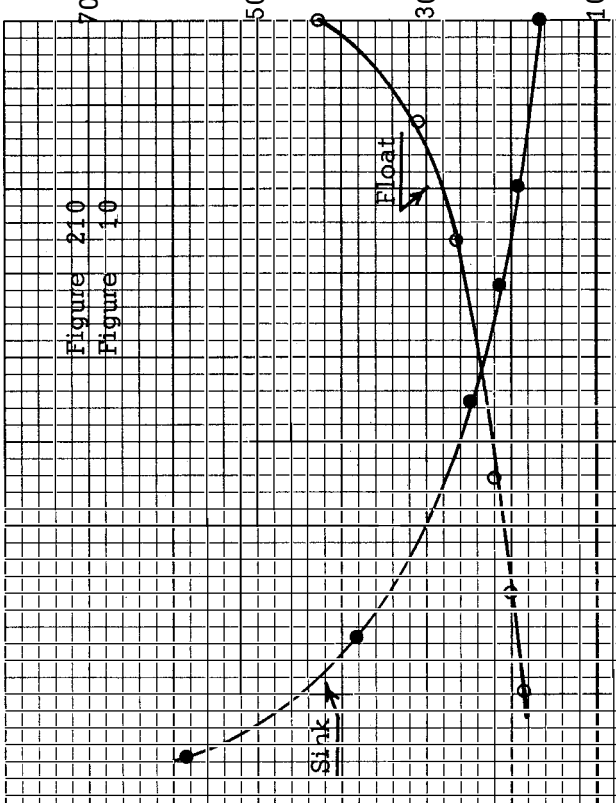
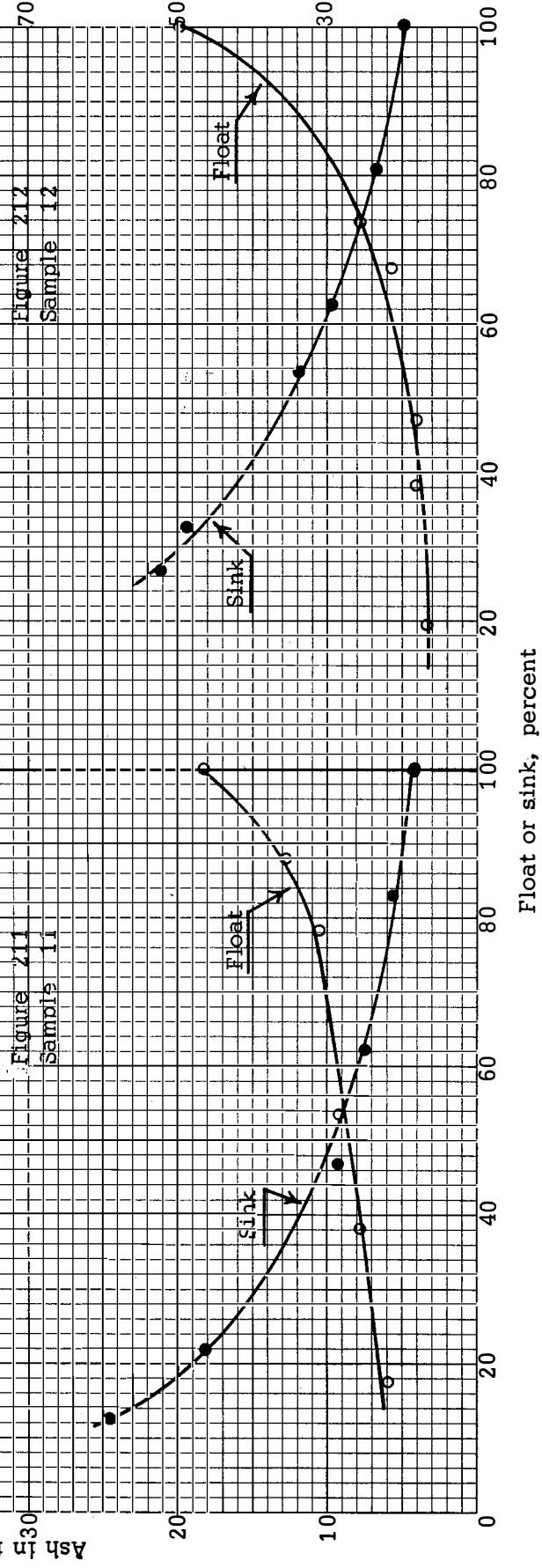
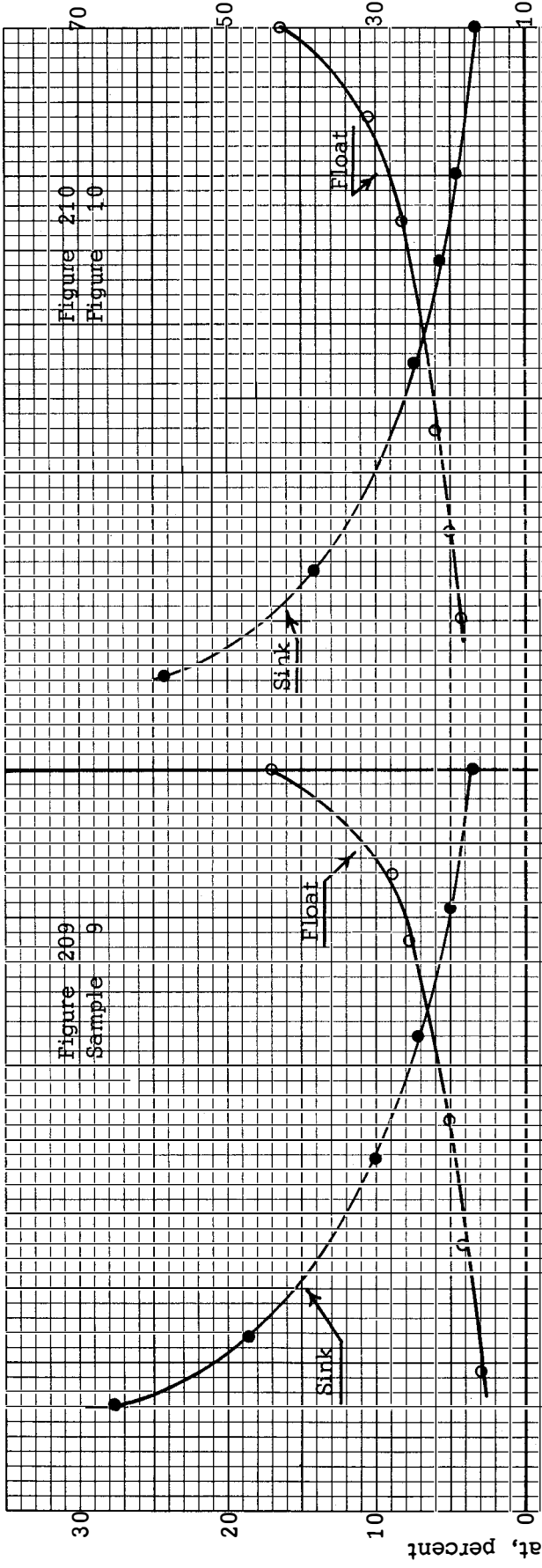
ASH IN FLOAT AND SINK (1 1/2" x 0 COAL)



ASH IN FLOAT AND SINK (1½" x 0 COAL)



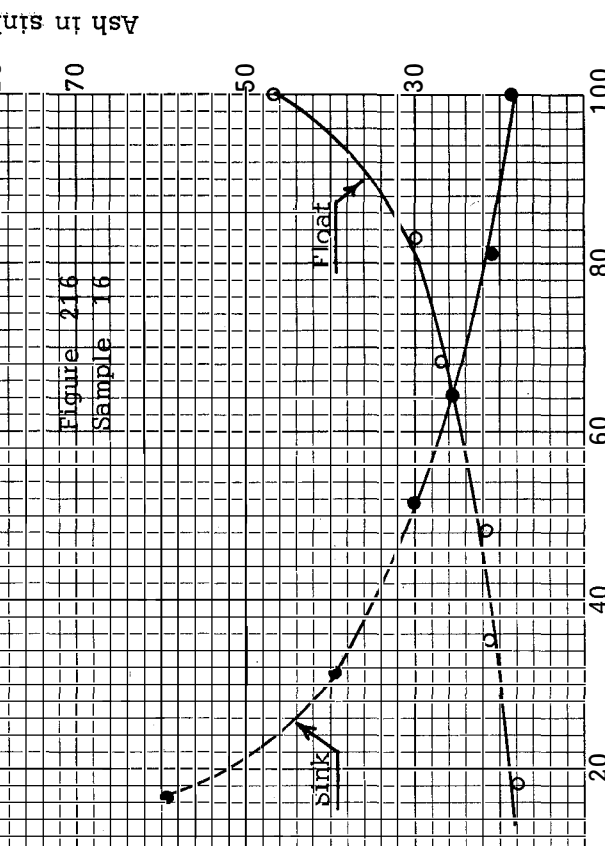
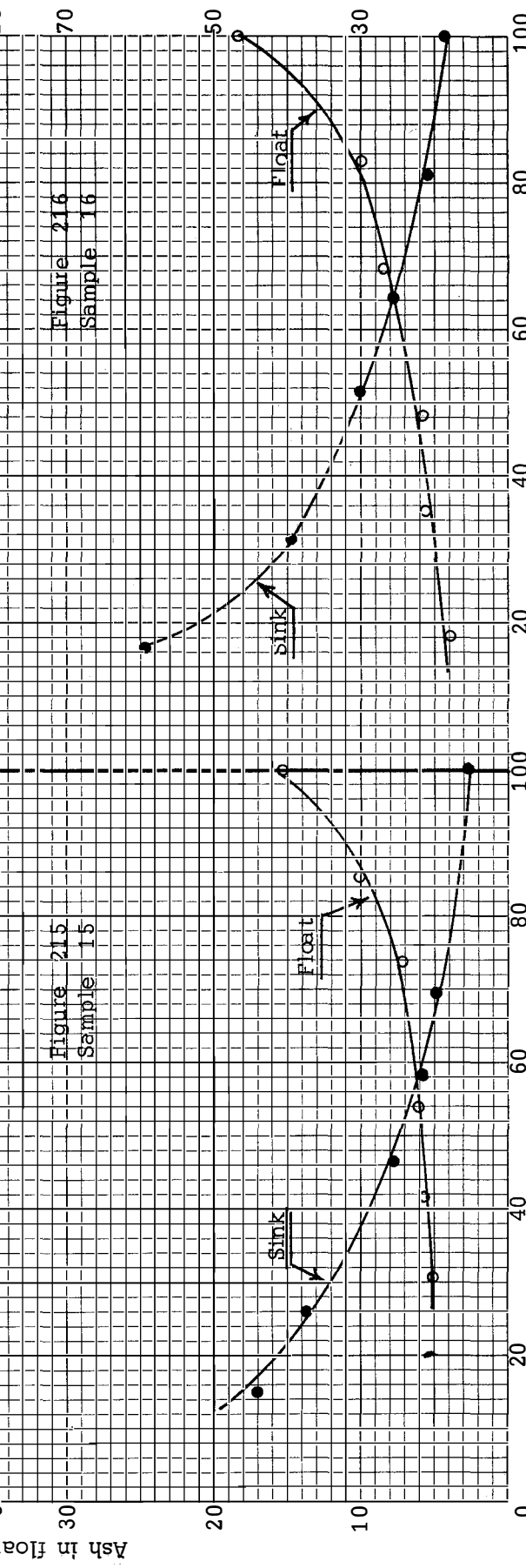
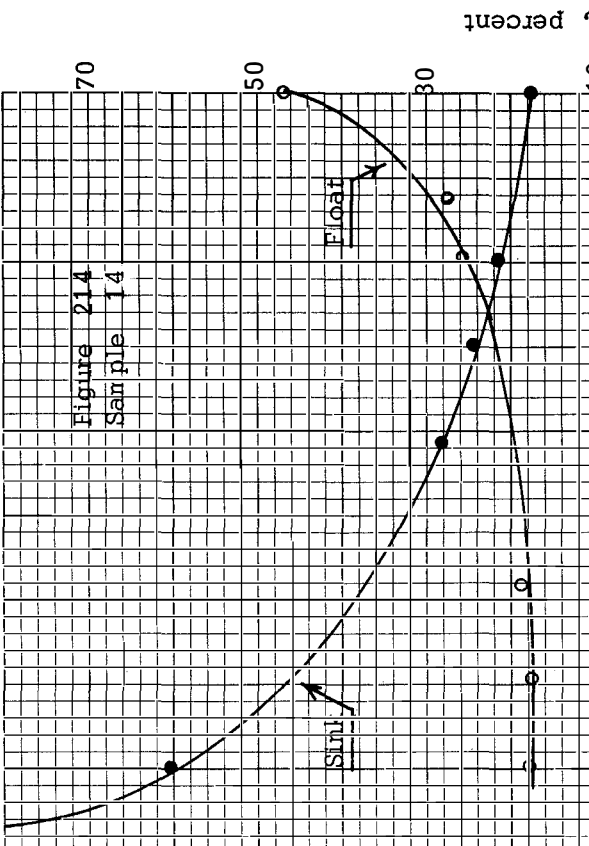
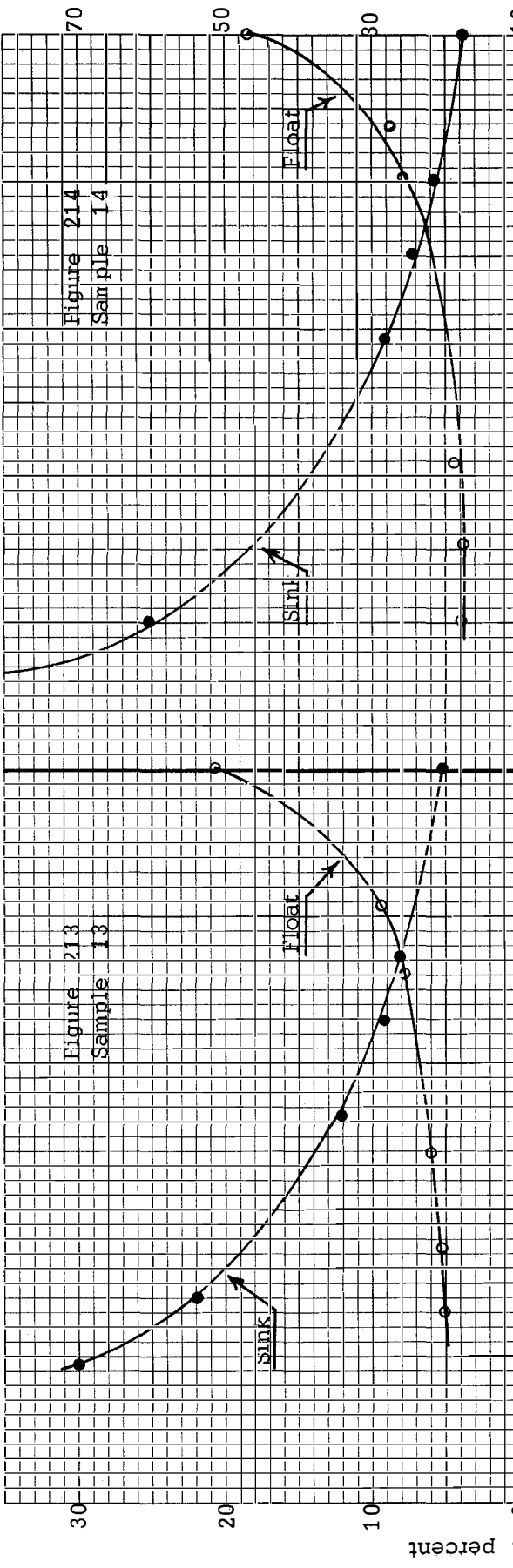
ASH IN FLOAT AND SINK (1½" x 0 COAL)



Ash in sink, percent

Float or sink, percent

ASH IN FLOAT AND SINK (1 1/2" x 0 COAL)

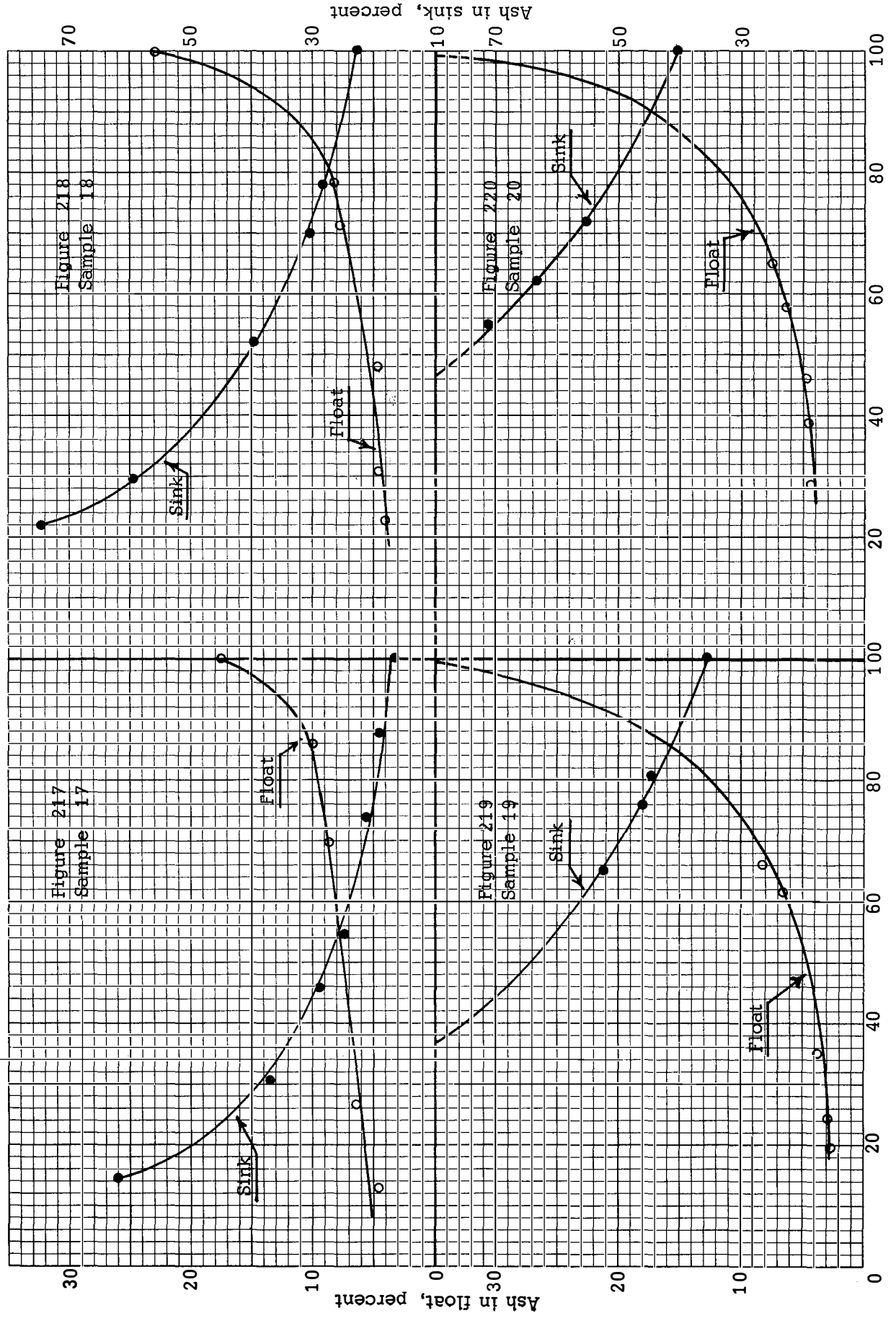


Float or sink, percent

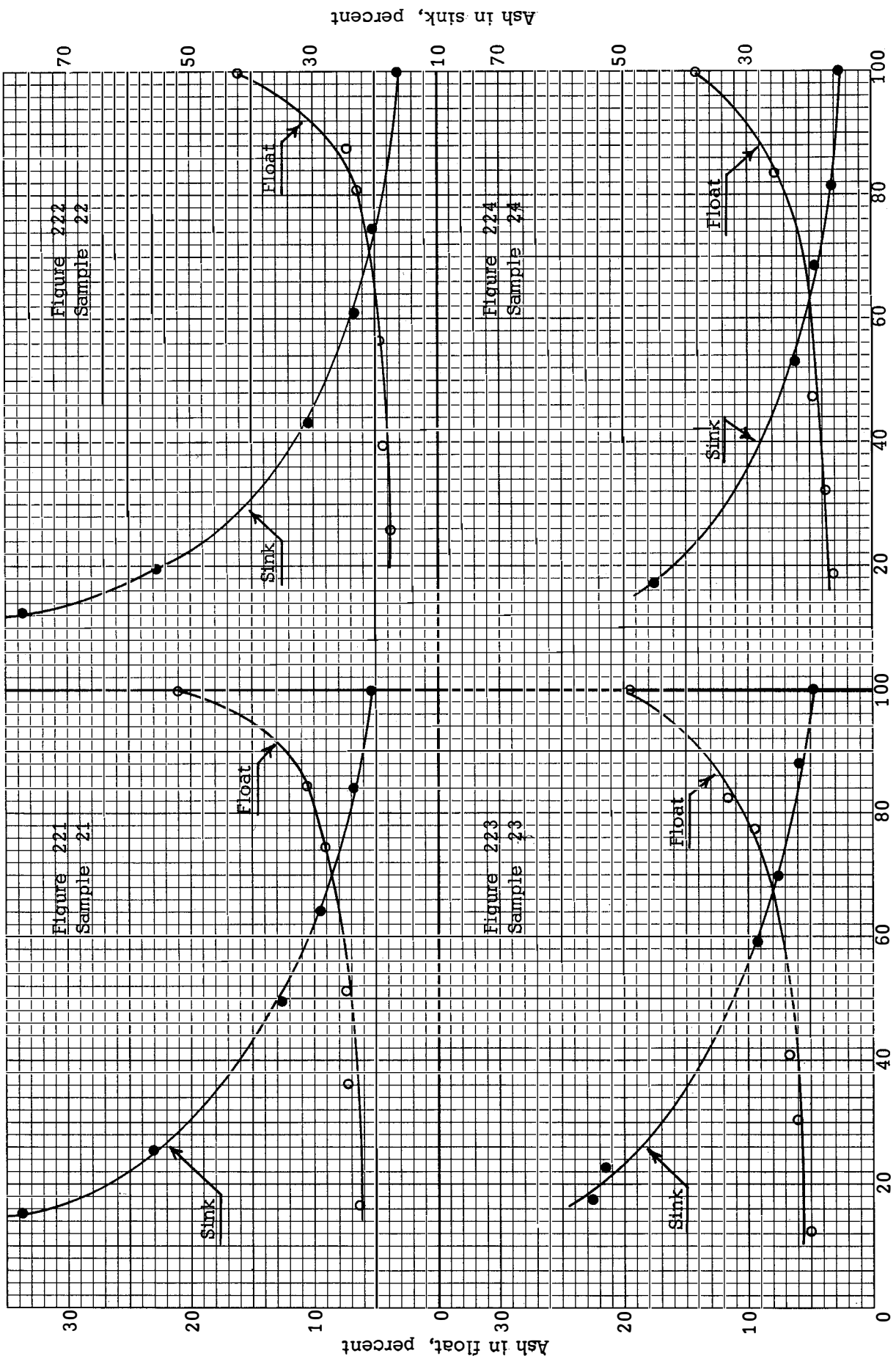
Ash in sink, percent

Ash in float, percent

ASH IN FLOAT AND SINK (1½" x 0 COAL)

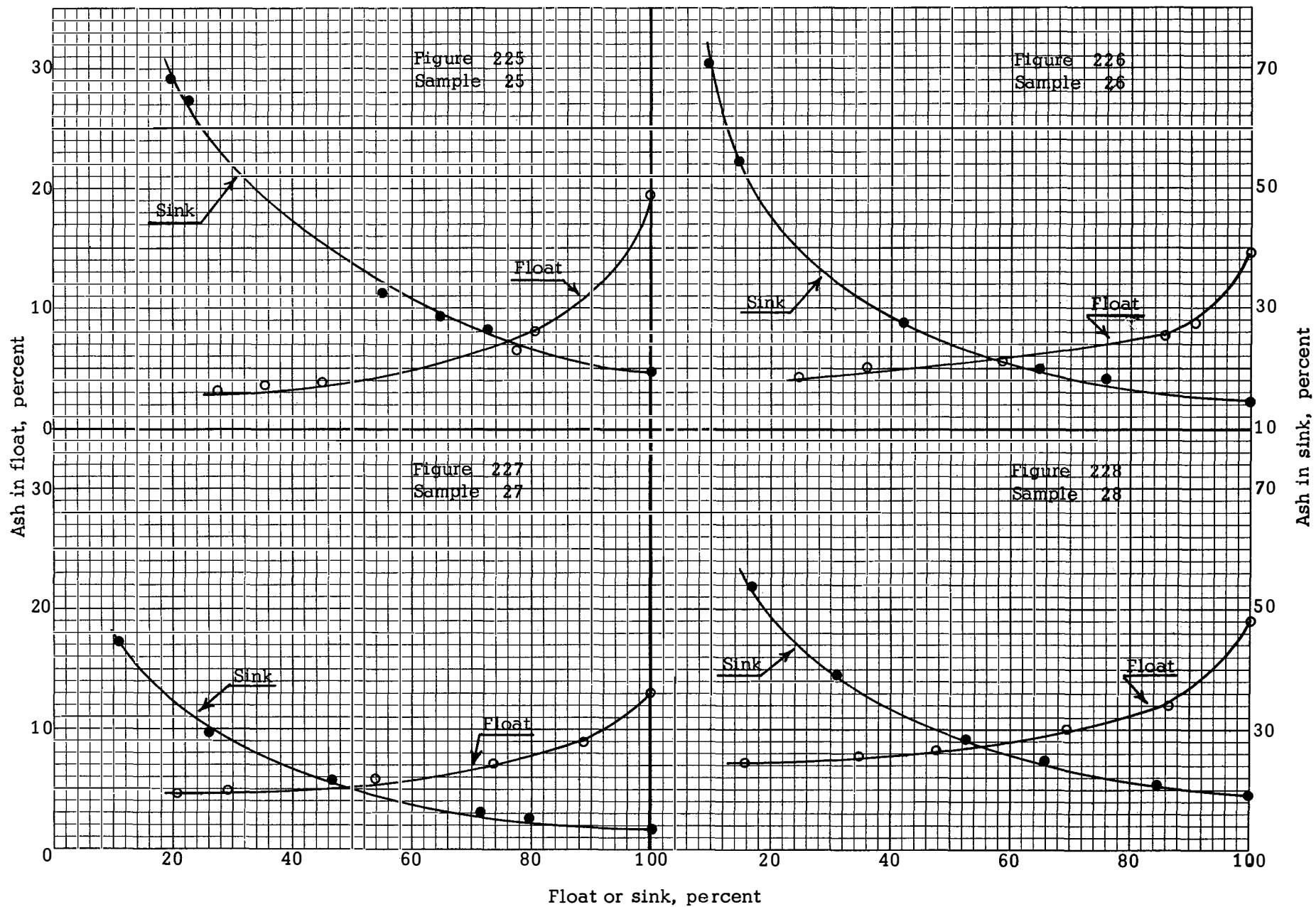


ASH IN FLOAT AND SINK ($1\frac{1}{2}$ " x 0 COAL)

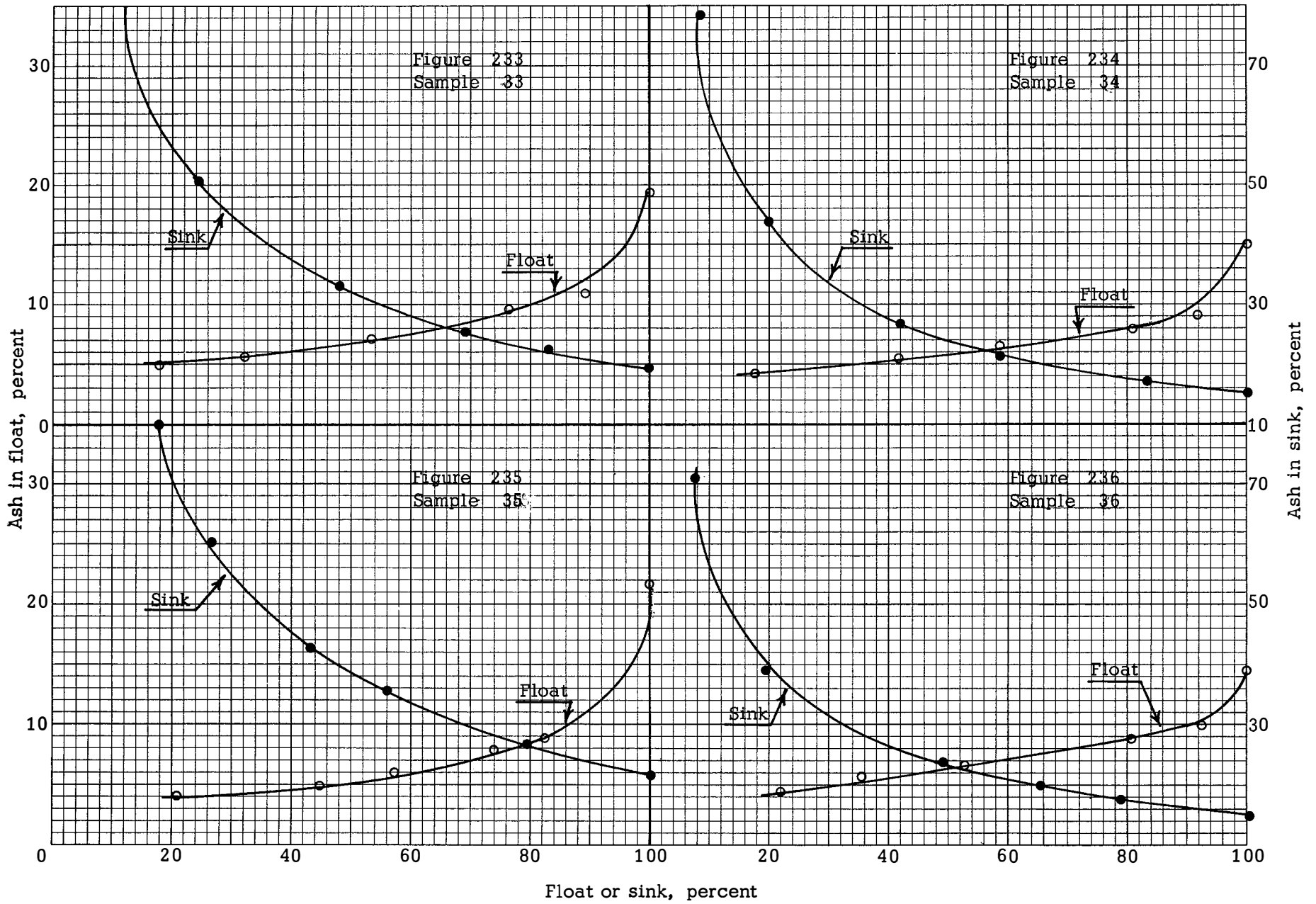


Float or sink, percent

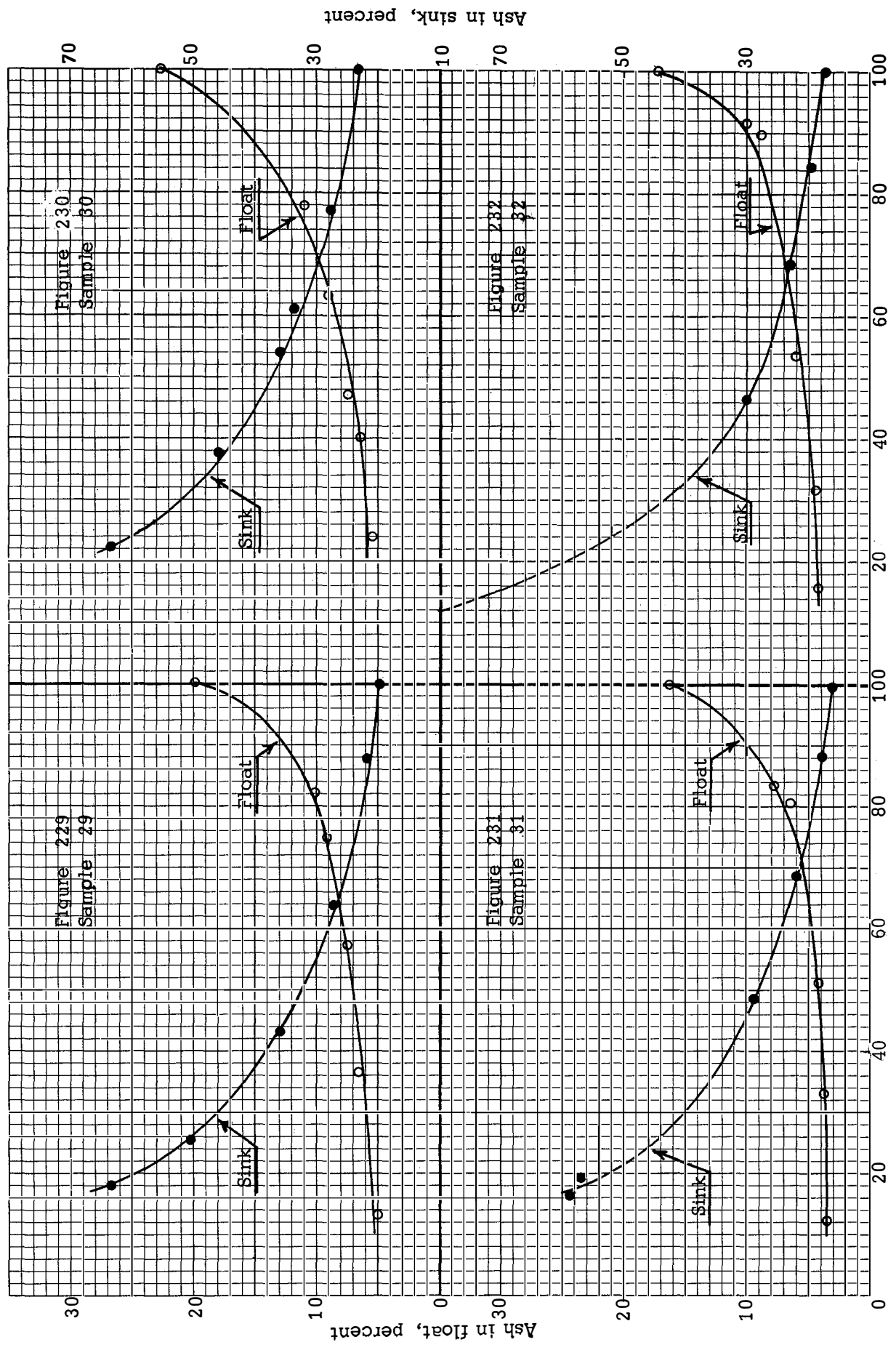
ASH IN FLOAT AND SINK (1 1/2" x 0 COAL)



ASH IN FLOAT AND SINK (1 1/2" x 0 COAL)



ASH IN FLOAT AND SINK (1 1/2" x 0 COAL)



Float or sink, percent

Figure 230
Sample 30

Figure 232
Sample 32

Figure 229
Sample 29

Figure 231
Sample 31

Ash in sink, percent

Ash in float, percent

ASH IN FLOAT AND SINK (1 1/2" x 0 COAL)

