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INDIVIDUAL WELL REPORT
FROM THE PROGRAM ON

# CHARACTERIZATION AND ANALYSIS OF DEVONIAN SHALES AS RELATED TO RELEASE OF GASEOUS HYDROCARBONS

WELL V-7 WETZEL COUNTY, WEST VIRGINIA

(One of Three Individual Well Reports Submitted
As the Eleventh Quarterly Technical Progress Report)

by

R. S. Kalyoncu, J. P. Boyer and M. J. Snyder

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BATTELLE
Columbus Laboratories
505 King Avenue
Columbus, Ohio 43201

Date Published - August 15, 1979

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# CHARACTERIZATION AND ANALYSIS OF DEVONIAN SHALES AS RELATED TO RELEASE OF GASEOUS HYDROCARBONS

Quarterly Technical Progress Report
April - June 1979

## EXECUTIVE SUMMARY

This eleventh Quarterly Technical Progress Report on the Characterization of Eastern Devonian Gas Shales as Related to Release of Gaseous Hydrocarbons, under U. S./DOE Contract No. DE-AC21-76MC05205, describes the characterization data obtained during the period April through June, 1979.

This program was initiated in September, 1976, with the objective and scope of determining the relationships between the shale characteristics, hydrocarbon gas contents, and well location, and thereby provide a sound basis for (1) assessing the productive capacity of the Eastern Devonian Gas Shale deposits, and (2) guiding research, development and demonstration projects to enhance the recovery of natural gas from the shale deposits. Included in the scope of the program are a number of elemental tasks as a part of the Resource Inventory and Shale Characterization subprojects of DOE's Eastern Gas Shales Project designed to provide large quantities of support data for current and possibly future needs of the Project.

## INTRODUCTION

The tenth Quarterly Technical Progress Report was devoted to the Y-1 (Allegany County, New York) well. A thorough presentation and discussion of the characterization data along with Automatic Interaction Detection (AID) analysis were made. This eleventh Quarterly Technical Progress Report presents and discusses data on V-7 (Wetzel County, West Virginia), K-4 (Johnson County, Kentucky), and W-4 (Hardin County, Illinois) shales.

## OBJECTIVE AND SCOPE

The objective of this program is to determine the relationships between shale characteristics, hydrocarbon gas content, and well location to provide a sound basis for defining the productive capacity of the Eastern Devonian Shale deposits and for guiding research, development, and demonstration projects to enhance the recovery of natural gas from the shale deposits. The program includes a number of elemental tasks as a part of the Resource Inventory and Shale Characterization subprojects of DOE's Eastern Gas Shales Project and is designed to provide a wide variety of support data for that project.

Approximately 1000 core samples of gas bearing Eastern Devonian Shale will have been examined by the end of the program. After the characterization data for individual wells have been compiled, a regression-type analysis for pattern recognition will be performed to establish the interrelationships between the shale characteristics, the hydrocarbon gas content, and well locations from which the samples were obtained.

The following tasks comprise the total efforts in this research program:

| Task | Descriptive Title |
|---|---|
| 1 | Core Sampling |
| 2 | Gas Content and Gas Release Kinetics |
| 3 | Chemical Characterization of Shale |
| 4 | Physical Characterization of Shale |
| 5 | Lithology of Shale |

## ANALYSIS AND DISCUSSION OF THE CHARACTERIZATION DATA

The characterization data on the V-7 (Wetzel County, West Virginia) well are reported and discussed in the ensuing pages.

## Task 1. Well Coring

Wetzel County, West Virginia (V-7) shales were cored and sealed in October 1978. There were 46 samples collected for Battelle and 63 samples for other DOE contractors. Coring began at 6102 and stopped at 6635 feet. A total of 533 feet of shale core was obtained. Responsible DOE contractor for this well was Mobay Chemical Company.

Additional well and field sampling data on the V-7 well are reported in Tables 1 and 2. Figure 1 is a plot of on-surface time (that is the time it took to seal the shale samples in canisters after they were cored) for the V-7 shales.

## Task 2. Free Gas Contents and Gas Release Kinetics

The initial gas release rates for the V-7 well are summarized in Table 3. Methane contents in these shales range between zero and 31 volume percent of the gas mixture in the free space surrounding the shale sample in the sealed canisters. Complete absence of methane in some of the samples is somewhat surprising. Another striking feature of Table 3 is that V-7 shales exhibit very significant quantities of higher chain hydrocarbon gases ($C_2$-$C_5$) as compared to the wells thus far analyzed. As pointed out in previous reports, the presence of significant quantities of hydrocarbon gases other than methane is a testimony to the high BTU quality of the natural gas, as gases $C_2$ through $C_5$ represent much higher energy contents than methane gas. In some of the V-7 shales, as shown in Table 3, methane is by no means the hydrocarbon gas in major quantities.

Statistical analysis of the free gas data is given in Table 4. Average hydrocarbon gas volume per unit volume of shale is 0.32. Average ethane and propane contents are nearly as high as average methane contents. These figures are 9.6, 8.9, and 6.6 for methane, ethane, and propane, respectively.

Figure 2 is a plot of hydrocarbon gas contents as a function of shale depth. No discernable pattern of relationship is seen from this plot.

TABLE 1. WELL DATA FOR V- 7

LOCATION: WETZEL COUNTY, WV

ALTITUDE: 1347 FEET

COORDINATES: 80.49 (DEGREES.MINUTES) LATITUDE
39.41 (DEGREES.MINUTES) LONGITUDE

CORING BEGAN AT 6102 FEET AND STOPPED AT 6635 FEET. IT TOOK 10 BARRELS TO COMPLETE.

SAMPLES WERE RETURNED TO BATTELLE ON 10/18/78.

THERE WERE 46 SAMPLES COLLECTED FOR BATTELLE AND 63 SAMPLES COLLECTED FOR OTHERS.

RUN INFORMATION FROM WELL V- 7

RUN NO. 1 CORING BEGAN AT 6102 FEET AND CORING STOPPED AT 6161 FEET. THE AVERAGE CORING RATE IS 8.92 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 5.73 HOURS

RUN NO. 2 CORING BEGAN AT 6161 FEET AND CORING STOPPED AT 6220 FEET. THE AVERAGE CORING RATE IS 7.49 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 4.70 HOURS

RUN NO. 3 CORING BEGAN AT 6222 FEET AND CORING STOPPED AT 6281 FEET. THE AVERAGE CORING RATE IS 7.69 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 4.95 HOURS

RUN NO. 4 CORING BEGAN AT 6281 FEET AND CORING STOPPED AT 6340 FEET. THE AVERAGE CORING RATE IS 6.63 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 6.23 HOURS

RUN NO. 5 CORING BEGAN AT 6340 FEET AND CORING STOPPED AT 6396 FEET. THE AVERAGE CORING RATE IS 7.55 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 6.15 HOURS

RUN NO. 6 CORING BEGAN AT 6396 FEET AND CORING STOPPED AT 6455 FEET. THE AVERAGE CORING RATE IS 7.25 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 5.33 HOURS



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TABLE 1. (Continued)

RUN INFORMATION FROM WELL CONTINUED W- 7

| | |
|---|---|
| RUN NO. 7 | CORING BEGAN AT 6455 FEET AND CORING STOPPED AT 6514 FEET. THE AVERAGE CORING RATE IS 7.23 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 6.20 HOURS |
| RUN NO. 8 | CORING BEGAN AT 6514 FEET AND CORING STOPPED AT 6573 FEET. THE AVERAGE CORING RATE IS 8.51 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 6.17 HOURS |
| RUN NO. 9 | CORING BEGAN AT 6573 FEET AND CORING STOPPED AT 6611 FEET. THE AVERAGE CORING RATE IS 10.37 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 5.58 HOURS |
| RUN NO. 10 | CORING BEGAN AT 6611 FEET AND CORING STOPPED AT 6635 FEET. THE AVERAGE CORING RATE IS 10.25 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 4.70 HOURS |



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TABLE 2. FIELD SAMPLING DATA FOR WELL V 7

| SAMPLE ID. | COLOR | ON SURFACE TIME | BARREL NO | SEQ NO. |
|---|---|---|---|---|
| V 7-6104. | N4 | .85 | 1 | 1 |
| V 7-6114. | N4 | .97 | 1 | 2 |
| V 7-6124. | 5YR2/1 | 1.13 | 1 | 3 |
| V 7-6134. | 5YR2/1 | 1.32 | 1 | 4 |
| V 7-6144. | 5YR2/1 | 1.50 | 1 | 5 |
| V 7-6154. | N4 | 1.60 | 1 | 6 |
| V 7-6164. | N4 | 1.17 | 2 | 7 |
| V 7-6174. | N4 | 1.28 | 2 | 8 |
| V 7-6184. | 5YR2/1 | 1.37 | 2 | 9 |
| V 7-6194. | 5YR2/1 | 1.58 | 2 | 10 |
| V 7-6204. | 5YR2/1 | 1.65 | 2 | 11 |
| V 7-6214. | N3 | 1.73 | 2 | 12 |
| V 7-6224. | N4 | .71 | 3 | 13 |
| V 7-6234. | N4 | .83 | 3 | 14 |
| V 7-6244. | N3 | .97 | 3 | 15 |
| V 7-6254. | N3 | 1.03 | 3 | 16 |
| V 7-6264. | N4/N3 | 1.13 | 3 | 17 |
| V 7-6274. | N4 | 1.28 | 3 | 18 |
| V 7-6283. | 5YR2/1 | 1.00 | 4 | 19 |
| V 7-6293. | 5YR2/1 | 1.17 | 4 | 20 |
| V 7-6303. | 5YR2/1 | 1.25 | 4 | 21 |
| V 7-6313. | 5YR2/1 | 1.35 | 4 | 22 |
| V 7-6323. | N4 | 1.50 | 4 | 23 |
| V 7-6341. | N4 | 1.38 | 5 | 24 |
| V 7-6351. | N3 | 1.50 | 5 | 25 |
| V 7-6361. | N3 | 1.58 | 5 | 26 |
| V 7-6371. | N3 | 1.68 | 5 | 27 |
| V 7-6381. | N3 | 1.79 | 5 | 28 |
| V 7-6391. | N3 | 1.87 | 5 | 29 |
| V 7-6448. | N4 | 1.73 | 6 | 30 |
| V 7-6457. | N2 | 1.10 | 7 | 31 |
| V 7-6467. | N2 | 1.23 | 7 | 32 |
| V 7-6477. | N2 | 1.33 | 7 | 33 |
| V 7-6487. | N2 | 1.45 | 7 | 34 |
| V 7-6497. | N2 | 1.57 | 7 | 35 |
| V 7-6507. | 5YR2/1 | 1.67 | 7 | 36 |
| V 7-6514. | N4 | .80 | 8 | 37 |
| V 7-6524. | N3 | .97 | 8 | 38 |
| V 7-6534. | N4 | 1.10 | 8 | 39 |
| V 7-6544. | 5YR2/1 | 1.18 | 8 | 40 |
| V 7-6554. | 5YR2/1 | 1.28 | 8 | 41 |
| V 7-6564. | 5YR2/1 | 1.38 | 8 | 42 |
| V 7-6594. | N1 | .97 | 9 | 43 |
| V 7-6604. | N1 | 1.05 | 9 | 44 |
| V 7-6613. | 5YR2/1 | .65 | 10 | 45 |
| V 7-6623. | N1 | .87 | 10 | 46 |

MEAN EXPOSURE TIME 1.27
STANDARD DEVIATION OF EXPOSURE TIME .31



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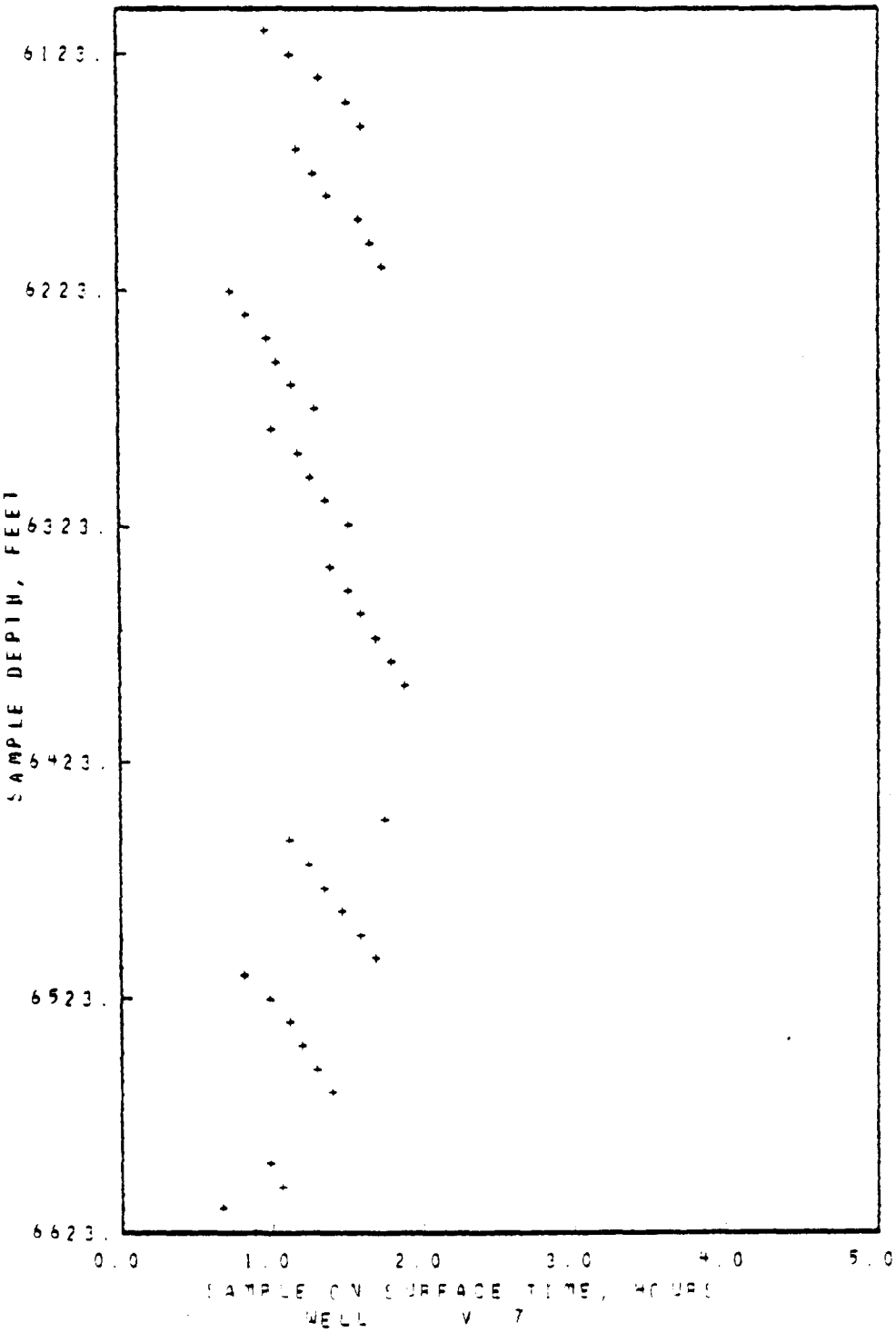


FIGURE 1. SURFACE TIME VERSUS SAMPLE DEPTH FOR WELL V-7

TABLE 3. INITIAL GAS RELEASE DATA: WELL 7

| | SAMPLE ID | PRESSURE TORR | FREE VOLUME CC | POR VOLUME CC | POROSITY PCT. | GAS COMPOSITION, VOLUME PERCENT: METHANE | ETHANE | PROPANE | BUTANE | PENTANE | TOTAL HYDROC. | NITROGEN | OXYGEN | CARBON DIOXIDE | GAS RELEASED/ UNIT VOLUME OF SHALE | SEQ NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V | 7-6104. | 850. | 705. | 745. | 11.23 | 11.25 | 10.42 | 6.75 | 2.32 | .70 | 31.45 | 67.18 | 1.15 | .21 | .33 | 1 |
| V | 7-6114. | 900. | 641. | 809. | 1.95 | 9.64 | 8.74 | 5.05 | 1.71 | .46 | 25.40 | 70.50 | 1.12 | 1.98 | .22 | 2 |
| V | 7-6124. | 750. | 924. | 526. | 17.95 | 7.93 | 5.18 | 4.14 | 1.49 | .30 | 19.23 | 76.19 | 1.36 | 3.23 | .33 | 3 |
| V | 7-6134. | 750. | 728. | 602. | 9.09 | 7.75 | 10.97 | 9.14 | 3.16 | .94 | 31.96 | 64.28 | 3.56 | .20 | .36 | 4 |
| V | 7-6144. | 800. | 754. | 697. | 8.95 | 3.04 | 10.34 | 9.28 | 2.75 | .90 | 26.31 | 70.48 | .96 | 2.26 | .30 | 5 |
| V | 7-6154. | 750. | 721. | 729. | 9.46 | 14.74 | 8.57 | 5.19 | 1.59 | .51 | 30.60 | 62.42 | 6.83 | .16 | .30 | 6 |
| V | 7-6164. | 750. | 754. | 691. | 16.55 | 7.12 | 5.53 | 4.37 | 1.57 | .52 | 19.11 | 76.14 | 4.64 | .08 | .21 | 7 |
| V | 7-6174. | 750. | 528. | 832. | 4.90 | 21.05 | 14.15 | 8.05 | 2.67 | .91 | 46.83 | 51.91 | .87 | .43 | .35 | 8 |
| V | 7-6184. | 750. | 713. | 737. | 5.27 | 10.06 | 17.15 | 12.88 | 4.12 | 1.20 | 45.75 | 51.77 | .87 | 1.62 | .44 | 9 |
| V | 7-6194. | 1000. | 695. | 755. | 11.86 | 13.21 | 14.00 | 6.69 | 11.53 | .21 | 36.44 | 55.93 | 5.20 | 2.42 | .56 | 10 |
| V | 7-6204. | 750. | 721. | 729. | 13.93 | 3.63 | 12.91 | 9.56 | 3.41 | .94 | 35.45 | 57.54 | 5.55 | .45 | .35 | 11 |
| V | 7-6214. | 800. | 534. | 816. | 5.96 | 15.44 | 18.58 | 11.69 | 3.88 | 1.19 | 54.78 | 44.45 | .62 | .15 | .50 | 12 |
| V | 7-6224. | 850. | 748. | 702. | 3.70 | 11.47 | 11.14 | 8.05 | 3.21 | .60 | 34.47 | 63.58 | .91 | 1.04 | .41 | 13 |
| V | 7-6234. | 900. | 791. | 659. | 15.85 | 10.52 | 12.79 | 4.64 | 2.93 | .85 | 35.73 | 62.53 | .89 | .88 | .51 | 14 |
| V | 7-6244. | 1000. | 719. | 731. | 8.28 | 17.73 | 12.55 | 7.23 | 2.53 | 1.06 | 41.21 | 56.52 | .90 | 1.36 | .53 | 15 |
| V | 7-6254. | 1100. | 524. | 922. | 11.65 | 25.17 | 14.97 | 7.62 | 2.27 | .74 | 51.77 | 47.45 | .74 | .08 | .43 | 16 |
| V | 7-6264. | 850. | 695. | 754. | 5.79 | 25.77 | 14.49 | 7.36 | 2.39 | .91 | 51.82 | 45.90 | 1.70 | .63 | .53 | 17 |
| V | 7-6274. | 1200. | 653. | 797. | 2.96 | 31.03 | 14.18 | 5.93 | 1.66 | .83 | 53.65 | 44.68 | 1.49 | .15 | .69 | 18 |
| V | 7-6283. | 750. | 1052. | 398. | 9.28 | 1.58 | 1.76 | 1.84 | .83 | .42 | 6.35 | 79.98 | 10.08 | 3.59 | .17 | 19 |
| V | 7-6293. | 750. | 853. | 597. | 7.95 | 4.93 | 9.32 | 6.65 | 1.90 | 1.61 | 24.41 | 69.69 | 2.04 | 3.87 | .34 | 20 |
| V | 7-6304. | 750. | 890. | 560. | 9.59 | 1.48 | 3.63 | 4.82 | 1.72 | .29 | 11.83 | 78.02 | 3.87 | 6.25 | .19 | 21 |
| V | 7-6314. | 750. | 796. | 654. | 6.16 | 6.79 | 11.68 | 9.00 | 3.37 | .74 | 31.28 | 64.36 | .96 | 2.92 | .38 | 22 |
| V | 7-6324. | 1100. | 583. | 867. | 3.32 | 19.48 | 17.34 | 12.32 | 4.22 | 1.16 | 49.52 | 49.65 | .70 | .11 | .39 | 23 |
| V | 7-6341. | 750. | 580. | 870. | 0.00 | 1.18 | 2.02 | 3.31 | 1.49 | .50 | 8.50 | 81.20 | 3.38 | 6.95 | .06 | 24 |
| V | 7-6351. | 900. | 664. | 786. | 7.55 | 10.26 | 6.23 | 3.37 | 1.22 | .24 | 27.32 | 71.58 | 1.02 | 1.13 | .24 | 25 |
| V | 7-6361. | 750. | 302. | 649. | 4.39 | 12.66 | 4.59 | 1.78 | .49 | .10 | 19.42 | 70.64 | 9.89 | .08 | .24 | 26 |
| V | 7-6371. | 1000. | 502. | 868. | 18.03 | 23.51 | 10.15 | 4.32 | 1.10 | .25 | 44.33 | 54.28 | 1.32 | .11 | .39 | 27 |
| V | 7-6381. | 750. | 651. | 799. | 5.35 | 3.37 | 3.52 | 2.11 | .57 | .12 | 11.19 | 81.69 | 4.35 | 2.80 | .09 | 28 |
| V | 7-6391. | 750. | 942. | 508. | 4.02 | 4.33 | 2.05 | 1.29 | .49 | .10 | 8.55 | 77.43 | 13.65 | .38 | .16 | 29 |
| V | 7-6403. | 750. | 954. | 496. | 3.84 | 5.71 | 6.22 | 5.41 | 2.26 | .80 | 20.40 | 74.35 | 2.55 | 2.68 | .39 | 30 |
| V | 7-6457. | 750. | 937. | 513. | 2.90 | 6.56 | 7.89 | 7.16 | 2.49 | .71 | 24.81 | 68.83 | 5.30 | 1.04 | .33 | 31 |
| V | 7-6467. | 750. | 740. | 710. | .84 | 13.69 | 10.77 | 7.63 | 2.47 | .75 | 32.51 | 61.97 | 4.32 | 1.19 | .42 | 32 |
| V | 7-6477. | 750. | 722. | 728. | 1.67 | 2.91 | 6.29 | 6.99 | 3.03 | 1.35 | 20.57 | 70.86 | 3.75 | 4.80 | .15 | 33 |
| V | 7-6487. | 750. | 798. | 652. | 7.14 | 13.50 | 10.52 | 7.14 | 2.26 | .71 | 31.12 | 62.60 | 3.60 | 2.67 | .48 | 34 |
| V | 7-6497. | 800. | 775. | 675. | 7.15 | 7.28 | 9.97 | 8.62 | 3.31 | .76 | 29.64 | 65.84 | 1.32 | 3.21 | .40 | 35 |
| V | 7-6507. | 700. | 872. | 578. | 4.14 | .47 | 1.45 | 4.43 | 2.79 | .92 | 10.06 | 87.19 | 1.37 | 1.39 | .14 | 36 |
| V | 7-6514. | 750. | 540. | 910. | 1.50 | 3.52 | .08 | .29 | .05 | .01 | 7.05 | 72.97 | 19.74 | .24 | .04 | 37 |
| V | 7-6524. | 750. | 791. | 669. | 5.14 | 2.31 | 5.36 | 4.82 | 1.67 | .49 | 15.15 | 77.71 | 3.03 | 4.11 | .17 | 38 |
| V | 7-6534. | 950. | 515. | 934. | 6.32 | 13.02 | 1.71 | .58 | .13 | .03 | 15.47 | 67.45 | 15.72 | 1.38 | .10 | 39 |
| V | 7-6544. | 850. | 616. | 834. | 3.53 | 1.34 | 11.59 | 12.56 | 4.36 | 1.07 | 30.92 | 66.90 | 1.13 | 1.06 | .26 | 40 |
| V | 7-6554. | 800. | 636. | 754. | 2.29 | 5.84 | 9.30 | 9.80 | 3.91 | 1.23 | 29.28 | 67.12 | 1.13 | 2.51 | .32 | 41 |
| V | 7-6594. | 800. | 773. | 677. | 6.62 | .25 | 3.55 | 6.64 | 2.31 | .81 | 14.16 | 74.21 | 1.34 | 10.32 | .17 | 43 |
| V | 7-6504. | 900. | 803. | 647. | 0.00 | 3.53 | 12.21 | 12.48 | 4.12 | .95 | 33.34 | 61.87 | .89 | 1.36 | .49 | 44 |
| V | 7-6614. | 750. | 870. | 580. | 0.00 | 0.00 | 6.06 | 7.74 | 2.25 | .44 | 16.49 | 74.65 | 1.14 | 7.69 | .24 | 45 |
| V | 7-6624. | 750. | 749. | 701. | 6.40 | 0.00 | 7.11 | 6.49 | 1.48 | .25 | 15.61 | 77.98 | 1.64 | 4.36 | .16 | 46 |

TABLE 4. STATISTICAL ANALYSES OF OFF GAS DATA

WELL V 7

| | MEAN | STANDARD DEVIATION | VARIANCE | COEFFICIENT OF DEVIATION | 95 PCT. CONFIDENCE INTERVAL LOWER LIMIT | UPPER LIMIT | NO OF SAMPLES |
|---|---|---|---|---|---|---|---|
| METHANE, PERCENT | 9.566 | 7.94 | 63.04 | .83 | 7.180 | 11.952 | 45 |
| ETHANE, PERCENT | 8.928 | 4.71 | 22.22 | .53 | 7.511 | 10.345 | 45 |
| PROPANE, PERCENT | 6.622 | 3.19 | 10.17 | .48 | 5.664 | 7.581 | 45 |
| BUTANE, PERCENT | 2.476 | 1.77 | 3.15 | .72 | 1.943 | 3.010 | 45 |
| PENTANE, PERCENT | .679 | .38 | .15 | .56 | .564 | .794 | 45 |
| TOTAL HYDROCARBONS, PCT | 28.272 | 13.81 | 190.79 | .49 | 24.121 | 32.423 | 45 |
| NITROGEN, PERCENT | 66.275 | 10.75 | 115.62 | .16 | 63.044 | 69.507 | 45 |
| OXYGEN, PERCENT | 4.658 | 8.78 | 77.01 | 1.88 | 2.020 | 7.295 | 45 |
| CARBON DIOXIDE, PERCENT | 2.590 | 3.79 | 14.36 | 1.46 | 1.451 | 3.729 | 45 |
| GAS VOLUME/SHALE VOLUME | .319 | .15 | .02 | .47 | .274 | .364 | 45 |

*IT IS INSIGNIFICANT

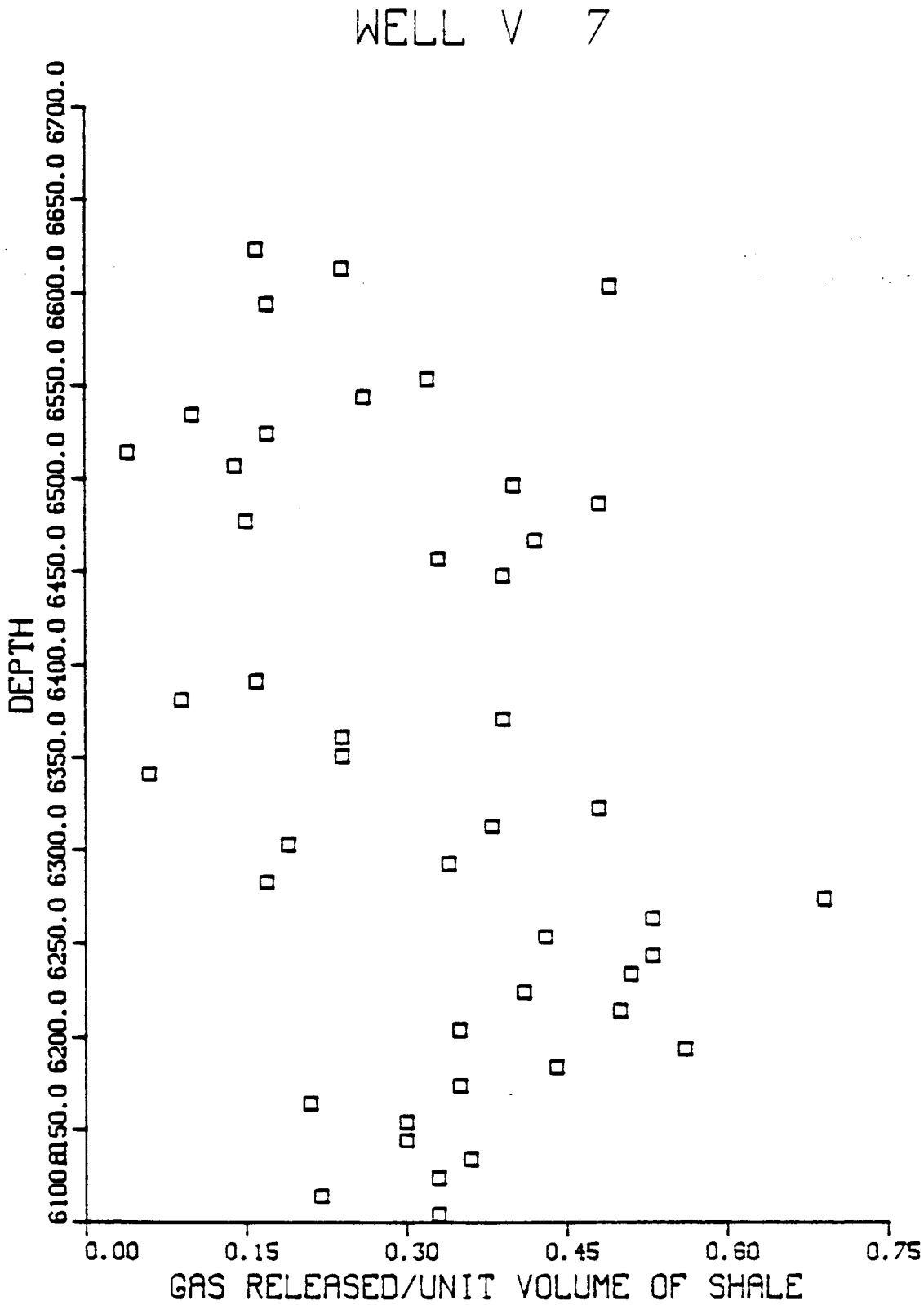


FIGURE 2. HYDROCARBON GAS CONTENT AS A FUNCTION OF SHALE DEPTH FOR WELL V-7

## Task 3. Chemical Characterization Data

Total carbon, hydrogen, nitrogen, and sulfur contents in the shales are reported in Table 5. Table 5 is characterized by a large scatter in carbon contents as indicated by the second column. These values range from 0.4 to 14.1 percent by weight of shale. Another striking feature of Table 5 is that of nitrogen values. Nitrogen contents in the previous well have generally been in the order of 0.1 percent with occasional values of 0.2 percent. V-7 shales are the first group of specimens analyzed exhibiting nitrogen content beyond 0.2 percent going as high as 0.5 percent. Higher nitrogen contents coincide with high hydrogen and carbon contents indicating the extra nitrogen comes from organic sources. Sulfur contents also show a wide scatter ranging from 0.2 to 4.8 percent by weight of shale.

Figures 3 through 6 summarize the chemical characterization data as a function of shale depth. Carbon contents (Figure 3) seem to decrease with depth from 6100 to 6400 feet; then a reverse in trend -- increase in carbon contents with depth is observed. Hydrogen contents (Figure 4) on the otherhand, remain relatively constant to depths of 64 feet then a slight increase with depth is noted. Possible patterns in H/C atomic ratios with depth is much less defined (Figure 5). Sulfur contents (Figure 6) follow much the same pattern as the carbon versus depth profile, in that two regions of decreasing and increasing sulfur contents with depth are observed. A depth of 6400 feet is again the turning point for the trend.

Figures 7 through 9 illustrate relationships between the chemical characteristics (C, H, and S contents) and hydrocarbon gas contents. Data are too scattered to make any definite observation, though a general increase in hydrocarbon gas contents with carbon and sulfur is somewhat apparent.

## Task 4. Physical Characterization Data

Partial physical characterization data (densities, porosity, and surface area) are compiled in Table 6 with the statistical parameters presented in Table 7. Mean bulk and true density values for 46 samples are 261 and 276 g/cc, respectively. Average porosity calculated from the density

TABLE 5. [illegible] CHARACTERIZATION DATA.

| [illegible] | [illegible] | TOTAL CARBON PERCENT | TOTAL HYDROGEN PERCENT | TOTAL NITROGEN PERCENT | TOTAL SULFUR PERCENT | CARB CODE | SEQ NO. |
|---|---|---|---|---|---|---|---|
| W | 7-5104. | 1.[illegible] | .6 | .2 | .[illegible] | 5 | 1 |
| W | 7-5114. | 1.9 | .6 | .1 | .1 | 5 | 2 |
| W | 7-5124. | 1.1 | .6 | .1 | 2.2 | 5 | 3 |
| W | 7-5134. | 1.[illegible] | .5 | .1 | 1.1 | 5 | 4 |
| W | 7-5144. | [illegible].1 | .7 | .2 | 2.5 | 5 | 5 |
| W | 7-5154. | .6 | .5 | .1 | .1 | 5 | 6 |
| W | 7-5164. | .[illegible] | .5 | .1 | .4 | 5 | 7 |
| W | 7-5174. | 1.3 | .6 | .1 | 4.2 | 5 | 8 |
| W | 7-5184. | 3.1 | .6 | .2 | 1.[illegible] | 5 | 9 |
| W | 7-5194. | 2.[illegible] | .6 | .1 | 1.4 | 5 | 10 |
| W | 7-5204. | 1.4 | .5 | .1 | 1.8 | 5 | 11 |
| W | 7-5214. | 1.[illegible] | .5 | .1 | 2.4 | 5 | 12 |
| W | 7-5224. | 1.[illegible] | .5 | .1 | 1.1 | 5 | 13 |
| W | 7-5234. | 1.6 | .5 | .2 | 1.8 | 5 | 14 |
| W | 7-5244. | .[illegible] | .5 | .1 | .4 | 5 | 15 |
| W | 7-5254. | .[illegible] | .4 | .1 | .1 | 5 | 16 |
| W | 7-5264. | .[illegible] | .5 | .1 | .1 | 5 | 17 |
| W | 7-5274. | .[illegible] | .5 | .1 | .1 | 5 | 18 |
| W | 7-5284. | 2.8 | .5 | .2 | 1.3 | 5 | 19 |
| W | 7-5294. | 1.8 | .5 | .1 | 1.6 | 5 | 20 |
| W | 7-5304. | 1.1 | .5 | .2 | 2.4 | 5 | 21 |
| W | 7-5314. | 2.9 | .8 | .3 | 1.6 | 5 | 22 |
| W | 7-5324. | .9 | .5 | .1 | 1.5 | 5 | 23 |
| W | 7-5341. | .8 | .5 | .1 | .3 | 5 | 24 |
| W | 7-5351. | 1.8 | .5 | .1 | 4.3 | 5 | 25 |
| W | 7-5361. | .1 | .5 | .2 | .2 | 5 | 26 |
| W | 7-5371. | .7 | .5 | .2 | .1 | 5 | 27 |
| W | 7-5381. | .6 | .5 | .1 | .4 | 5 | 28 |
| W | 7-5391. | .5 | .5 | .1 | .2 | 5 | 29 |
| W | 7-5401. | .5 | .4 | .1 | 1.8 | 5 | 30 |
| W | 7-5417. | 1.5 | .4 | .1 | .2 | 5 | 31 |
| W | 7-5427. | 1.1 | .4 | .1 | .2 | 5 | 32 |
| W | 7-5437. | .1 | .5 | .1 | 1.8 | 5 | 33 |
| W | 7-5447. | 1.1 | .4 | .1 | .3 | 5 | 34 |
| W | 7-5457. | 1.1 | .7 | .2 | .3 | 5 | 35 |
| W | 7-5467. | 8.5 | .5 | .2 | .2 | 5 | 36 |
| W | 7-5514. | 2.1 | .2 | .1 | .1 | 5 | 37 |
| W | 7-5524. | 4.1 | .3 | .1 | .7 | 5 | 38 |
| W | 7-5534. | 5.5 | .4 | .1 | .2 | 5 | 39 |
| W | 7-5544. | 10.8 | .8 | .4 | .3 | 5 | 40 |
| W | 7-5554. | 2.8 | .1 | .1 | .6 | 5 | 41 |
| W | 7-5564. | 8.1 | .7 | .3 | 3.8 | 5 | 42 |
| W | 7-5604. | 2.3 | .8 | .4 | 3.5 | 5 | 43 |
| W | 7-5614. | 2.1 | .7 | .2 | 2.5 | 5 | 44 |
| W | 7-5624. | 14.1 | .9 | .5 | 4.1 | 5 | 45 |

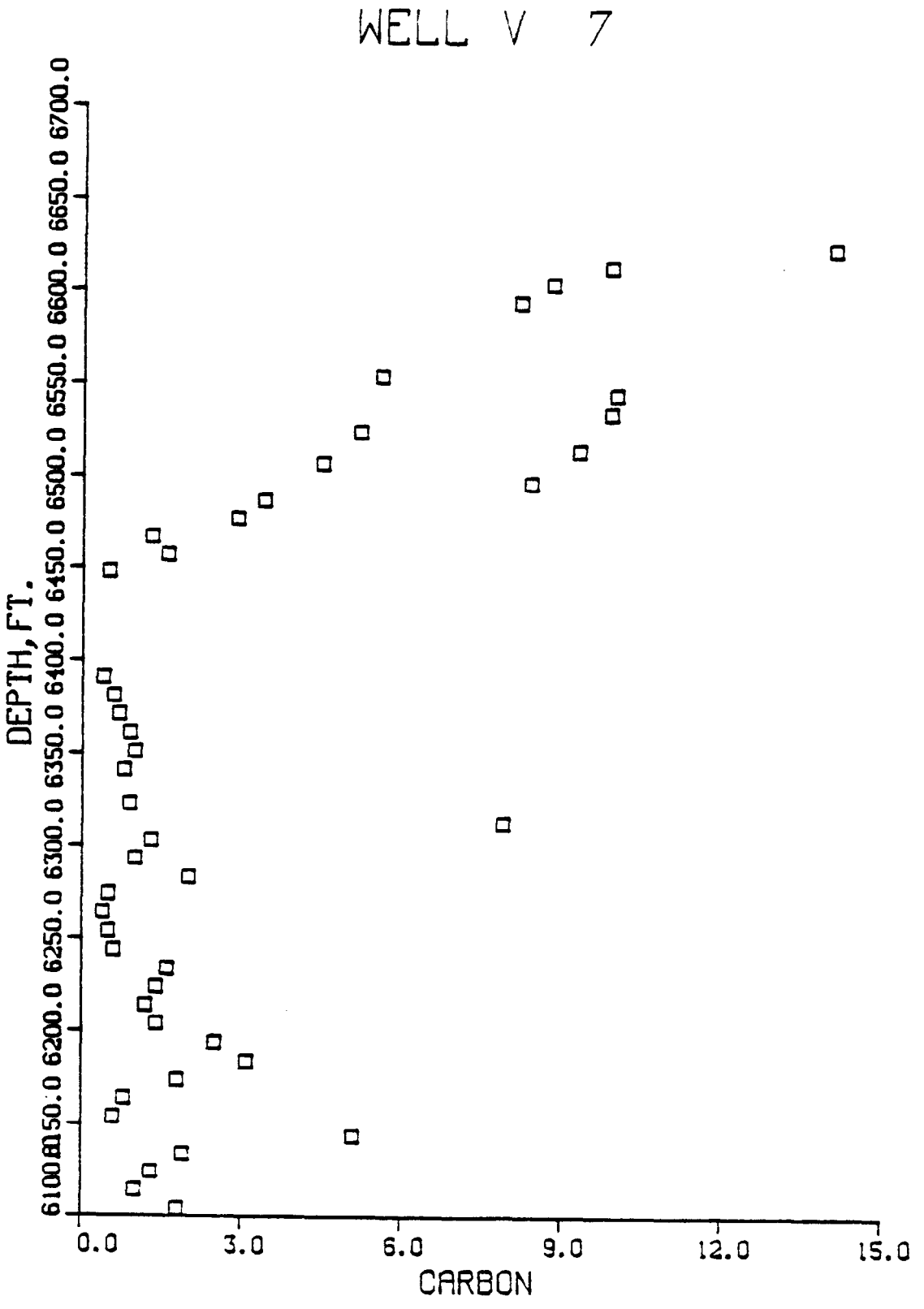


FIGURE 3. CARBON CONTENT VERSUS SHALE DEPTH FOR WELL V-7

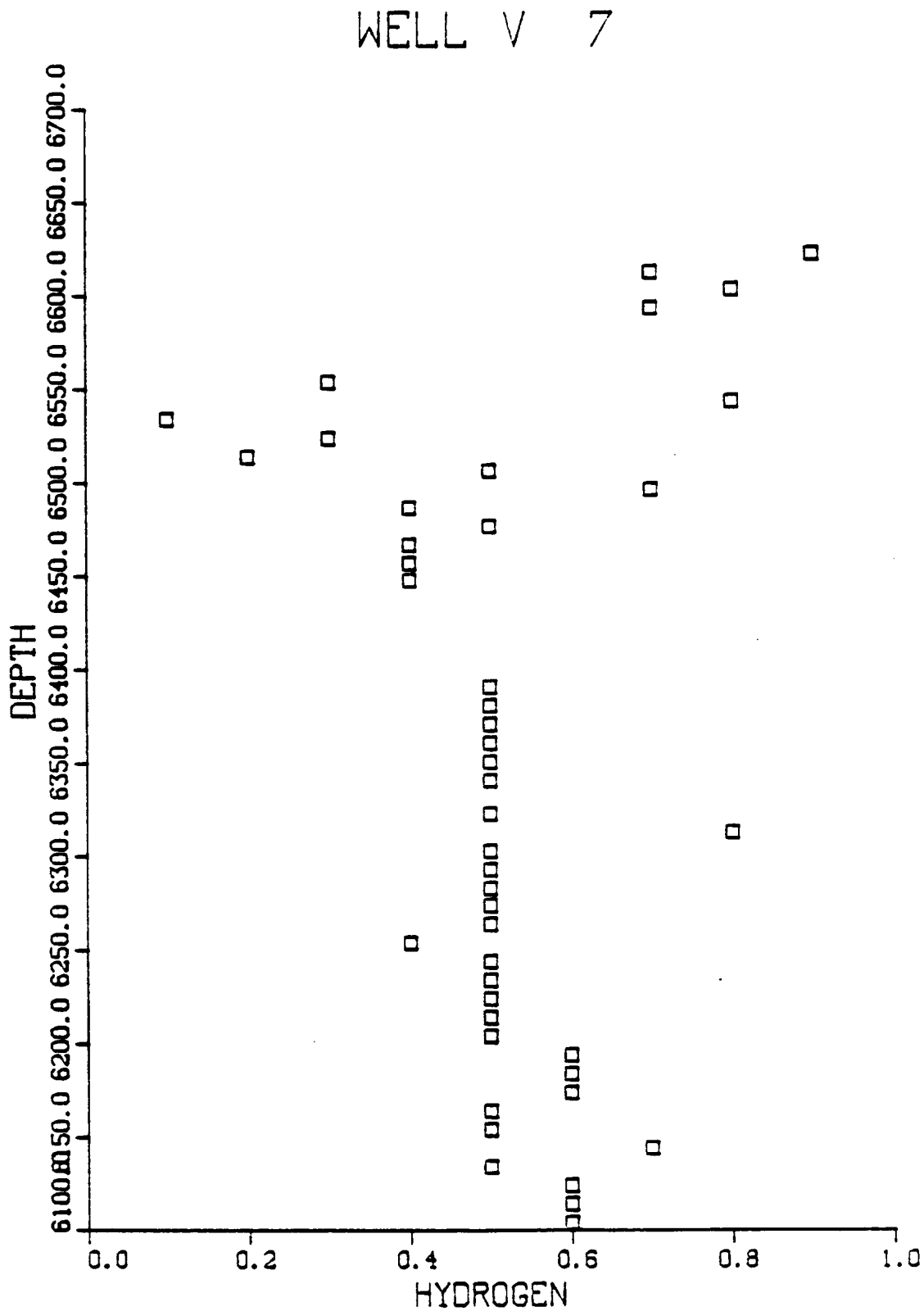


FIGURE 4. HYDROGEN CONTENT VERSUS SHALE DEPTH FOR WELL V-7

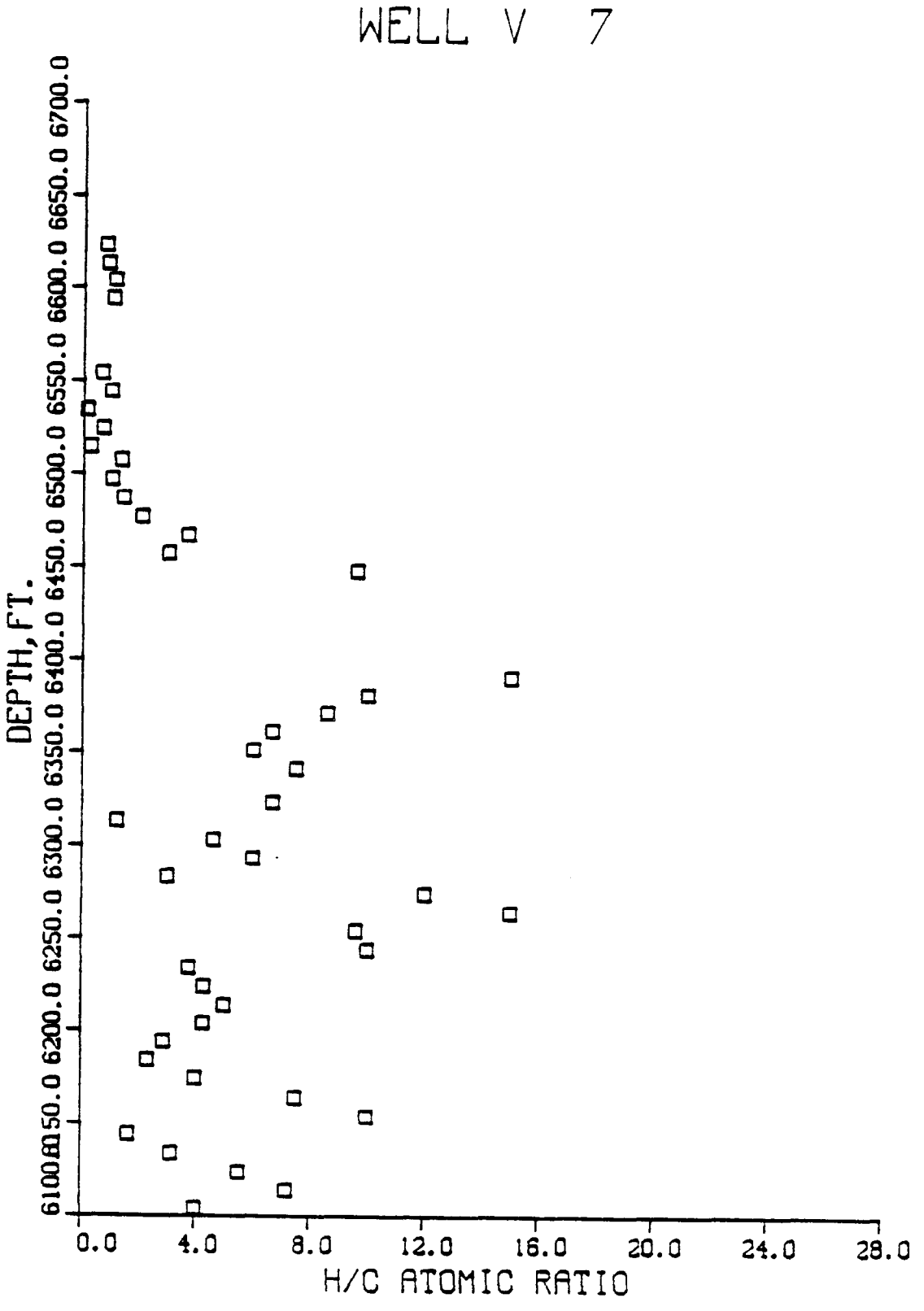


FIGURE 5. H/C ATOMIC RATIO VERSUS SHALE DEPTH FOR WELL V-7

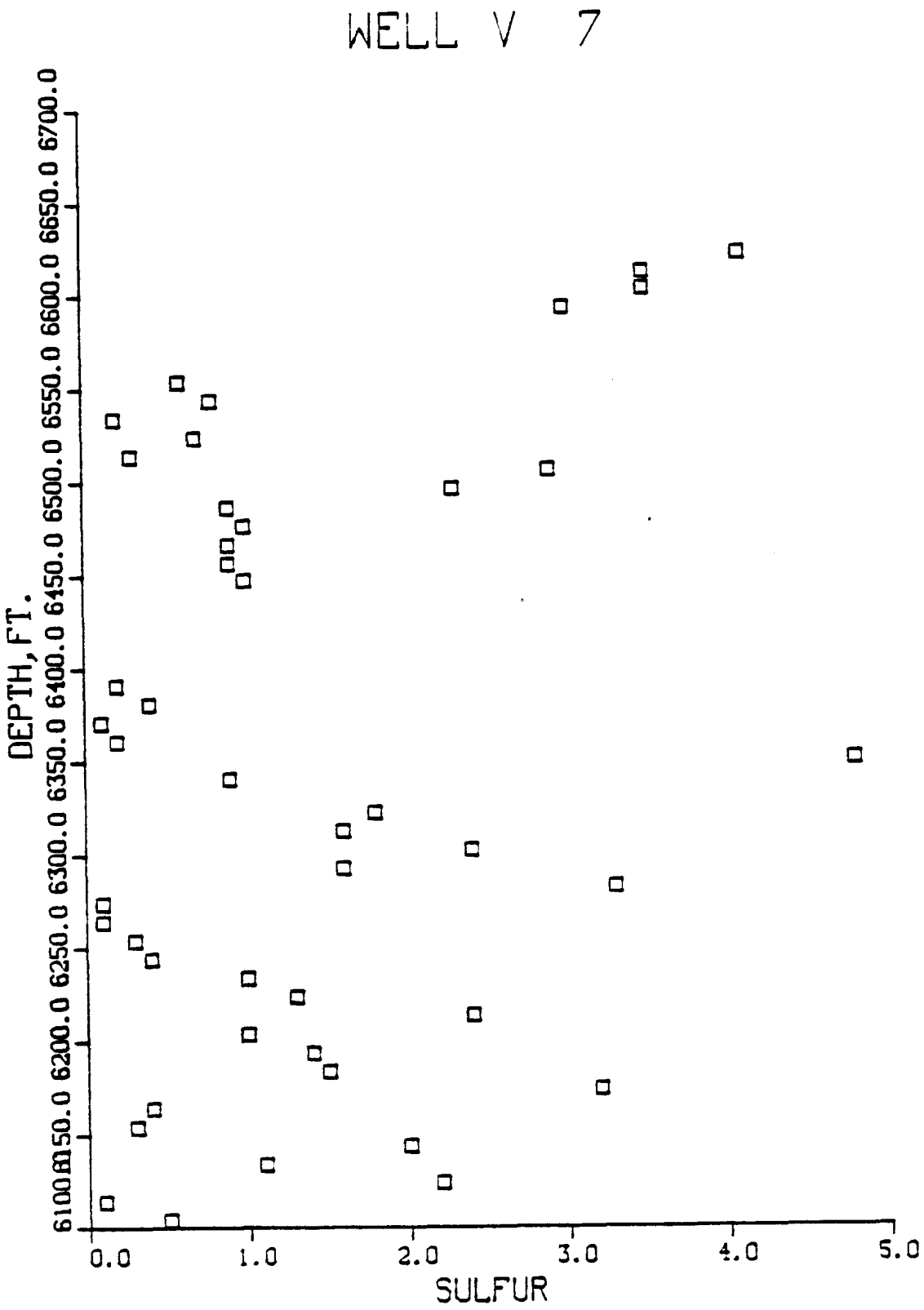


FIGURE 6. SULFUR CONTENT VERSUS SHALE DEPTH FOR WELL V-7

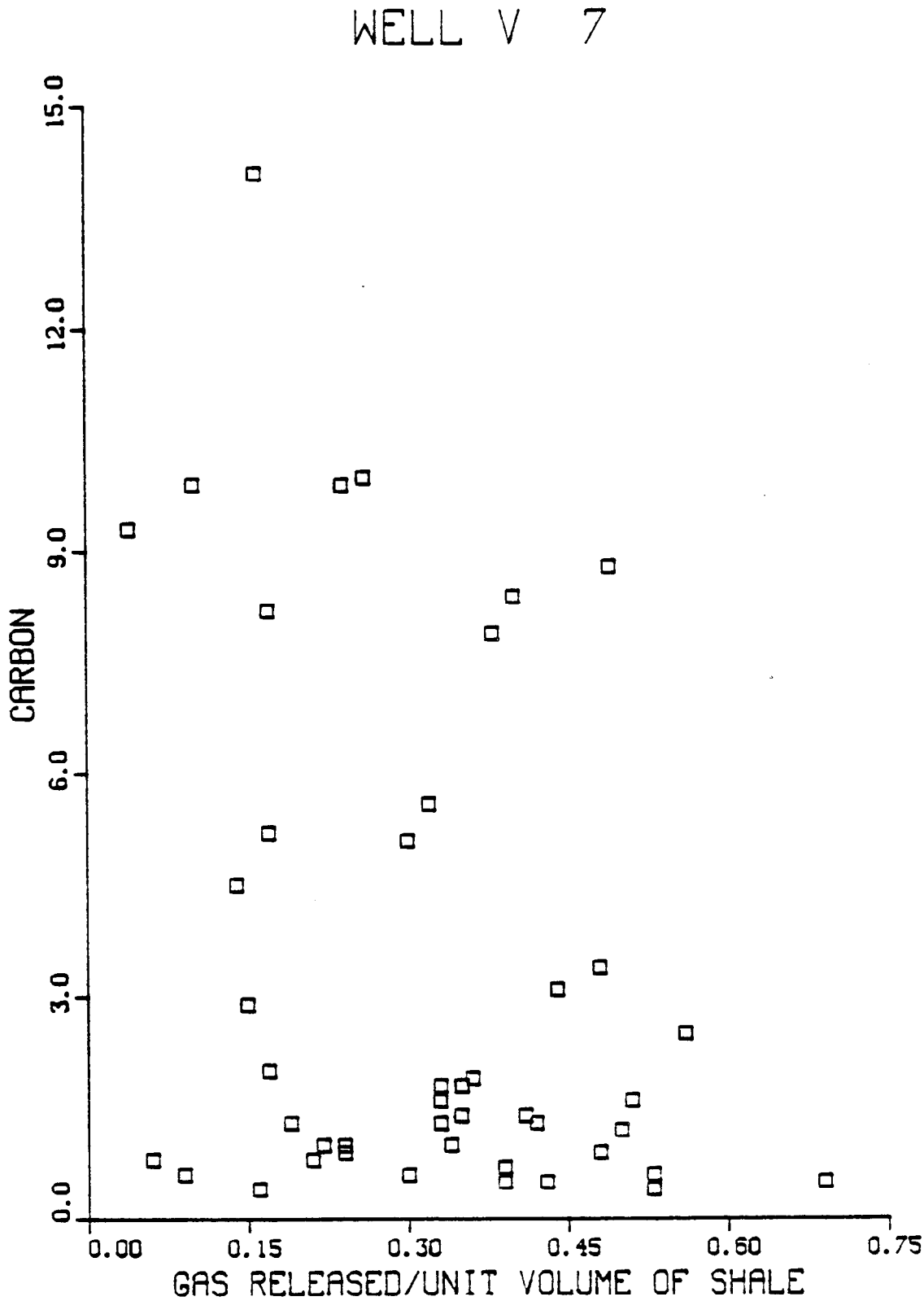


FIGURE 7. HYDROCARBON GAS CONTENT VERSUS CARBON CONTENT FOR WELL V-7

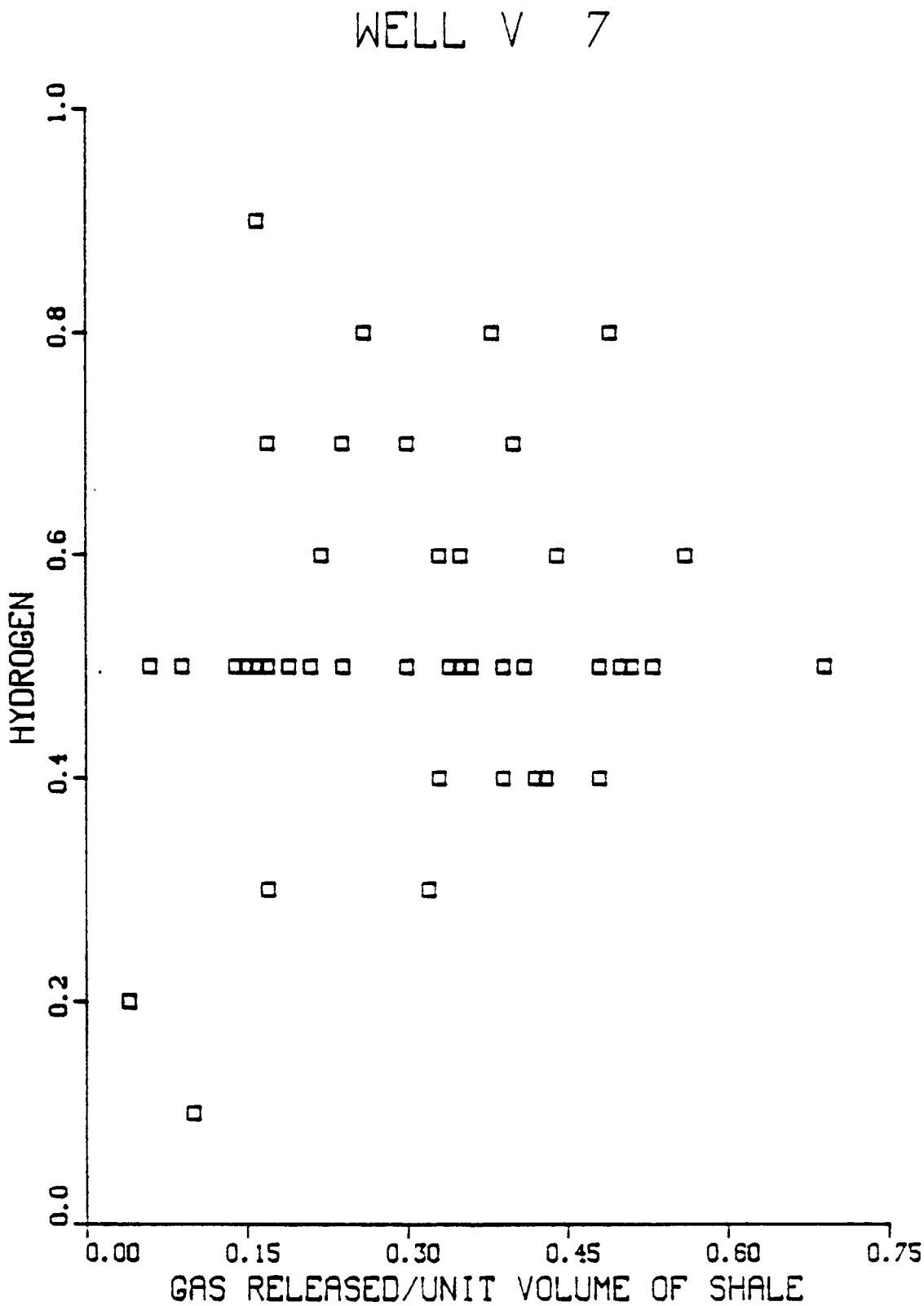


FIGURE 8. HYDROCARBON GAS CONTENT VERSUS HYDROGEN CONTENT FOR WELL V-7

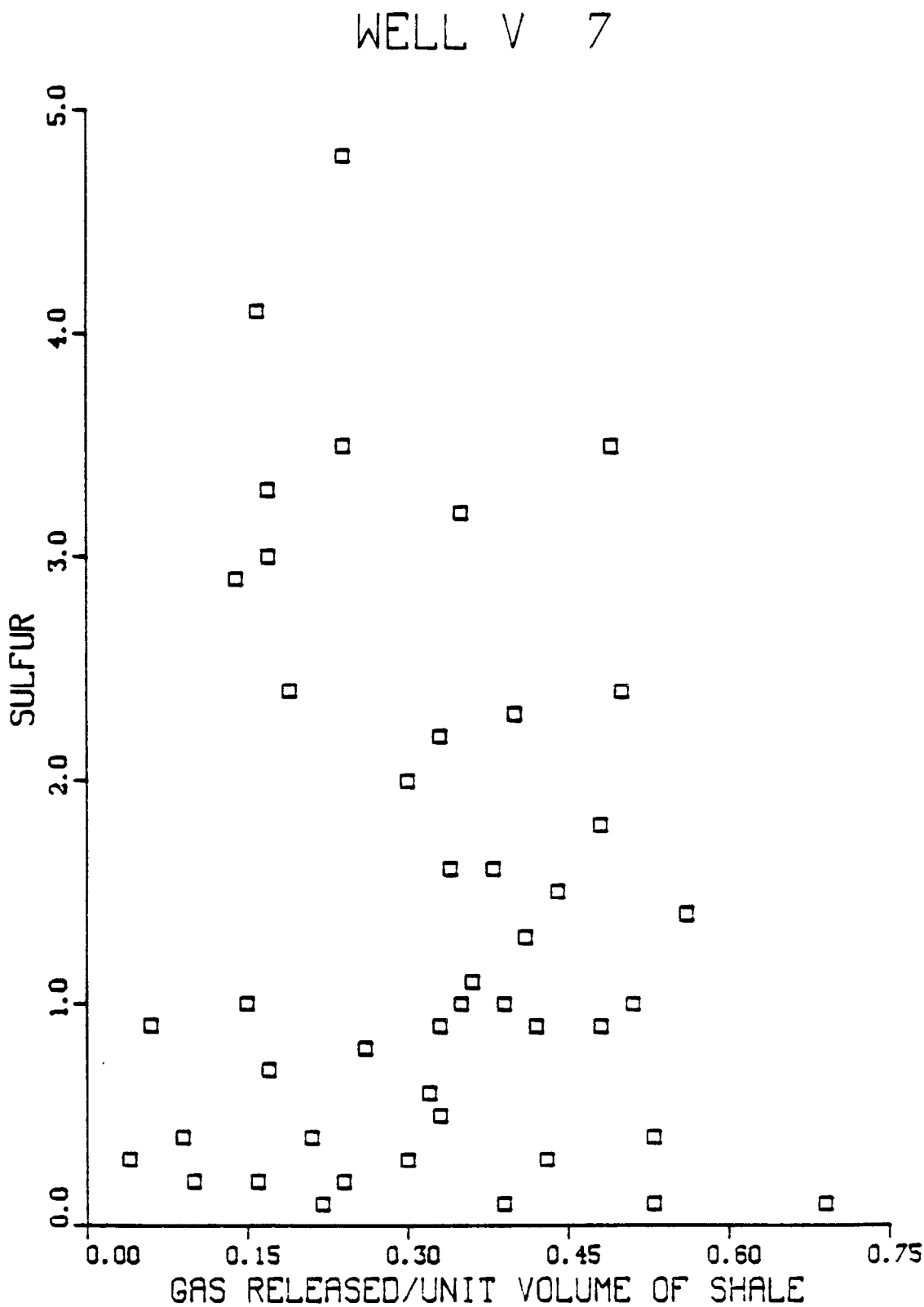


FIGURE 9. HYDROCARBON GAS CONTENT VERSUS SULFUR CONTENT FOR WELL V-7

TABLE 6. SUMMARY OF PHYSICAL CHARACTERIZATION DATA
04/02/79

| SAMPLE ID. | BULK DENSITY, G/CC | TRUE DENSITY, G/CC | POROSITY, PCT | SURFACE AREA, M2/G | SEQ NO. |
|---|---|---|---|---|---|
| V 7-6104. | 2.624 | 2.956 | 11.244 | 2.485 | 1 |
| V 7-6114. | 2.633 | 2.685 | 1.951 | 2.189 | 2 |
| V 7-6124. | 2.553 | 3.108 | 17.854 | 1.709 | 3 |
| V 7-6134. | 2.595 | 2.883 | 9.986 | .846 | 4 |
| V 7-6144. | 2.581 | 2.774 | 6.946 | 4.230 | 5 |
| V 7-6154. | 2.647 | 2.923 | 9.455 | 1.140 | 6 |
| V 7-6164. | 2.625 | 3.146 | 16.552 | 5.601 | 7 |
| V 7-6174. | 2.603 | 2.737 | 4.897 | 3.117 | 8 |
| V 7-6184. | 2.510 | 2.650 | 5.268 | 3.379 | 9 |
| V 7-6194. | 2.569 | 2.915 | 11.856 | 2.192 | 10 |
| V 7-6204. | 2.600 | 3.021 | 13.934 | 1.408 | 11 |
| V 7-6214. | 2.650 | 2.817 | 5.939 | 3.712 | 12 |
| V 7-6224. | 2.651 | 2.753 | 3.703 | 1.005 | 13 |
| V 7-6234. | 2.565 | 3.019 | 15.047 | .978 | 14 |
| V 7-6244. | 2.664 | 2.905 | 8.281 | 2.710 | 15 |
| V 7-6254. | 2.650 | 3.001 | 11.686 | 1.393 | 16 |
| V 7-6264. | 2.652 | 2.815 | 5.785 | 2.391 | 17 |
| V 7-6274. | 2.646 | 2.726 | 2.942 | 1.502 | 18 |
| V 7-6283. | 2.570 | 2.833 | 9.276 | 1.274 | 19 |
| V 7-6293. | 2.663 | 2.893 | 7.950 | 2.556 | 20 |
| V 7-6303. | 2.644 | 2.924 | 9.587 | 1.004 | 21 |
| V 7-6313. | 2.526 | 2.692 | 6.162 | 1.378 | 22 |
| V 7-6323. | 2.661 | 2.752 | 3.324 | 3.759 | 23 |
| V 7-6341. | 2.655 | .544 | 0.000 | 2.345 | 24 |
| V 7-6351. | 2.664 | 2.885 | 7.650 | 3.228 | 25 |
| V 7-6361. | 2.648 | 2.761 | 4.393 | 3.267 | 26 |
| V 7-6371. | 2.668 | 3.255 | 18.042 | 2.629 | 27 |
| V 7-6381. | 2.602 | 2.749 | 5.349 | 3.255 | 28 |
| V 7-6391. | 2.607 | 2.716 | 4.022 | 1.504 | 29 |
| V 7-6448. | 2.631 | 2.736 | 3.842 | 1.190 | 30 |
| V 7-6457. | 2.679 | 2.759 | 2.895 | 3.590 | 31 |
| V 7-6467. | 2.649 | 2.657 | .675 | 2.016 | 32 |
| V 7-6477. | 2.523 | 2.992 | 15.666 | 3.411 | 33 |
| V 7-6487. | 2.595 | 2.765 | 6.141 | 1.818 | 34 |
| V 7-6497. | 2.597 | 2.757 | 6.150 | 1.147 | 35 |
| V 7-6507. | 2.605 | 2.717 | 4.139 | 1.414 | 36 |
| V 7-6514. | 2.625 | 2.665 | 1.501 | 2.285 | 37 |
| V 7-6524. | 2.645 | 2.788 | 5.137 | 4.173 | 38 |
| V 7-6534. | 2.649 | 2.828 | 6.318 | 2.855 | 39 |
| V 7-6544. | 2.560 | 2.600 | 1.525 | 5.683 | 40 |
| V 7-6554. | 2.575 | 2.635 | 2.289 | 2.787 | 41 |
| V 7-6594. | 2.561 | 2.743 | 6.623 | 8.127 | 43 |
| V 7-6604. | 2.578 | 2.547 | 0.000 | 5.277 | 44 |
| V 7-6613. | 2.521 | 2.451 | 0.000 | 11.938 | 45 |
| V 7-6623. | 2.548 | 2.722 | 6.404 | 3.724 | 46 |

TABLE 7. STATISTICAL ANALYSES OF PHYSICAL CHARACTERIZATION DATA

WELL V 7

| | MEAN | STANDARD DEVIATION | VARIANCE | COEFFICIENT OF DEVIATION | 95 PCT. CONFIDENCE INTERVAL LOWER LIMIT | UPPER LIMIT | NO OF SAMPLES |
|---|---|---|---|---|---|---|---|
| BULK DENSITY, G/CC | 2.610 | .05 | .00 | .02 | 2.596 | 2.623 | 45 |
| TRUE DENSITY, G/CC | 2.760 | .37 | .14 | .14 | 2.648 | 2.872 | 45 |
| POROSITY, PCT | 6.853 | 4.81 | 23.11 | .70 | 5.408 | 8.298 | 45 |
| SURFACE AREA, M2/G | 2.880 | 2.03 | 4.14 | .71 | 2.269 | 3.492 | 45 |

*1 IS INSIGNIFICANT



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Battelle Columbus Labs.

values is 6.85 percent. Measured surface area values range from less than one to over eight square meters per gram. Porosity values found from the mercury intrusion method are summarized in Table 8. These average values are somewhat lower than the porosities calculated from the density data. Permeability measurements were made on five V-7 shales. These values are shown in Table 9.

Hydrocarbon gas contents as a function of bulk density are plotted in Figure 10. Additional one-to-one relationships between the physical and chemical characterization data are illustrated in Figures 11 through 17.

## Task 5. Lithology of Shale

Samples V-7-6104, -6194, -6293, and -6448 were similar in their abundant clay-mineral content, moderate quartz content and generally low pyrite and carbonate mineral content. Sample V-7-6104, when examined by petrographic microscope appeared to have a somewhat higher clay-mineral content than the other samples. As the K content, as shown by EDAX in Table 10, was comparable to that of the other samples, and the Al content higher, it is considered that the illite content is comparable to that of the other samples but this sample also contains kaolinite. As judged microscopically, the Sample V-7-6293 contained a moderate amount of pyrite, the other samples containing very little. The EDAX results indicated Sample V-7-6194 to contain the most, based on the Fe and S counts. Similarly, Sample V-7-6194 was observed microscopically to contain more carbonate mineral than the other samples, which was not indicated by the Ca/Mg counts in Table 10. These discrepancies can be accounted for by the fact that different portions of the same sample were used for microscopic examination and for the energy dispersive analysis.

As mentioned previously, Sample V-7-6544 was highly opaque to transmitted light making mineral identification nearly impossible. It is of interest that the Fe count of this sample was similar to that of the others indicating that the Fe was not responsible for the opacity.

TABLE 8. MERCURY INTRUSION POROSITY DATA

| Sequence Number | Sample I.D. | Porosity Volume, Percent |
|---|---|---|
| 1 | V-7-6104 | 6.50 |
| 3 | V-7-6124 | 5.20 |
| 5 | V-7-6144 | 5.46 |
| 7 | V-7-6164 | 4.42 |
| 9 | V-7-6184 | 7.54 |
| 11 | V-7-6204 | 5.72 |
| 13 | V-7-6224 | 5.72 |
| 15 | V-7-6244 | 4.42 |
| 17 | V-7-6264 | 6.50 |
| 19 | V-7-6283 | 5.46 |
| 21 | V-7-6303 | 8.58 |
| 23 | V-7-6323 | 7.80 |
| 25 | V-7-6351 | 6.50 |
| 27 | V-7-6371 | 5.98 |
| 29 | V-7-6391 | 5.98 |
| 31 | V-7-6407 | 7.80 |
| 33 | V-7-6477 | 5.46 |
| 35 | V-7-6497 | 9.88 |
| 37 | V-7-6514 | 3.90 |
| 39 | V-7-6534 | 2.08 |
| 41 | V-7-6554 | 9.10 |
| 44 | V-7-6604 | 6.50 |
| 56 | V-7-6623 | 9.10 |

TABLE 9. PERMEABILITY VALUES OF SELECTED V-7 SHALES

| Sample I.D. Number | Permeability, Darcy |
|---|---|
| V-7-6104 | $7.48 \times 10^{-7}$ |
| V-7-6204 | $2.16 \times 10^{-5}$ |
| V-7-6303 | $2.49 \times 10^{-6}$ |
| V-7-6477 | $3.32 \times 10^{-6}$ |
| V-7-6534 | $2.50 \times 10^{-6}$ |

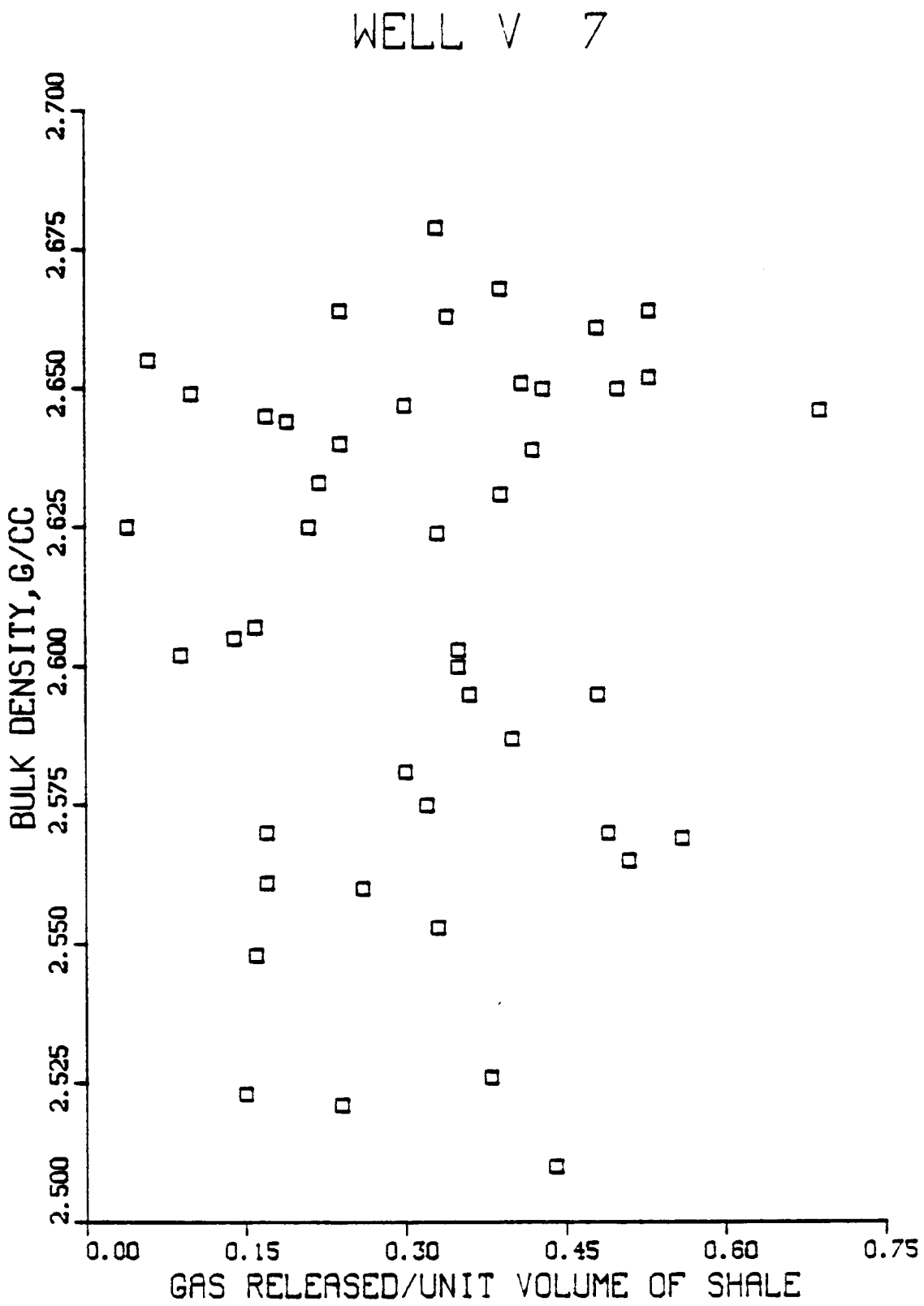



FIGURE 10. HYDROCARBON GAS CONTENT AS A FUNCTION OF BULK DENSITY FOR WELL V-7

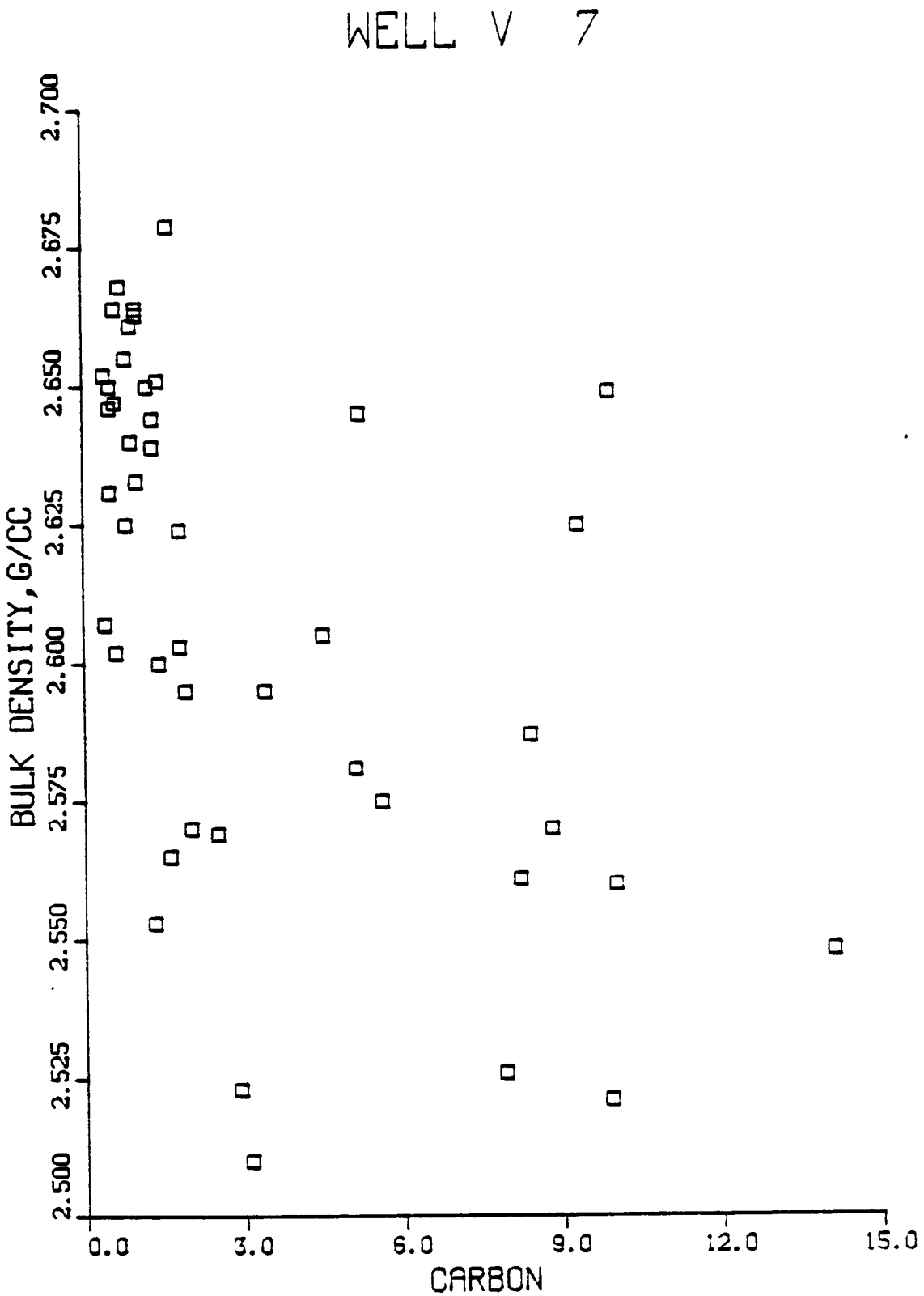



FIGURE 11. CARBON CONTENT VERSUS BULK DENSITY FOR WELL V-7

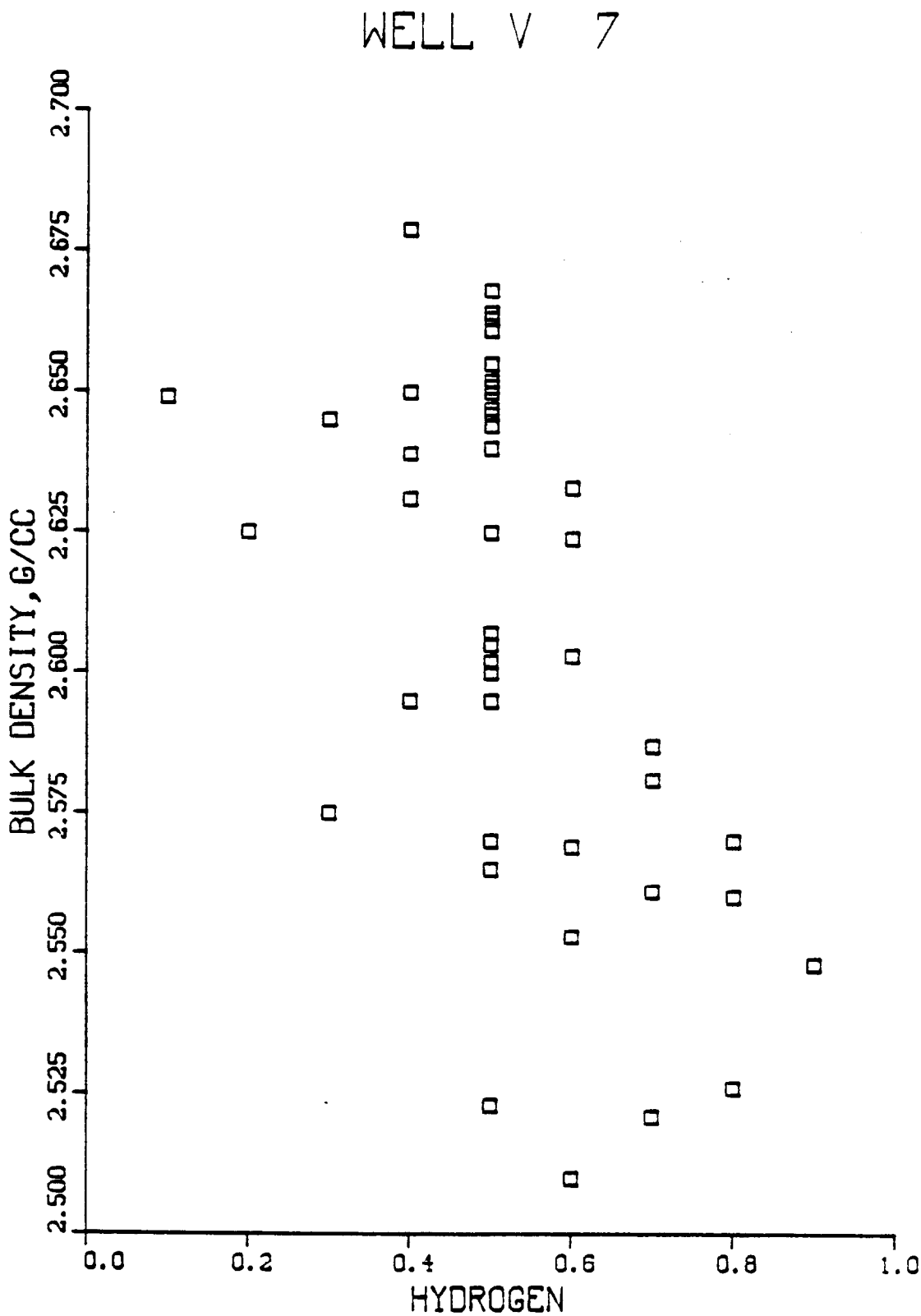



FIGURE 12. HYDROGEN CONTENT VERSUS BULK DENSITY FOR WELL V-7

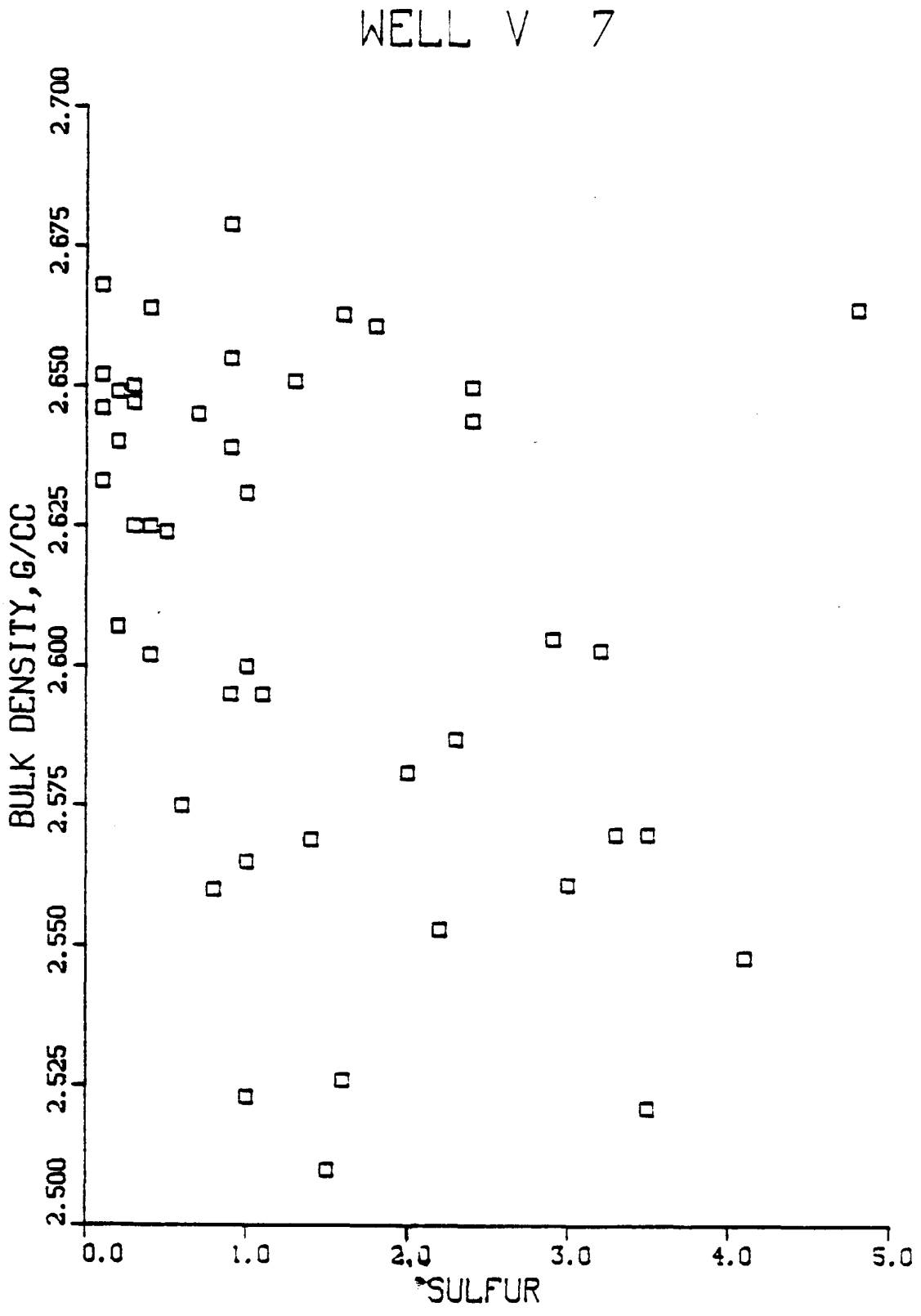



FIGURE 13. SULFUR CONTENT VERSUS BULK DENSITY FOR WELL V-7

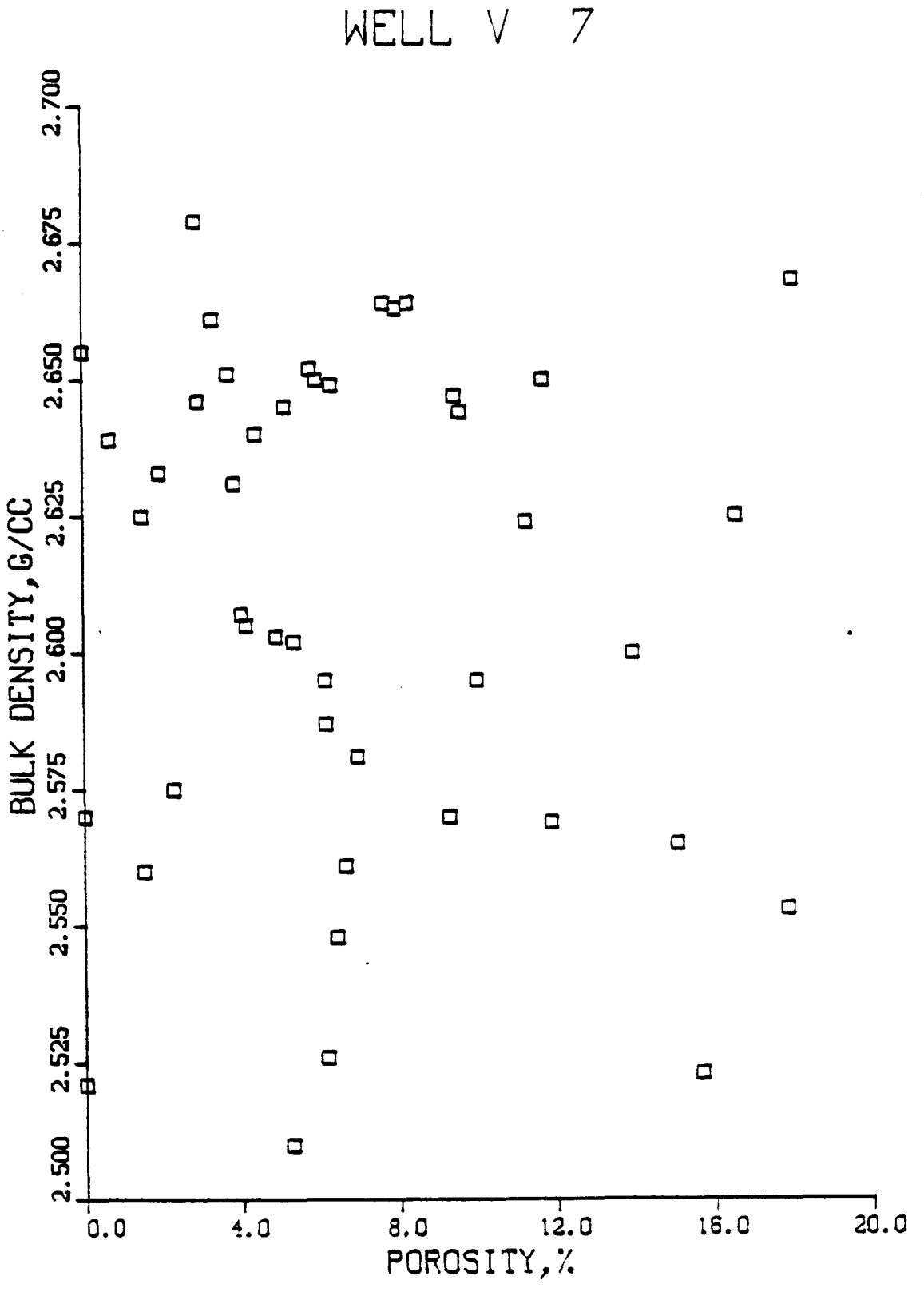



FIGURE 14. POROSITY VERSUS BULK DENSITYFOR WELL V-7

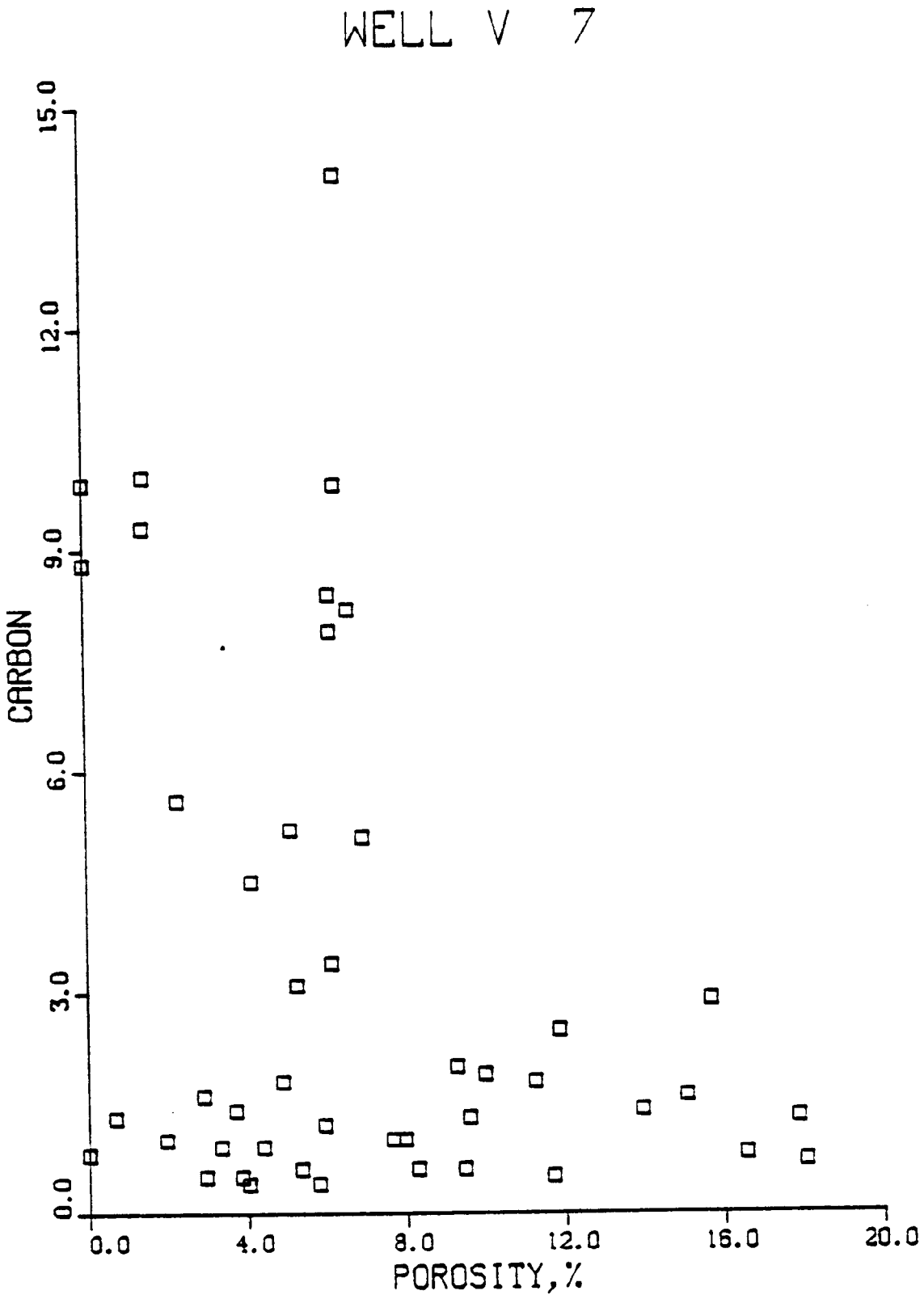



FIGURE 15. POROSITY VERSUS CARBON CONTENT FOR WELL V-7

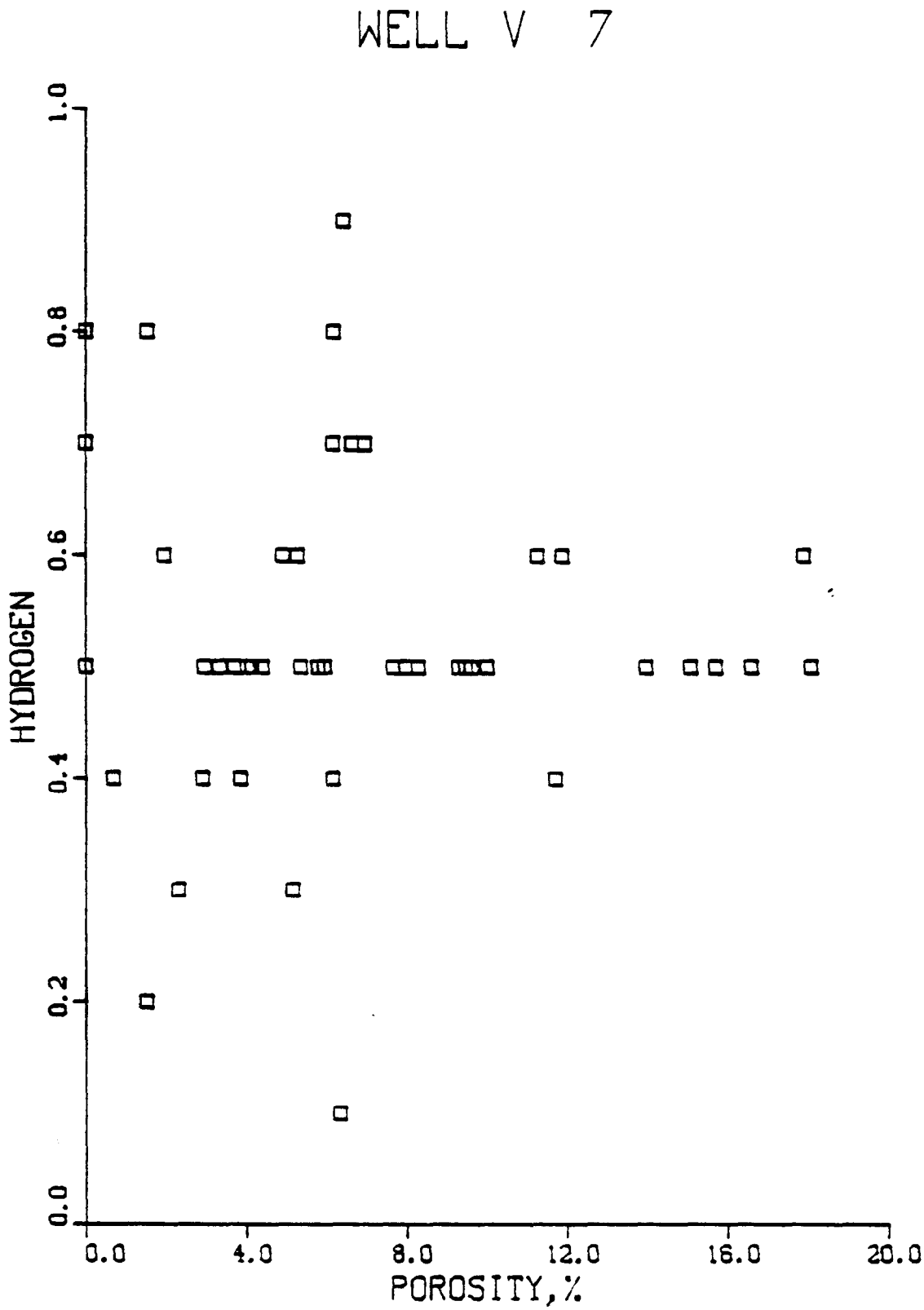



FIGURE 16. POROSITY VERSUS HYDROGEN CONTENT FOR WELL V-7

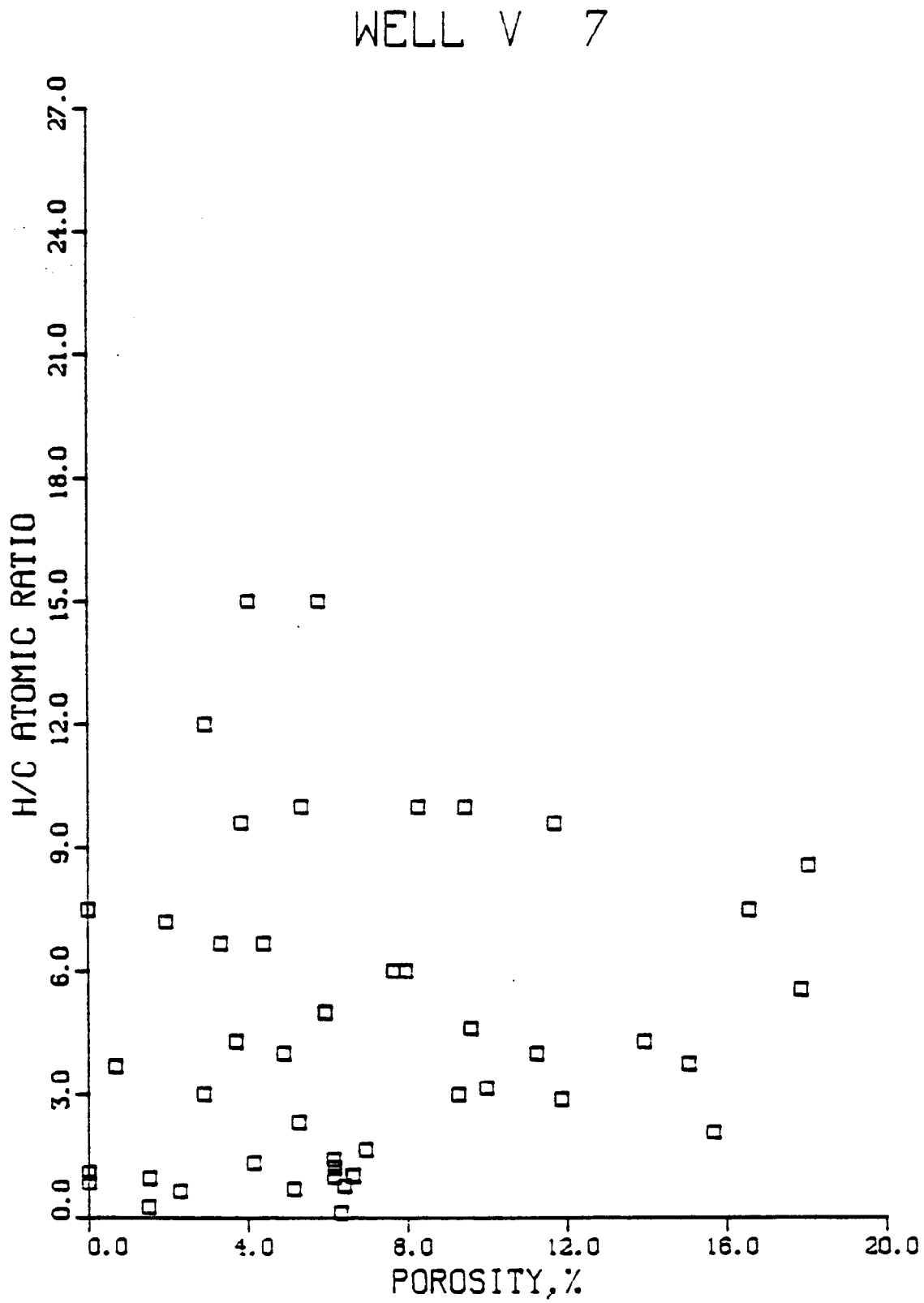



FIGURE 17. POROSITY VERSUS H/C ATOMIC RATIO FOR WELL V-7

TABLE 10. ENERGY DISPERSIVE ANALYSIS OF V-7 SHALES

| Shale Sample | Element Count Per 100 Counts | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Na | K | Ca | Mg | Al | Si | Fe | S | Cl | Ti | Fe/S | K/Al | K/Si | Al/Si |
| V-7-6104 | - | 8.6 | - | - | 27.7 | 58.4 | 4.4 | - | - | 0.9 | ∞ | 0.31 | 0.15 | 0.47 |
| V-7-6194 | - | 8.7 | - | 2.4 | 20.3 | 56.2 | 7.7 | 3.5 | - | 1.2 | 2.2 | 0.43 | 0.15 | 0.36 |
| V-7-6293 | - | 8.3 | 1.9 | 2.4 | 20.5 | 58.3 | 6.4 | 1.4 | - | 0.8 | 4.5 | 0.40 | 0.14 | 0.35 |
| V-7-6448 | - | 10.0 | 2.3 | - | 22.8 | 58.0 | 5.5 | - | - | 1.4 | ∞ | 0.44 | 0.17 | 0.39 |
| V-7-6544 | - | 8.4 | 22.1 | - | 15.8 | 47.3 | 4.7 | 0.8 | - | 0.9 | 5.7 | 0.53 | 0.18 | 0.33 |
| Illite grain | - | 17.2 | - | - | 25.5 | 57.3 | - | - | - | - | - | 0.67 | 0.30 | 0.45 |
| Pyrite grain | - | - | - | - | - | - | 27.5 | 72.5 | - | - | 0.38 | - | - | - |
| Quartz grain | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - |

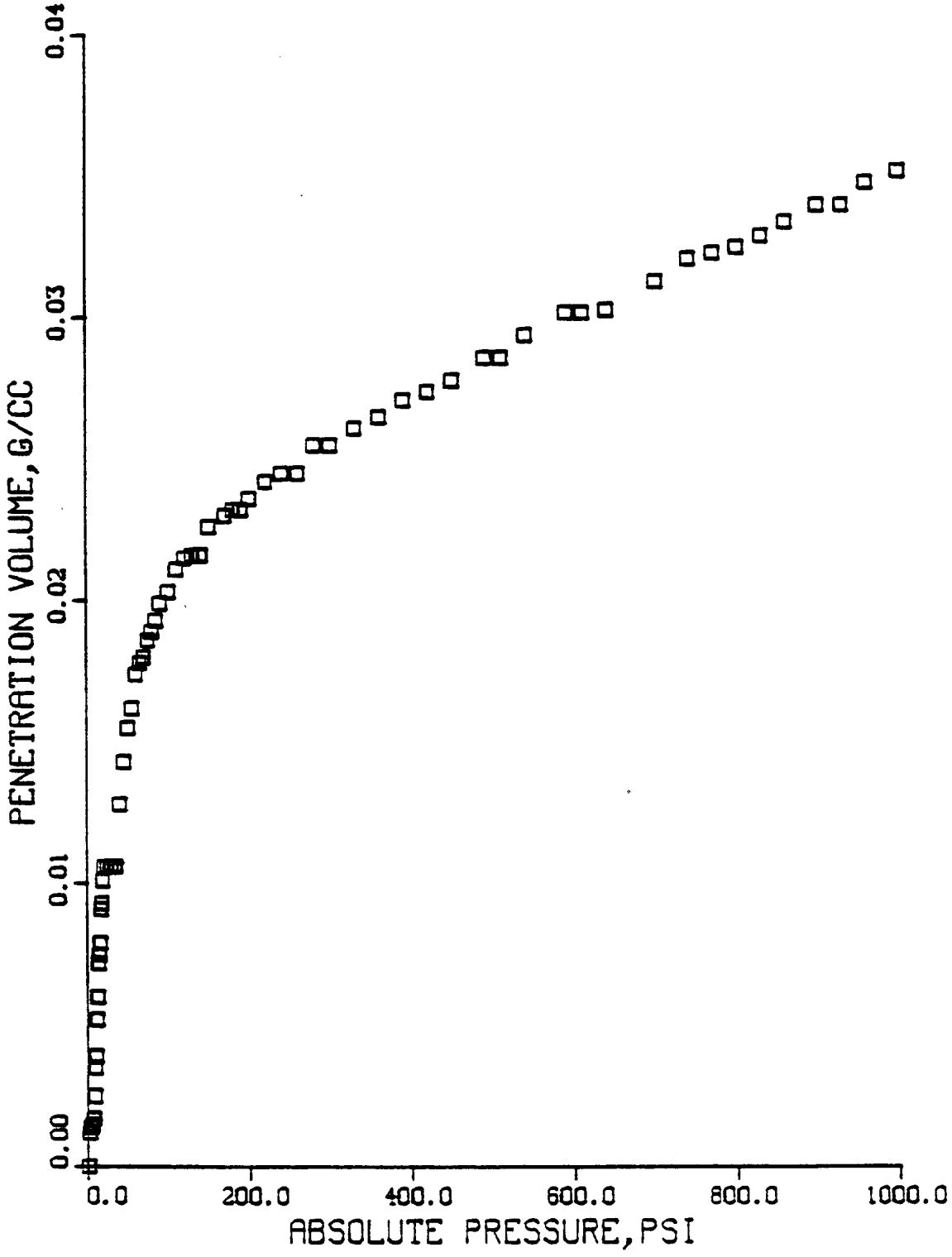


UGR File #4...
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

# APPENDIX A

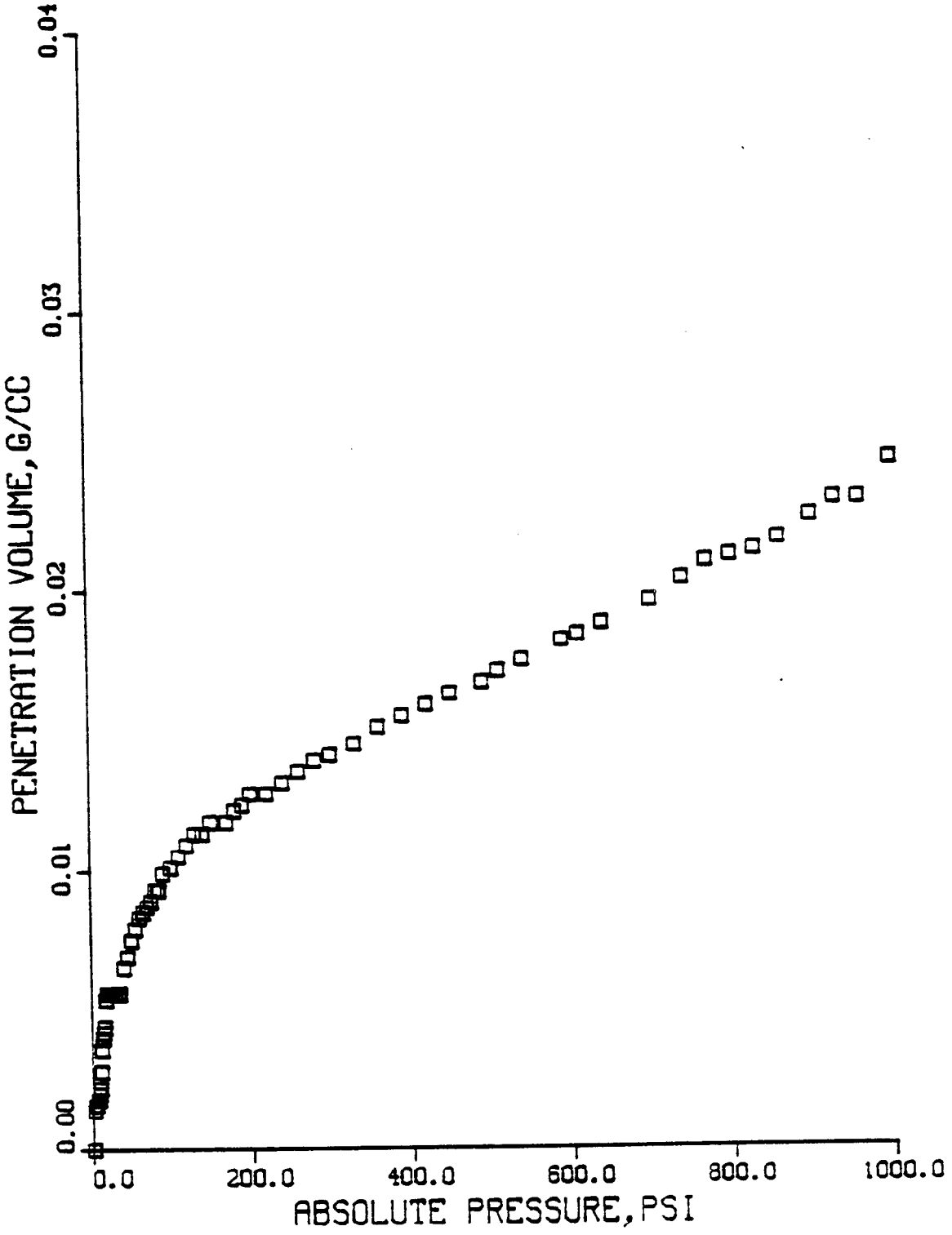
2 ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labss

V 76623.



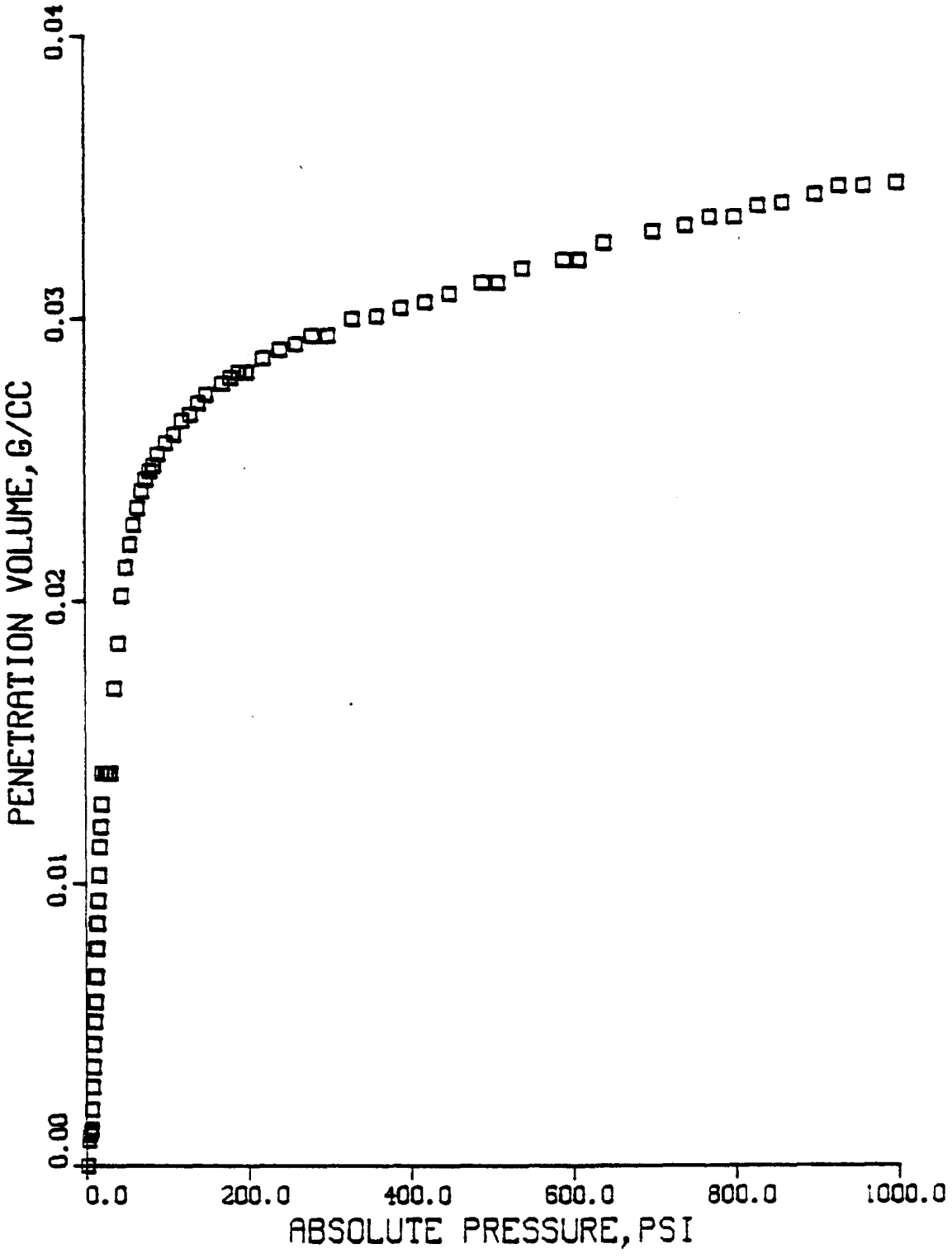
UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76604.



ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76554.



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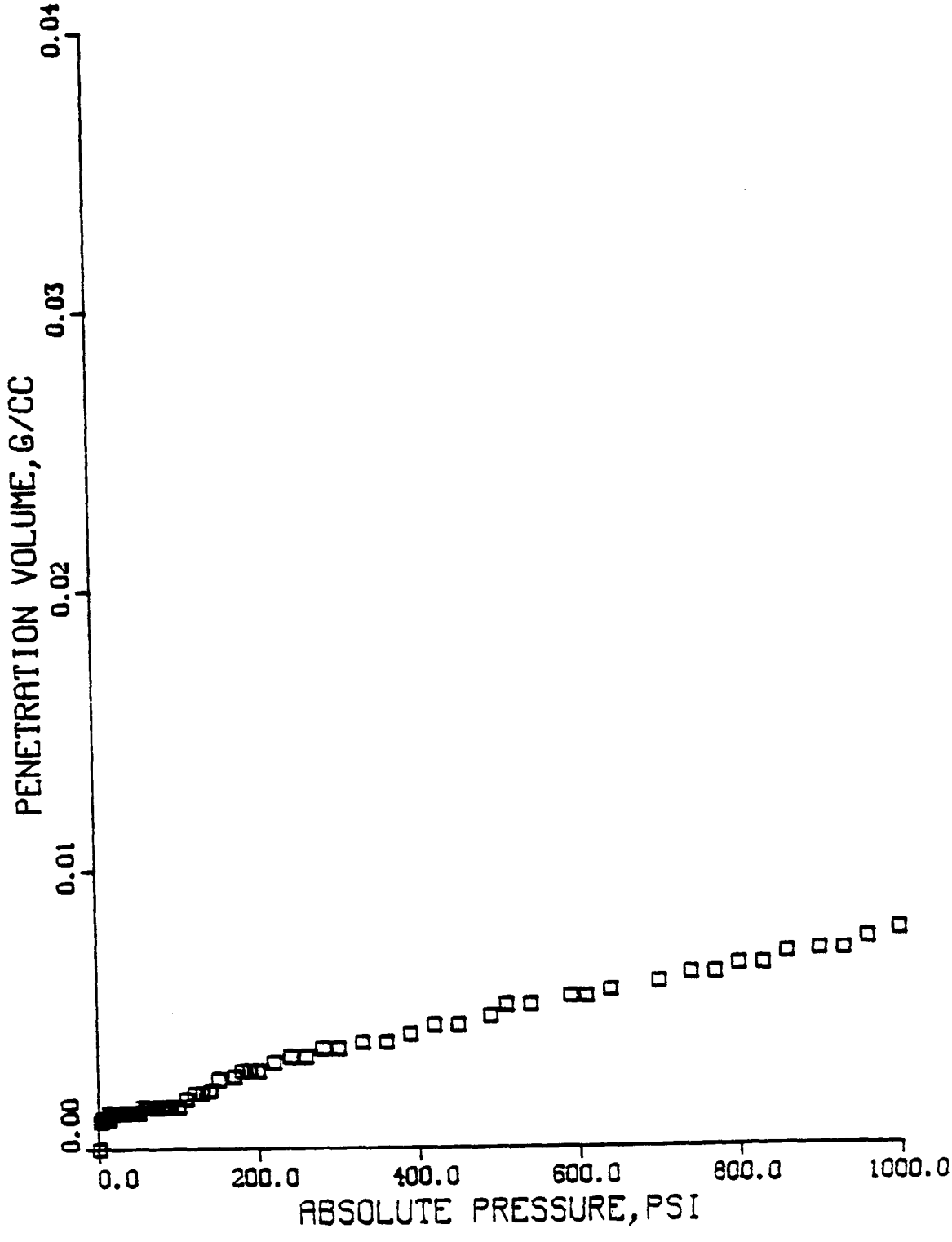
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

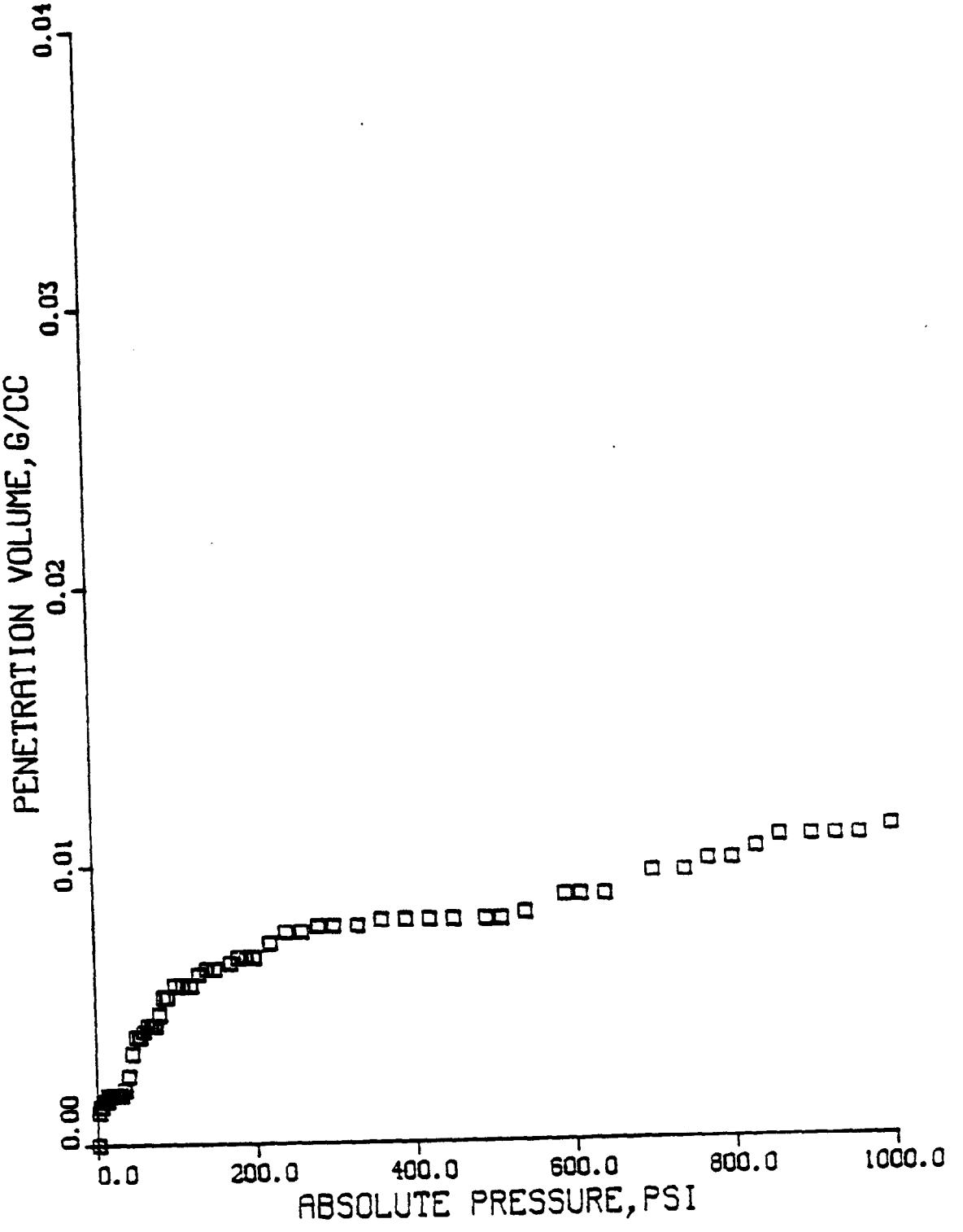
V 76534.



6



V 76514.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800.0
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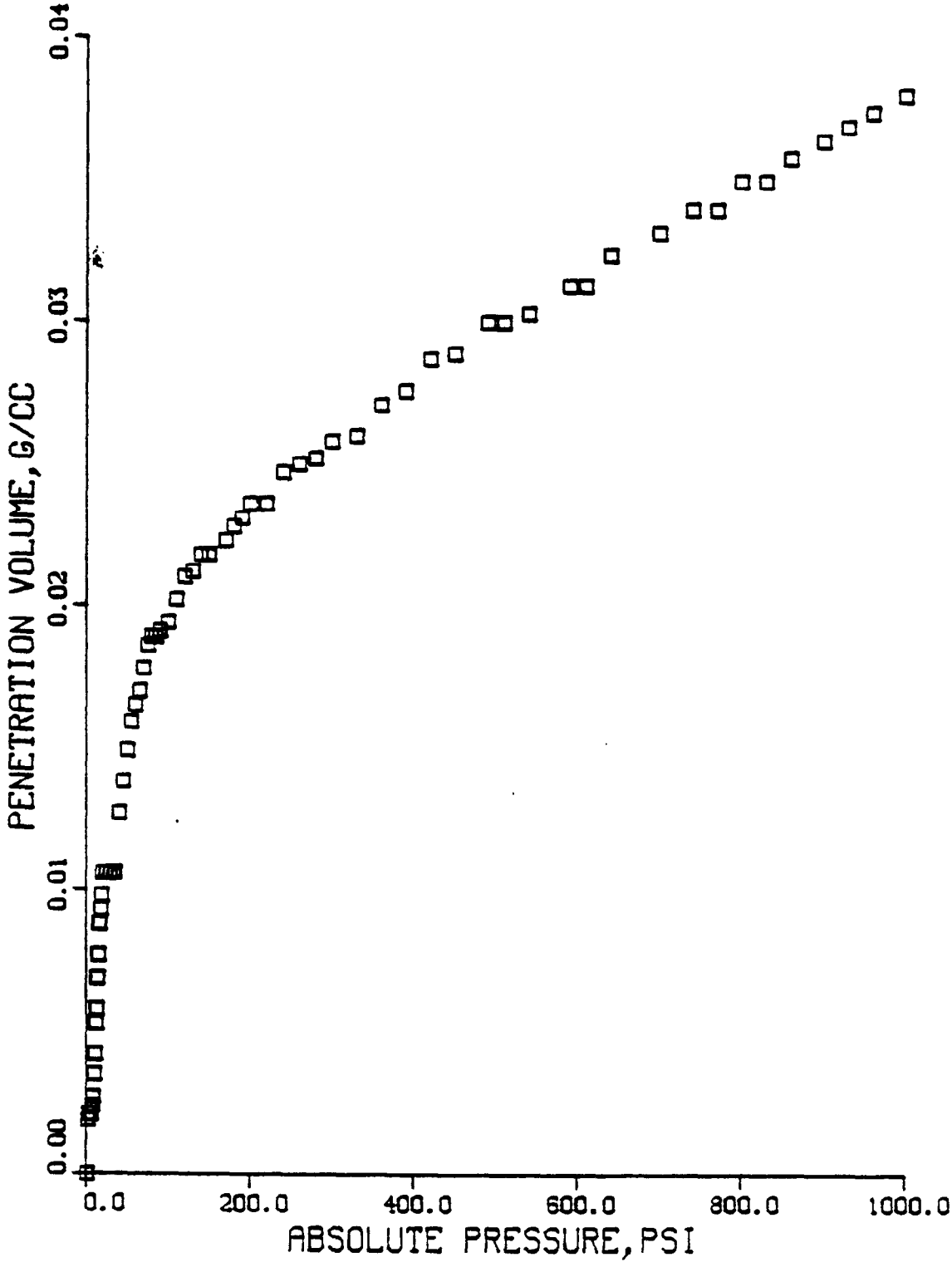
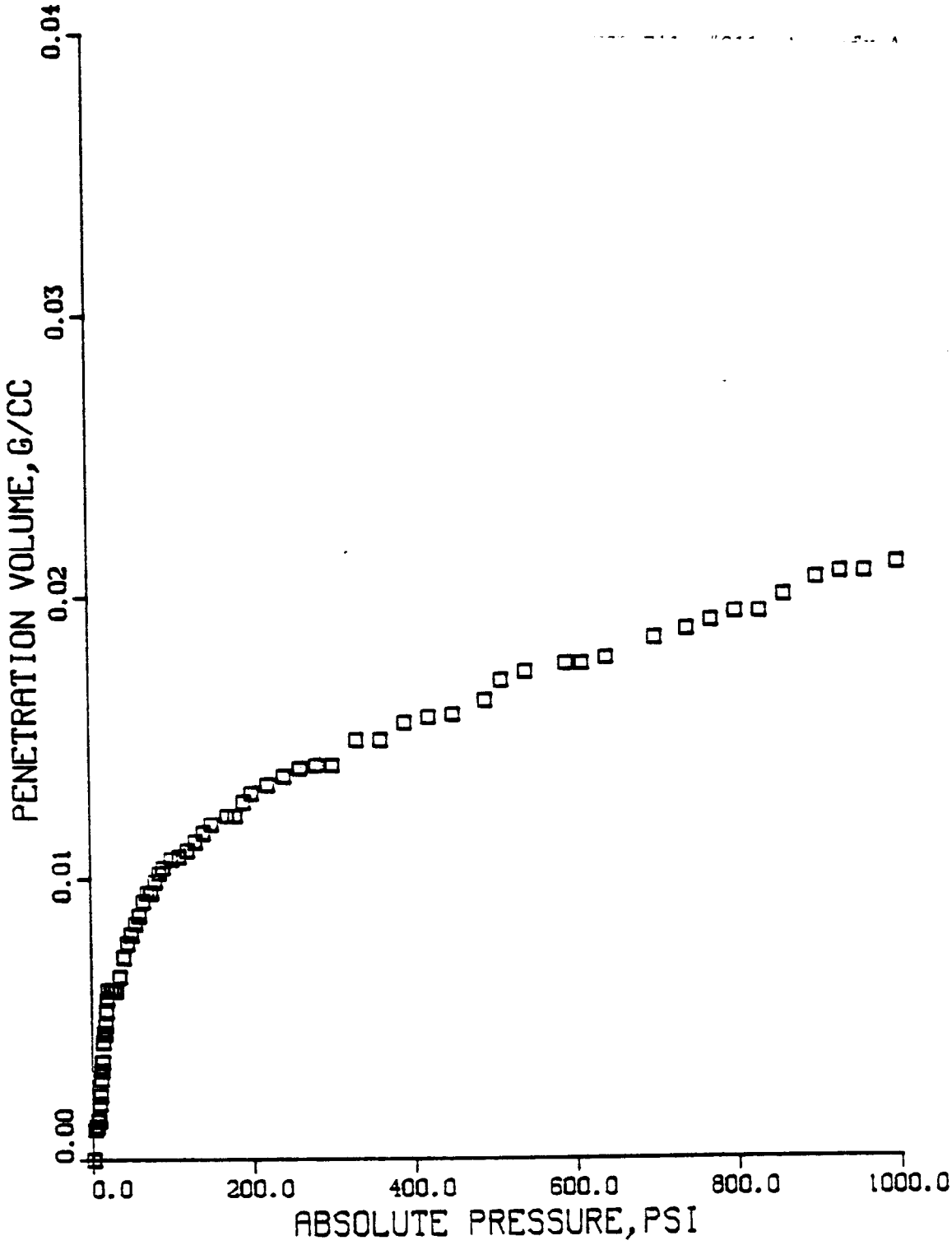
ABSOLUTE PRESSURE, PSI

UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76497.



V 76477.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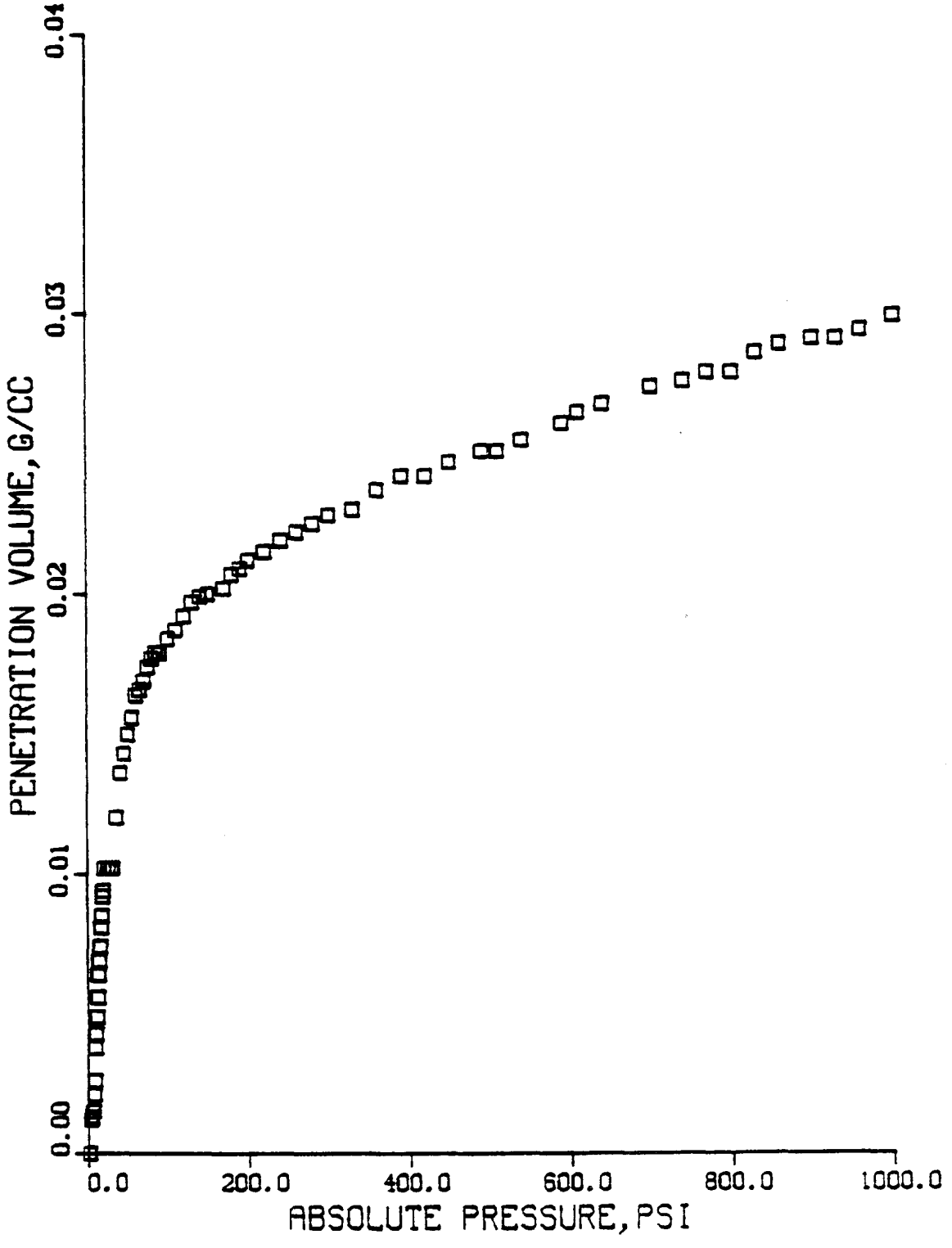
ABSOLUTE PRESSURE, PSI

ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

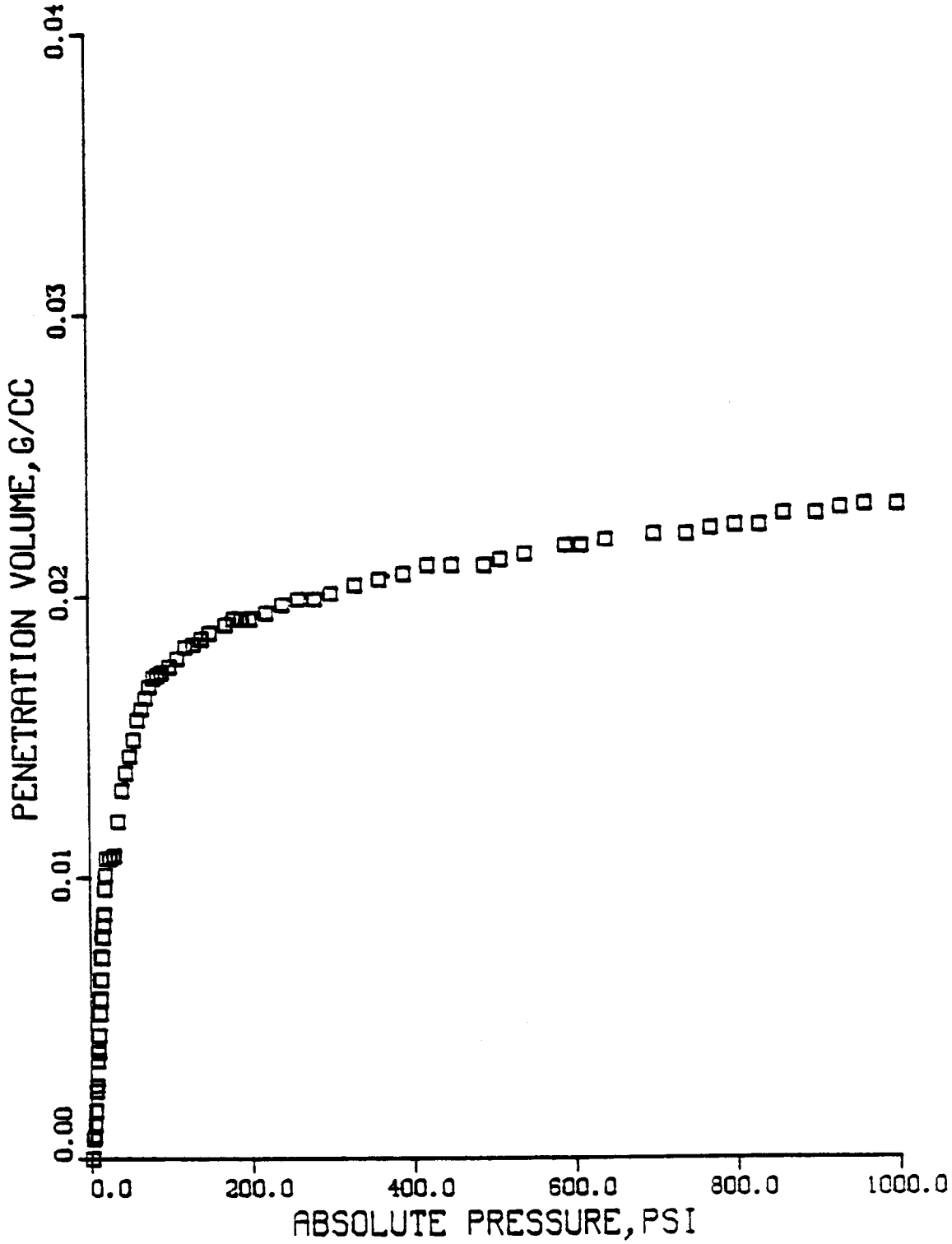
V 76407.



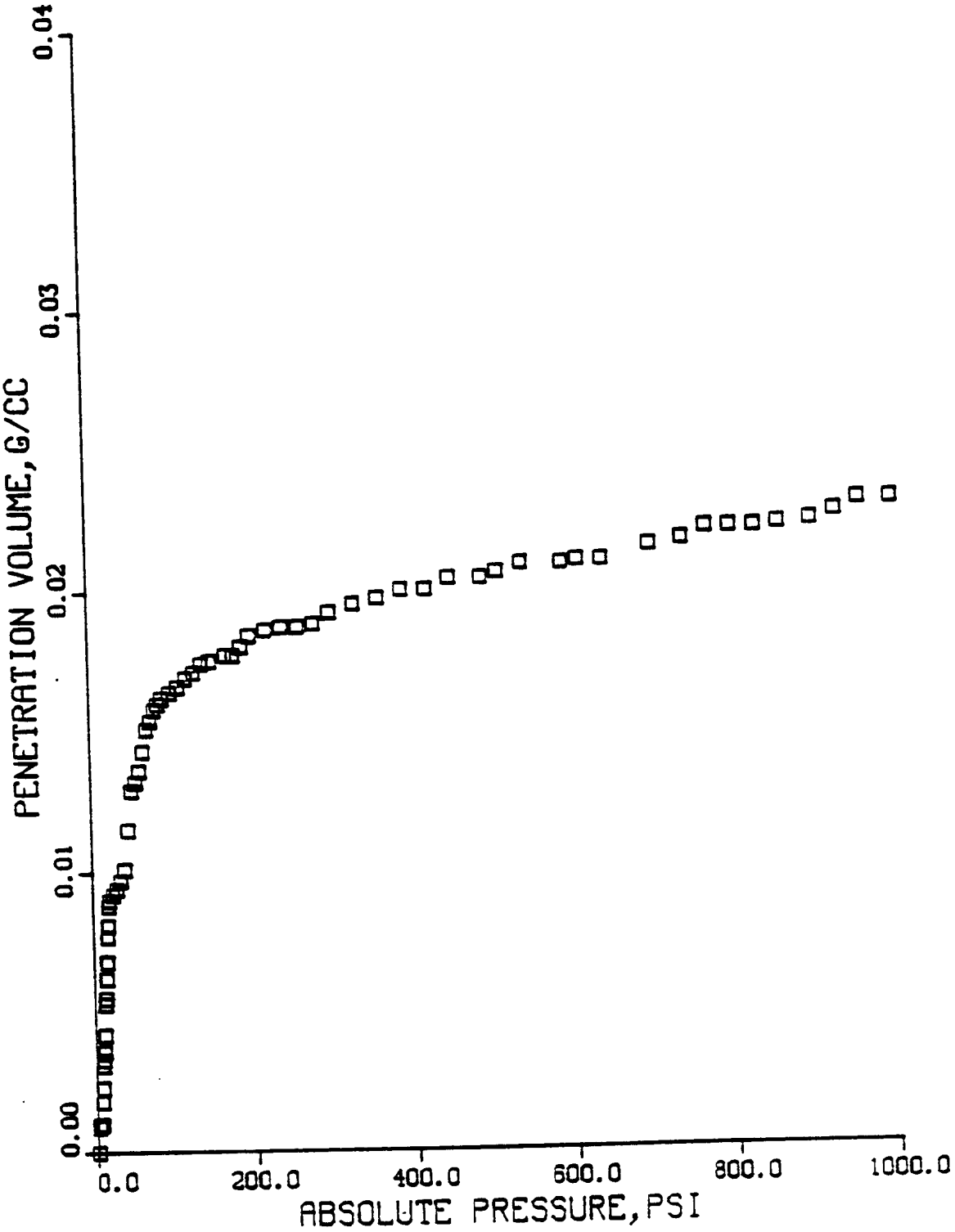
10

UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76391.



V 76371.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400.0
600.0
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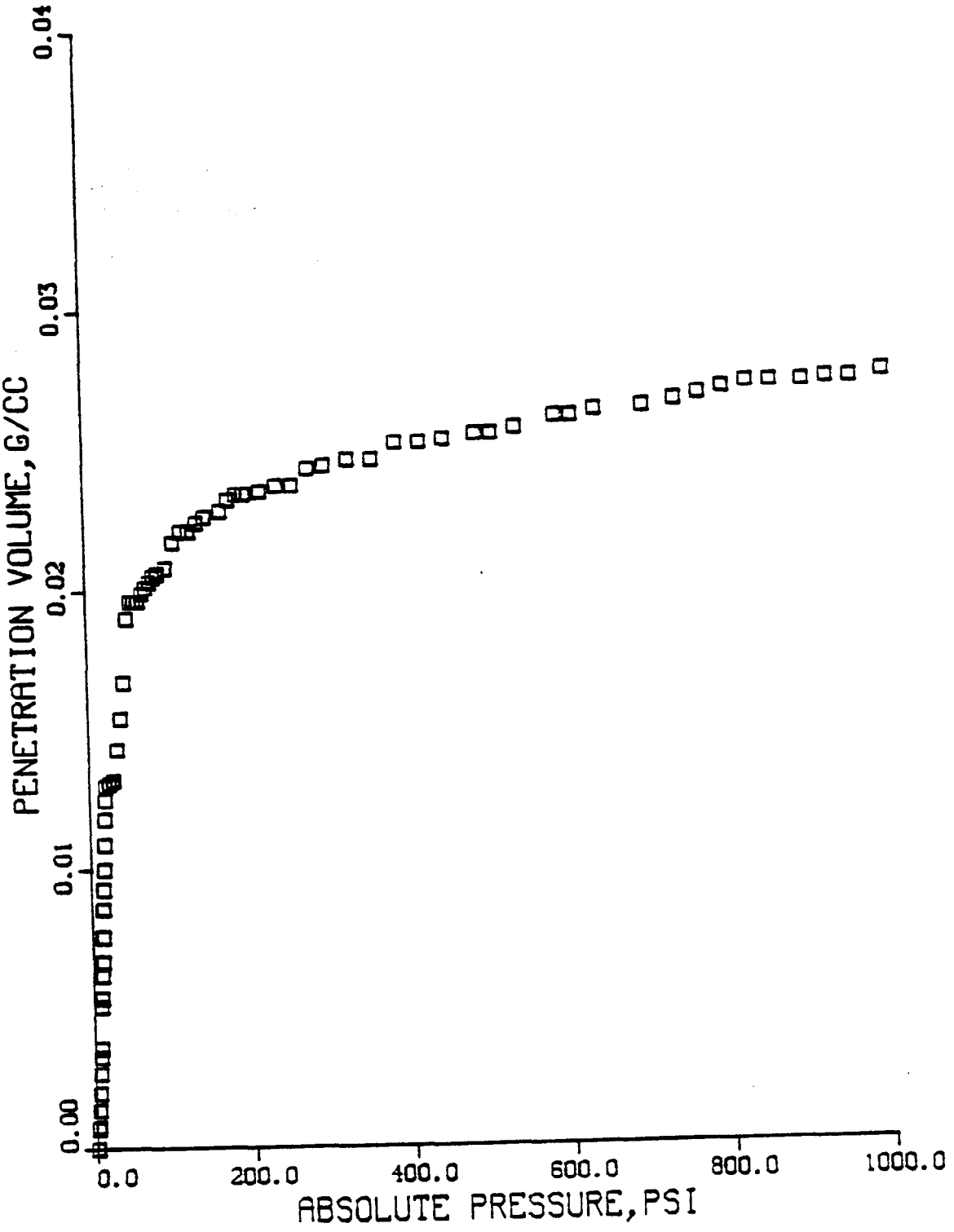
ABSOLUTE PRESSURE, PSI

12

UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

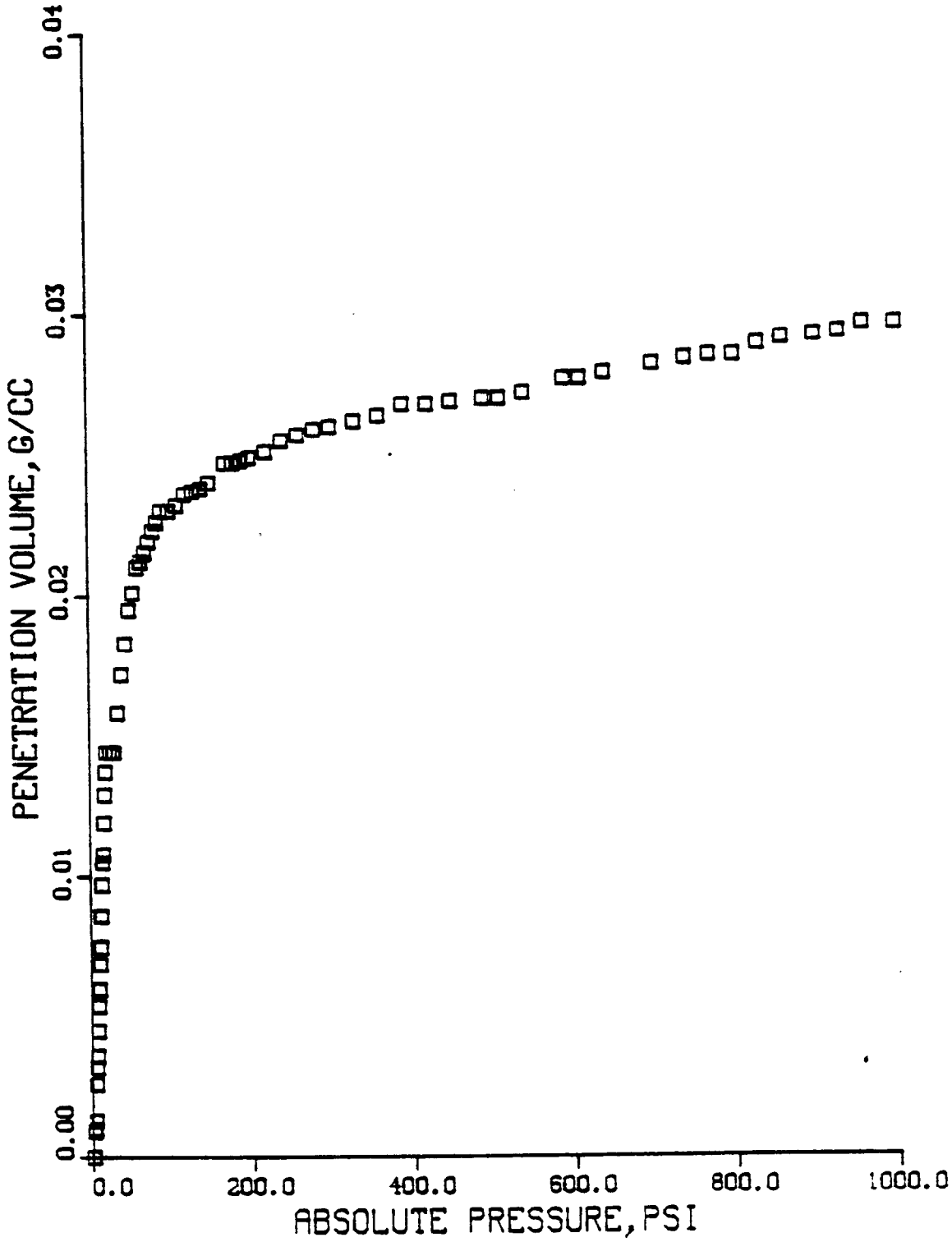
V 76351.



/ 3

UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

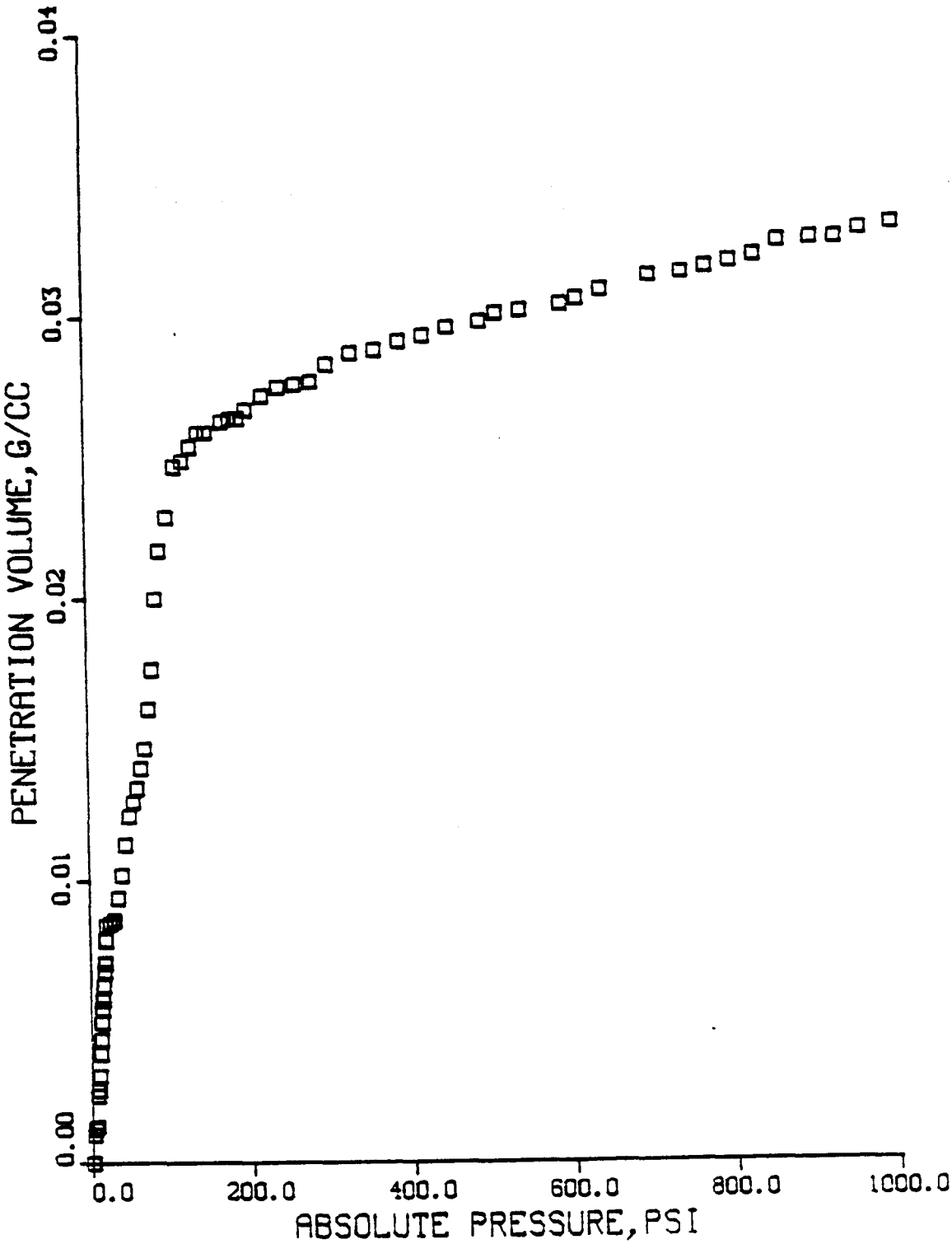
V 76323.



14

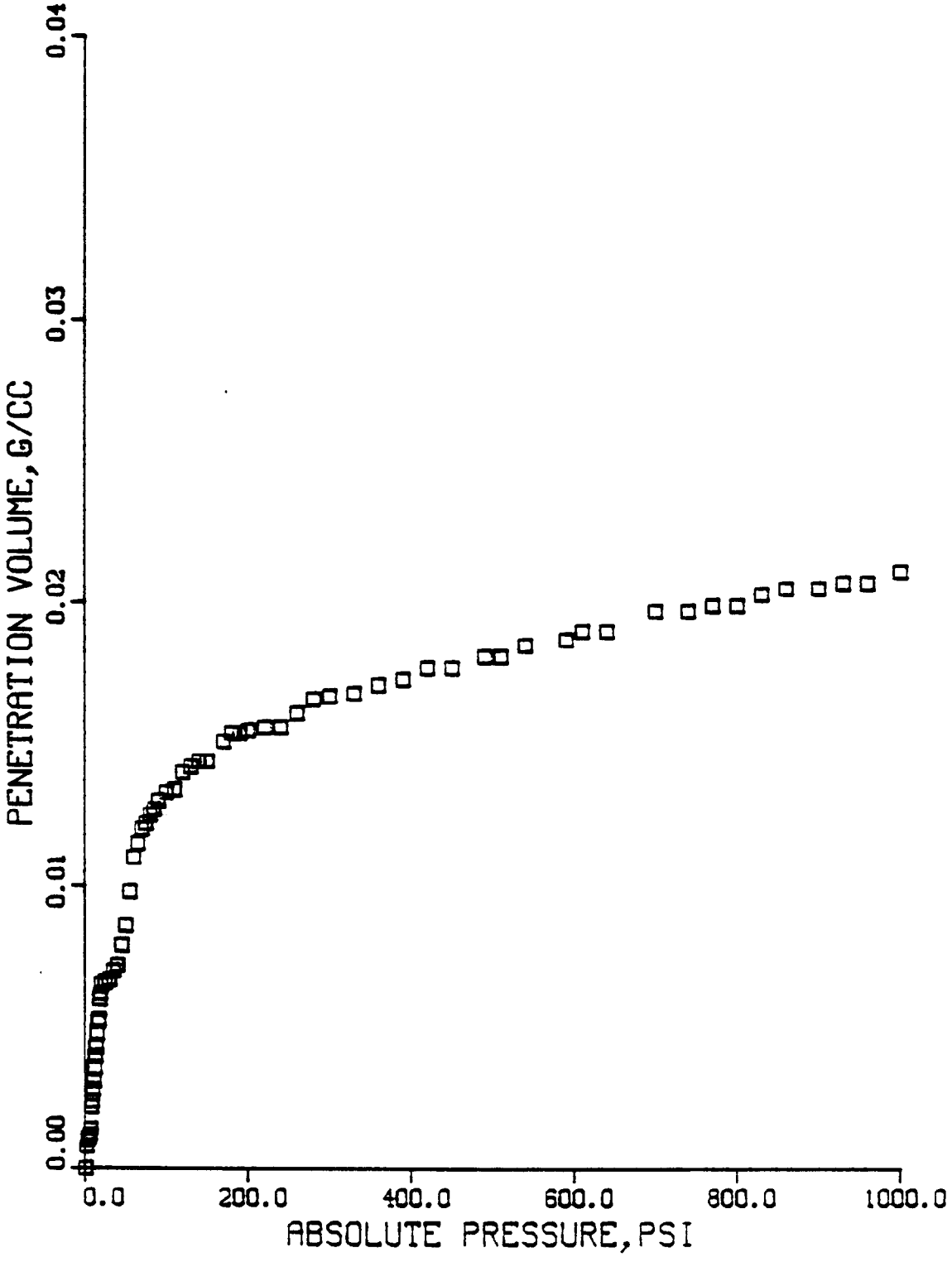
UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 199
Battelle Columbus Labs.

V 76303.



UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

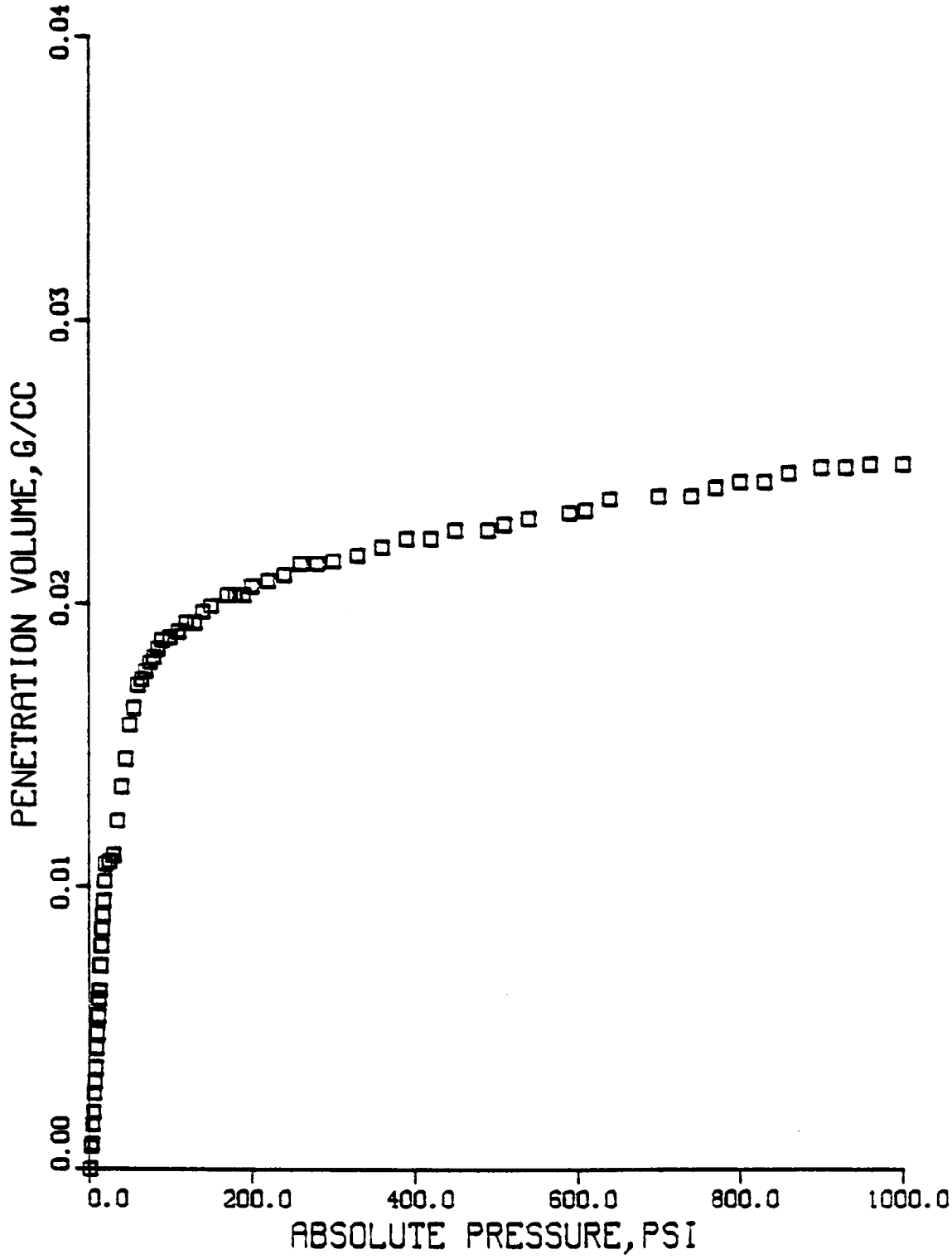
V 76283.



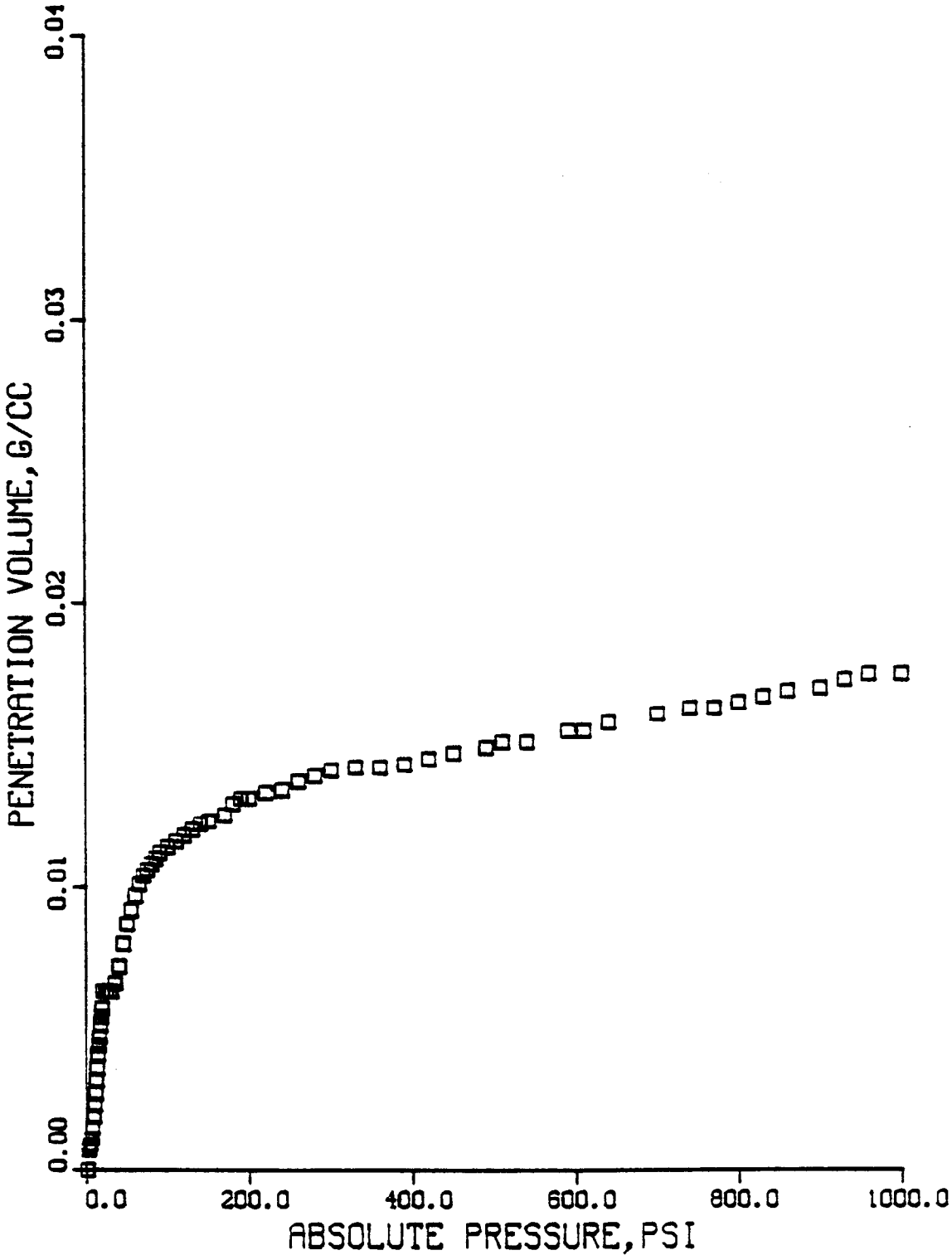
16

UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76264.



V 76244.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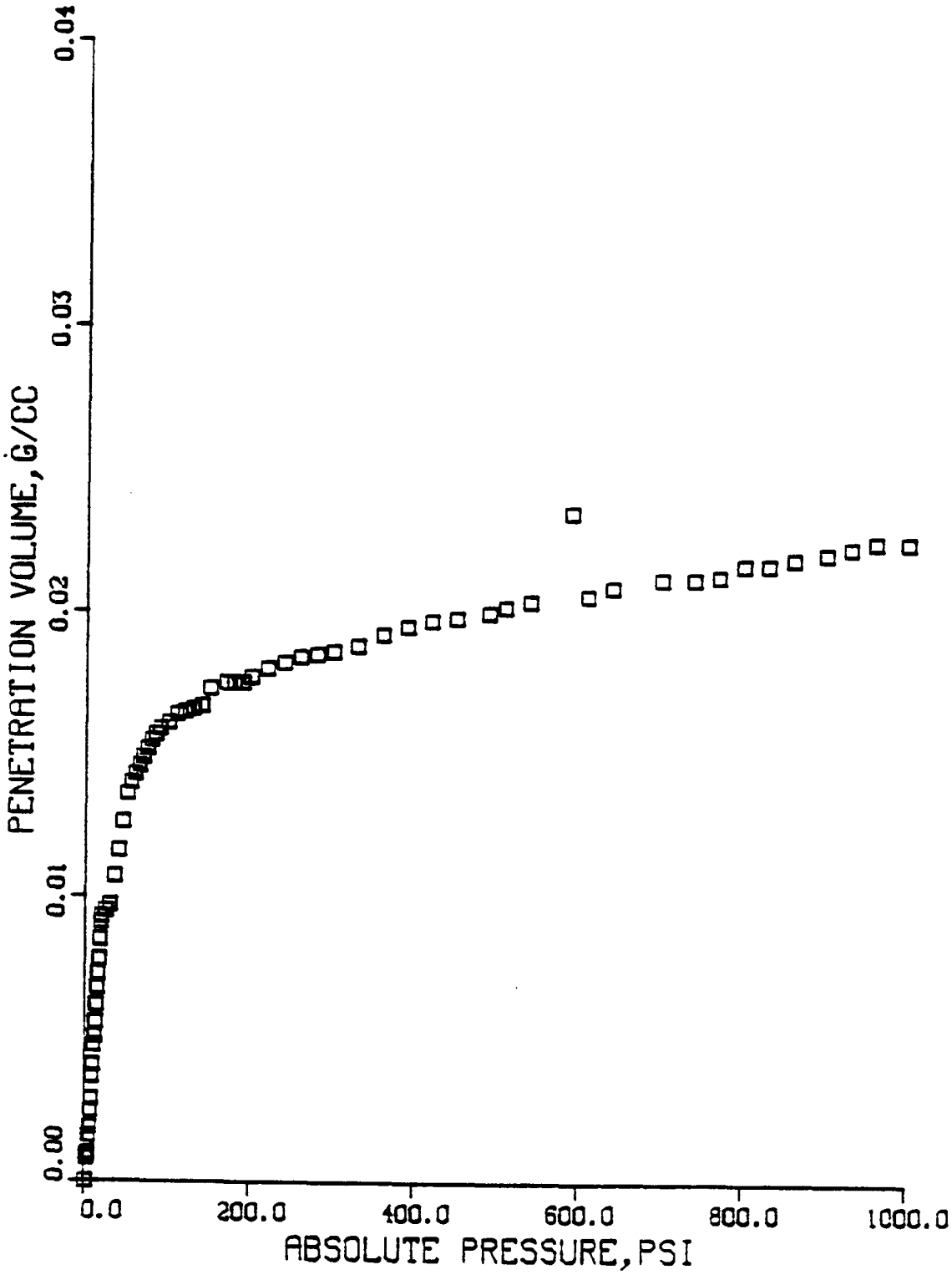
ABSOLUTE PRESSURE, PSI

V 76224.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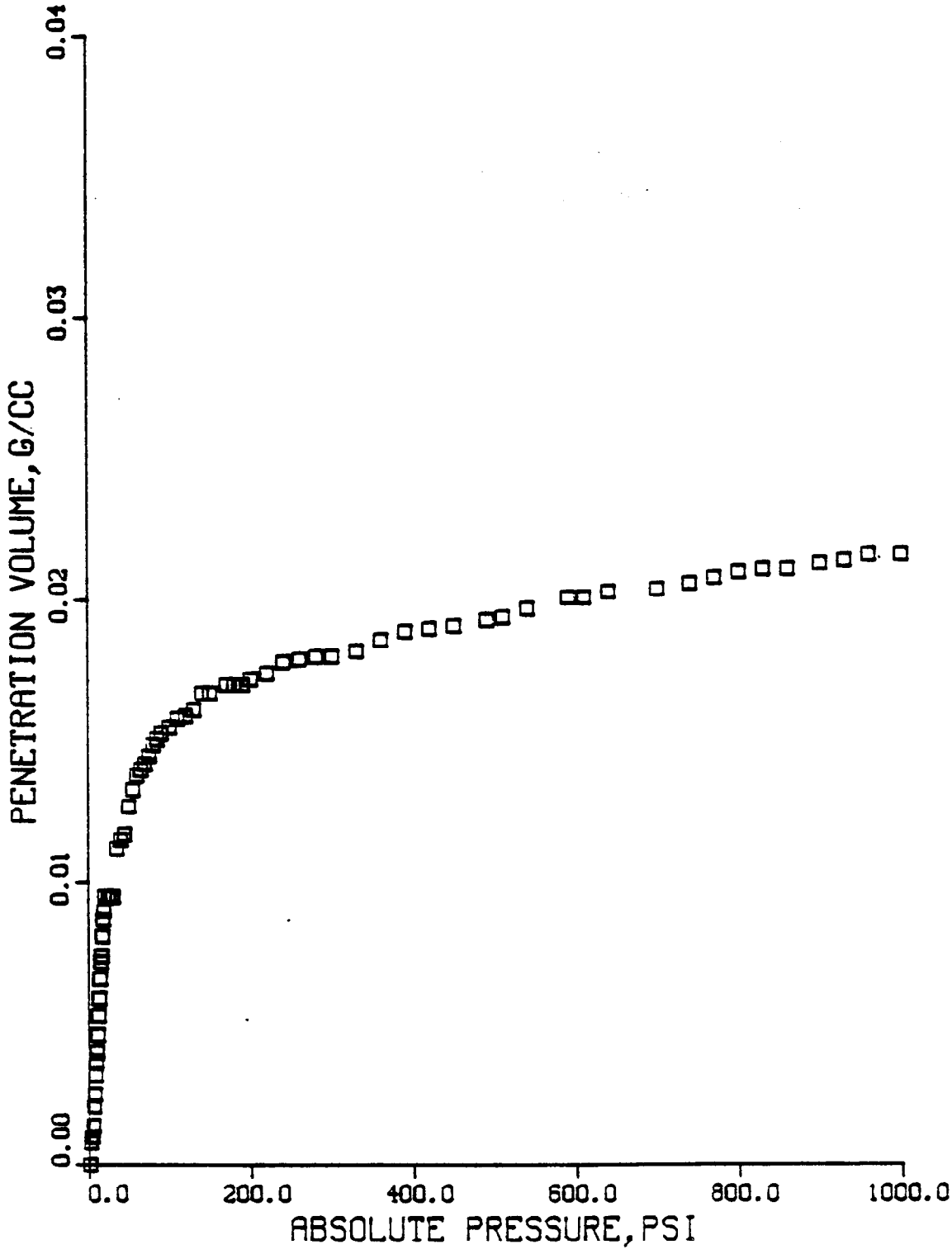
ABSOLUTE PRESSURE, PSI

19

V 76204.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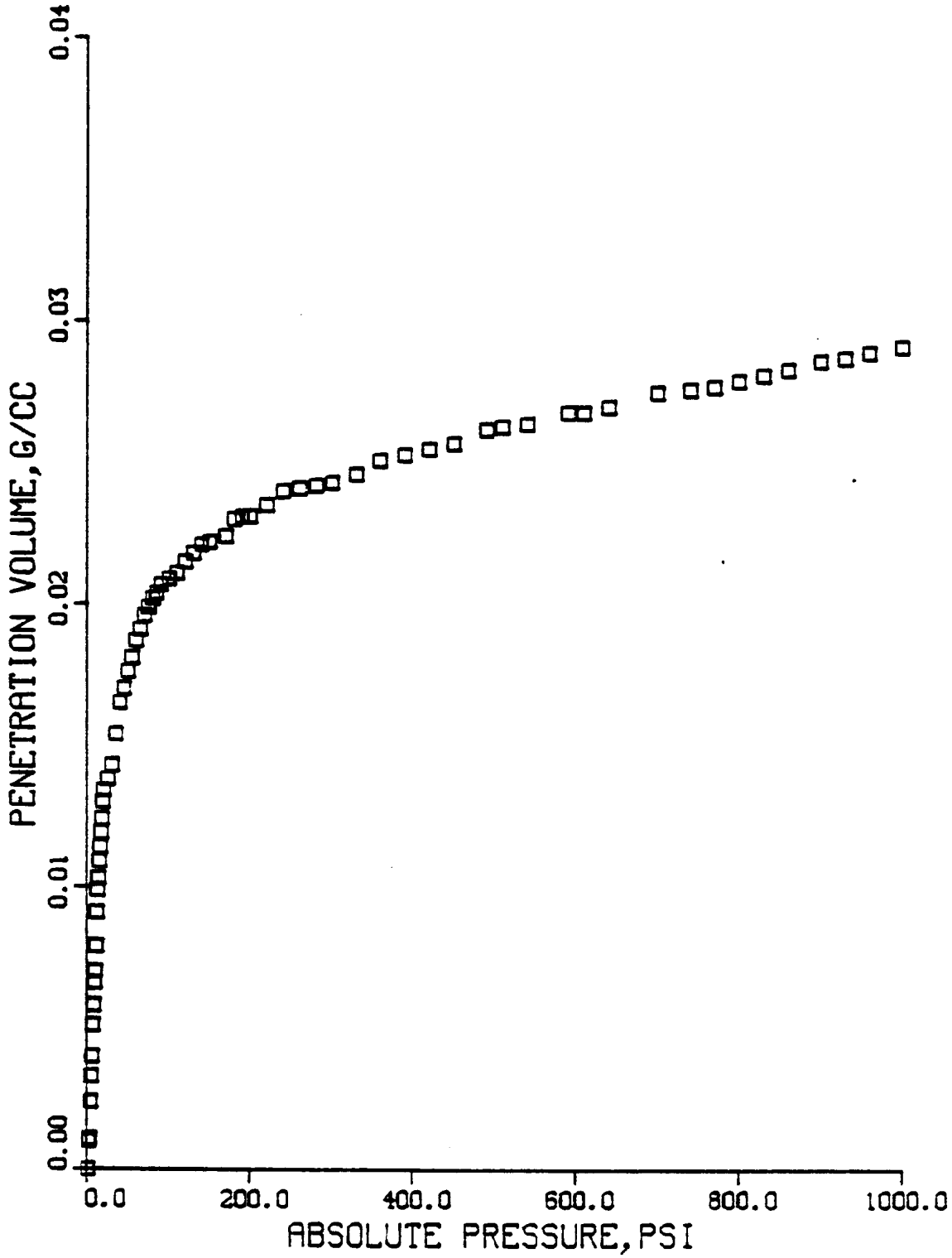
ABSOLUTE PRESSURE, PSI

V 76184.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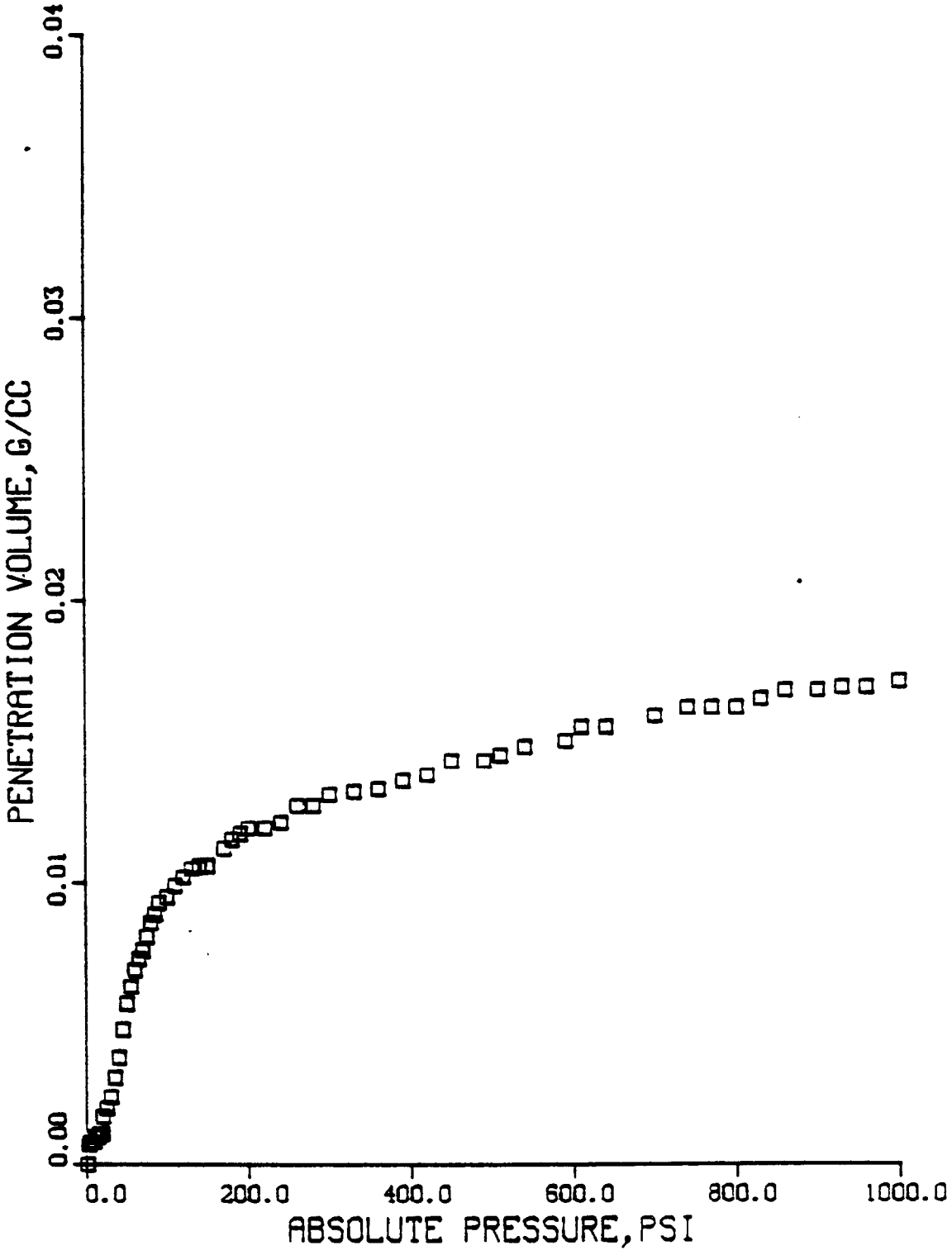
ABSOLUTE PRESSURE, PSI

V 76164.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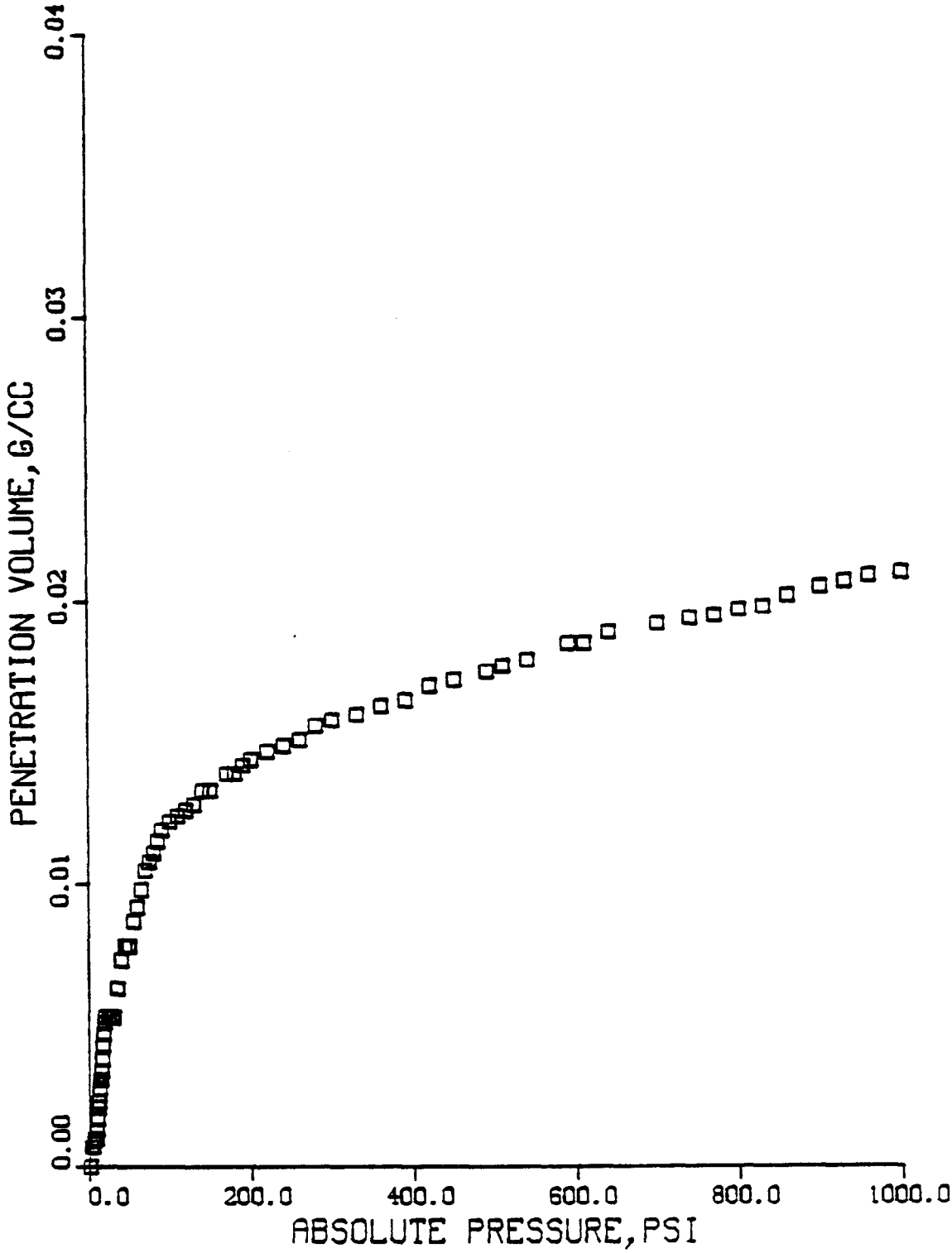
ABSOLUTE PRESSURE, PSI

ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

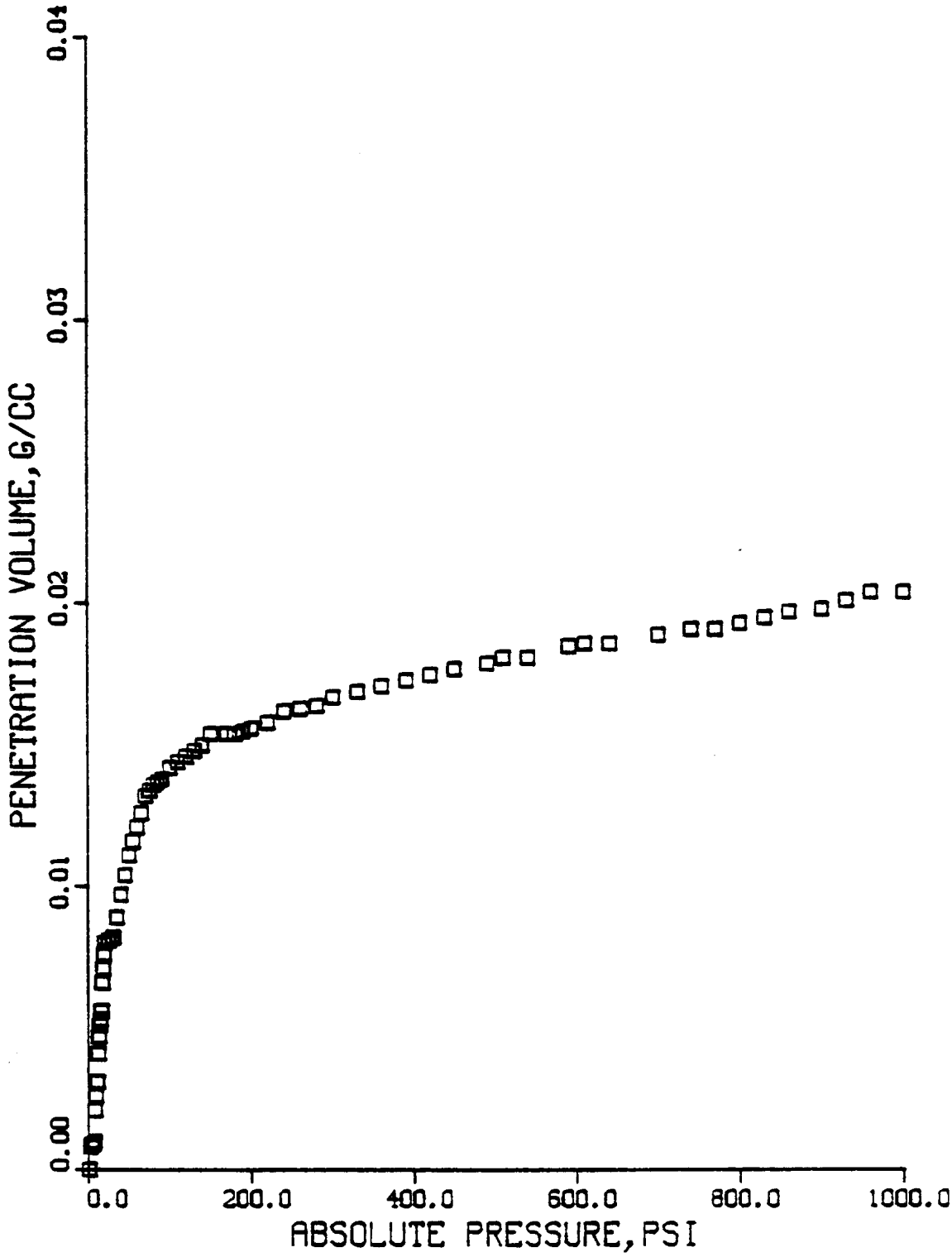
V 76144.



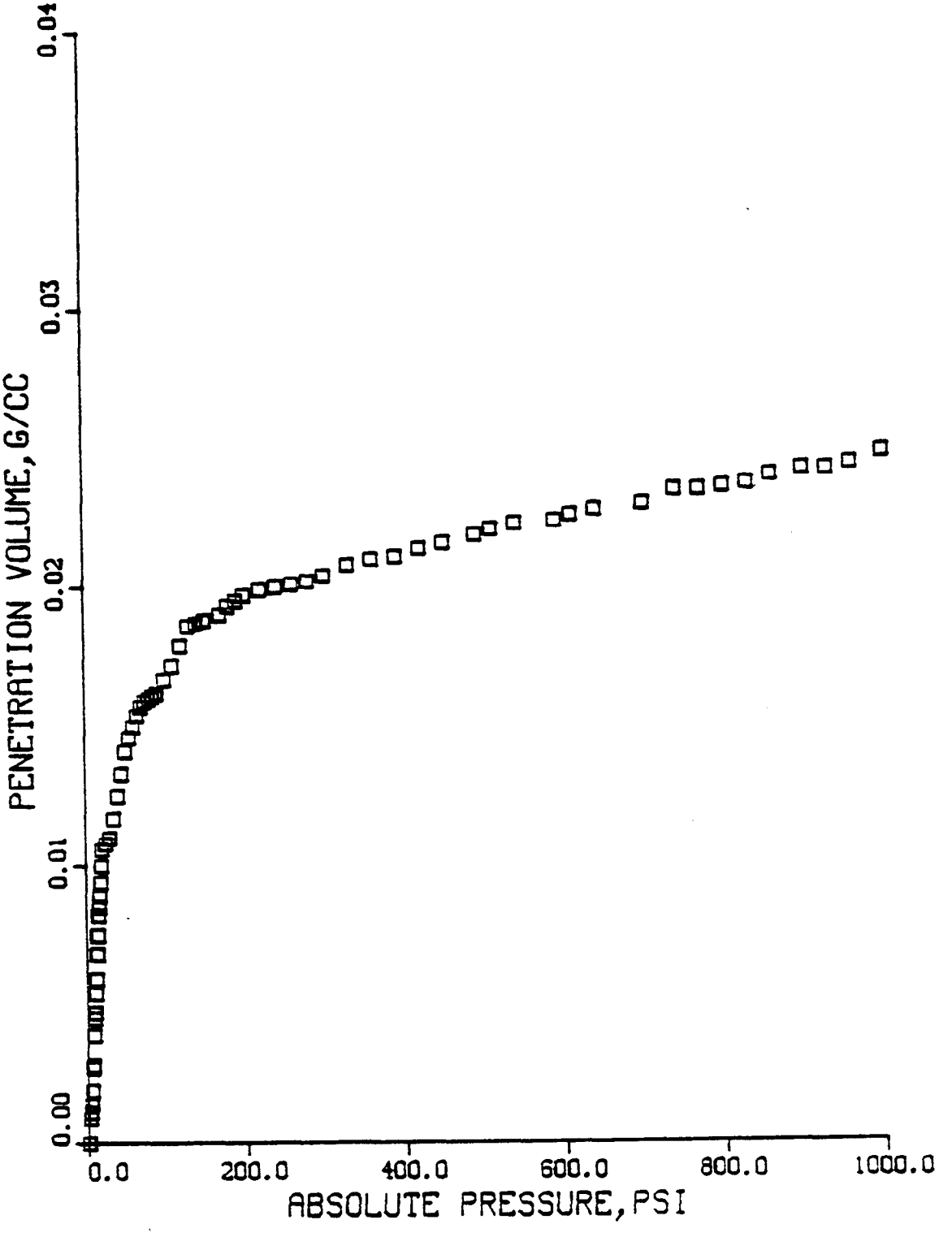
23

ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76124.



V 76104.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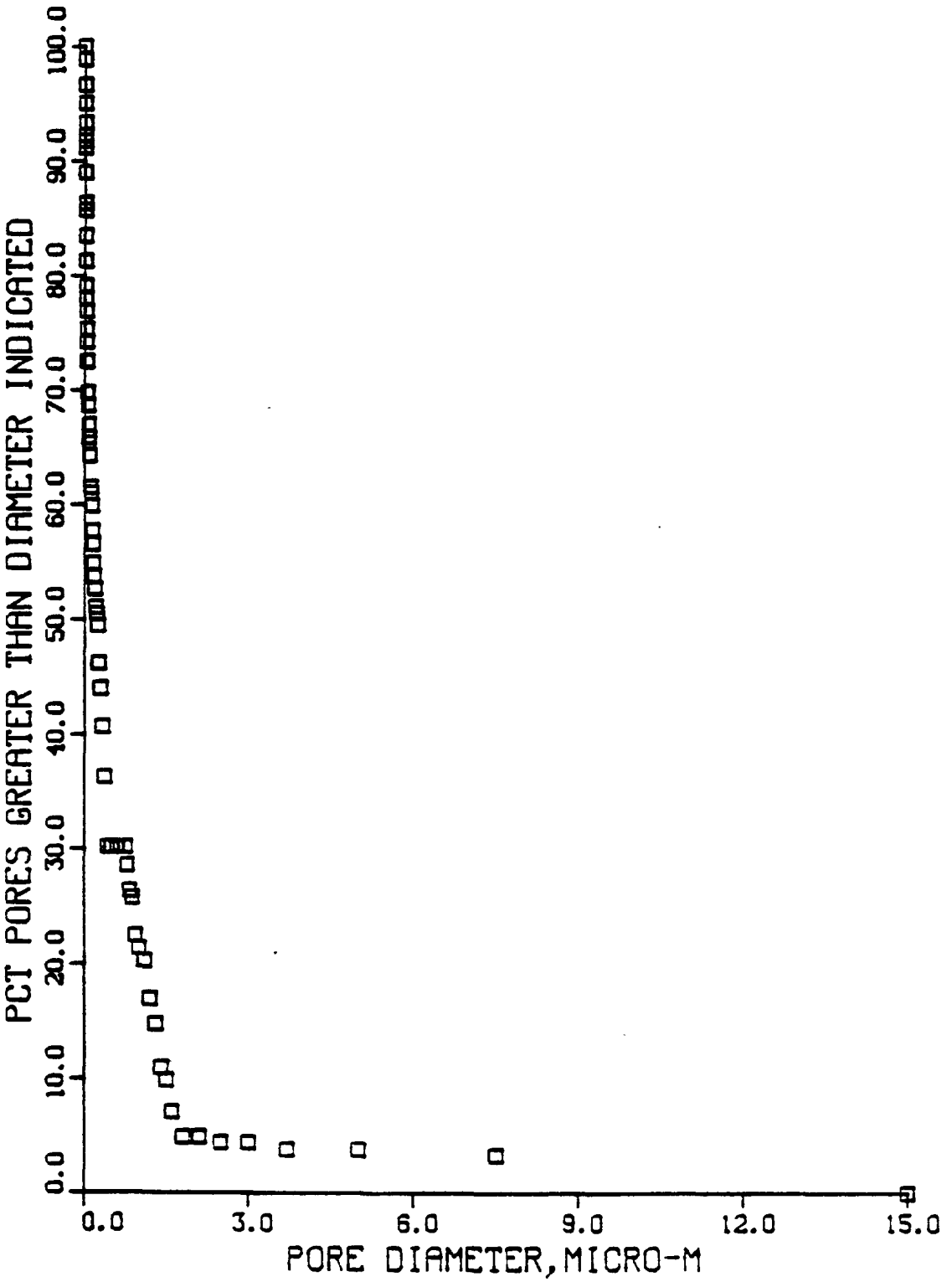
ABSOLUTE PRESSURE, PSI

25

ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

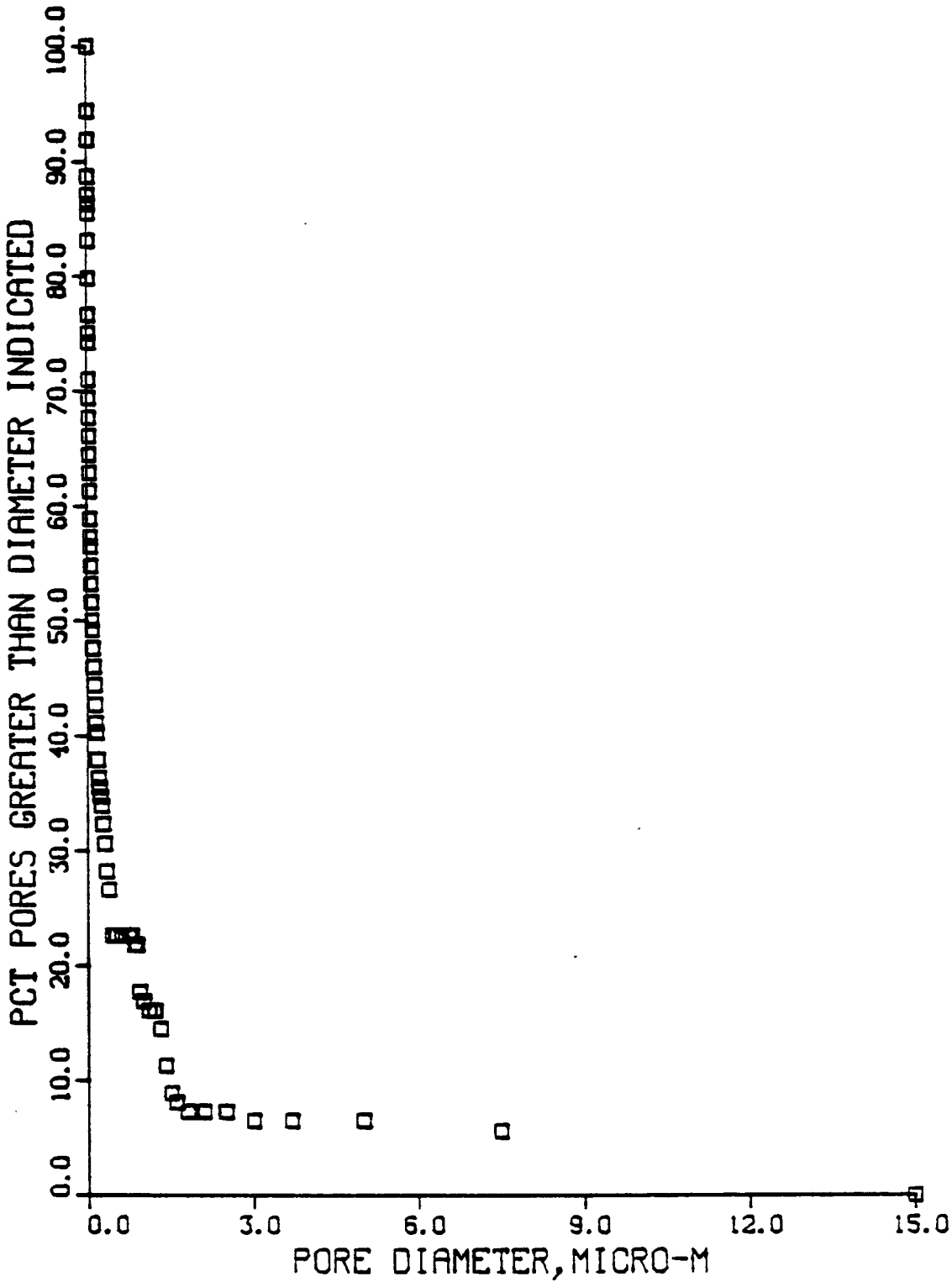
V 76623.



26

UGR File #211 Appedix A
ORO-52-5-11-1
August 15, 199
Battelle Columbus Labs.

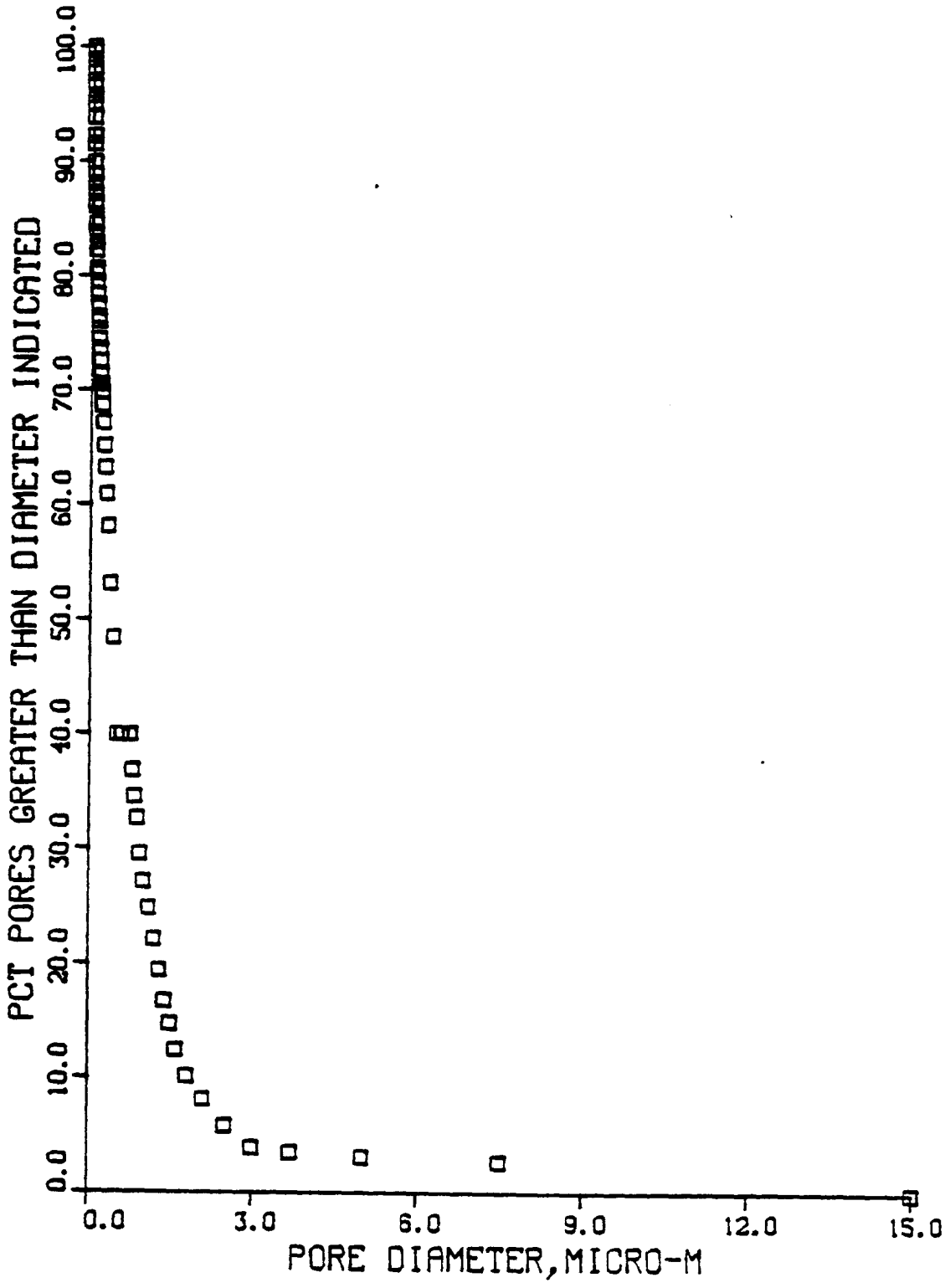
V 76604.



27

ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

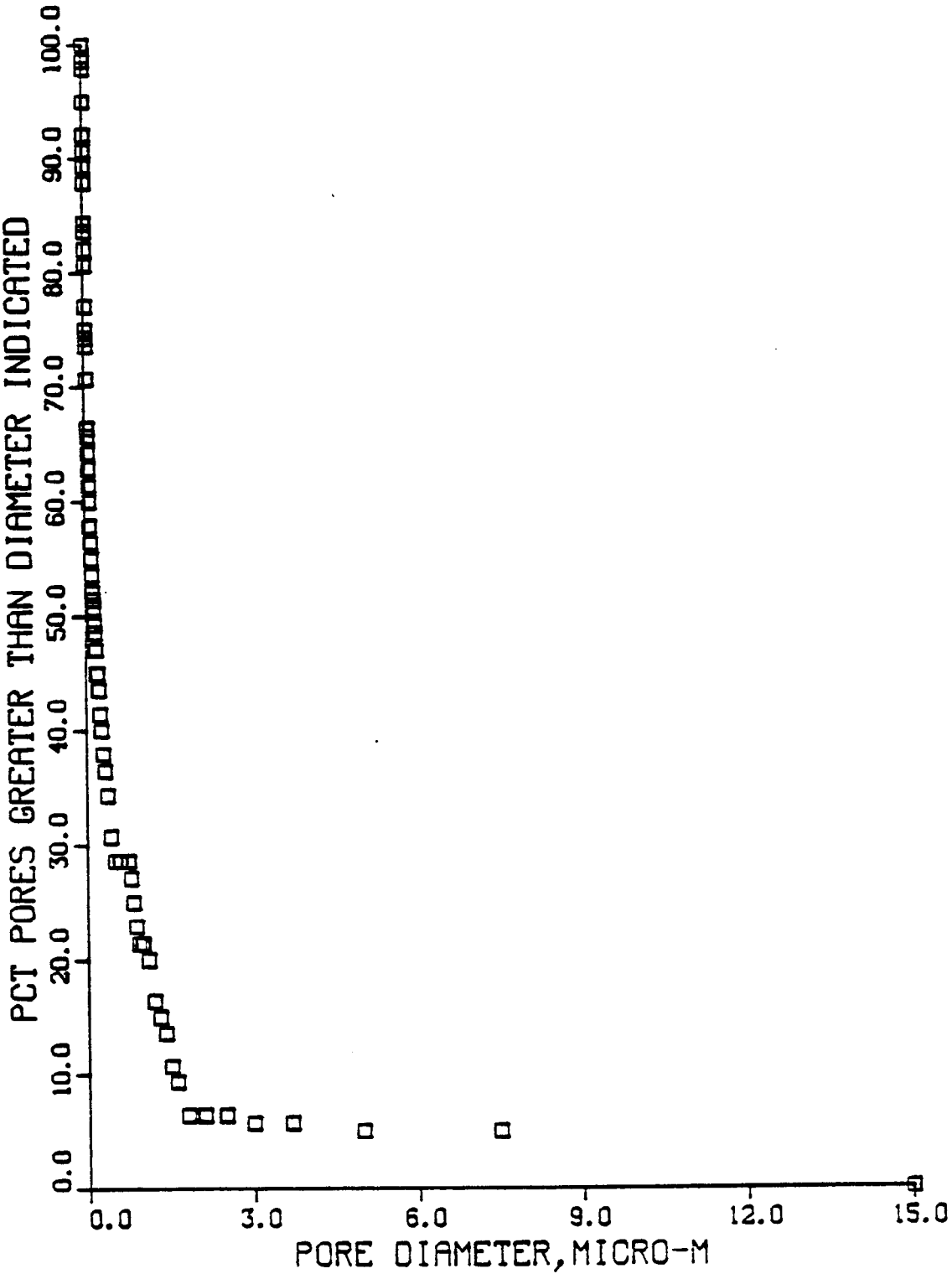
V 76554.



28

UGR File #211 Appedix A
ORO-52-5-11-1
August 15, 199
Battelle Columbus Labs.

V 76477.



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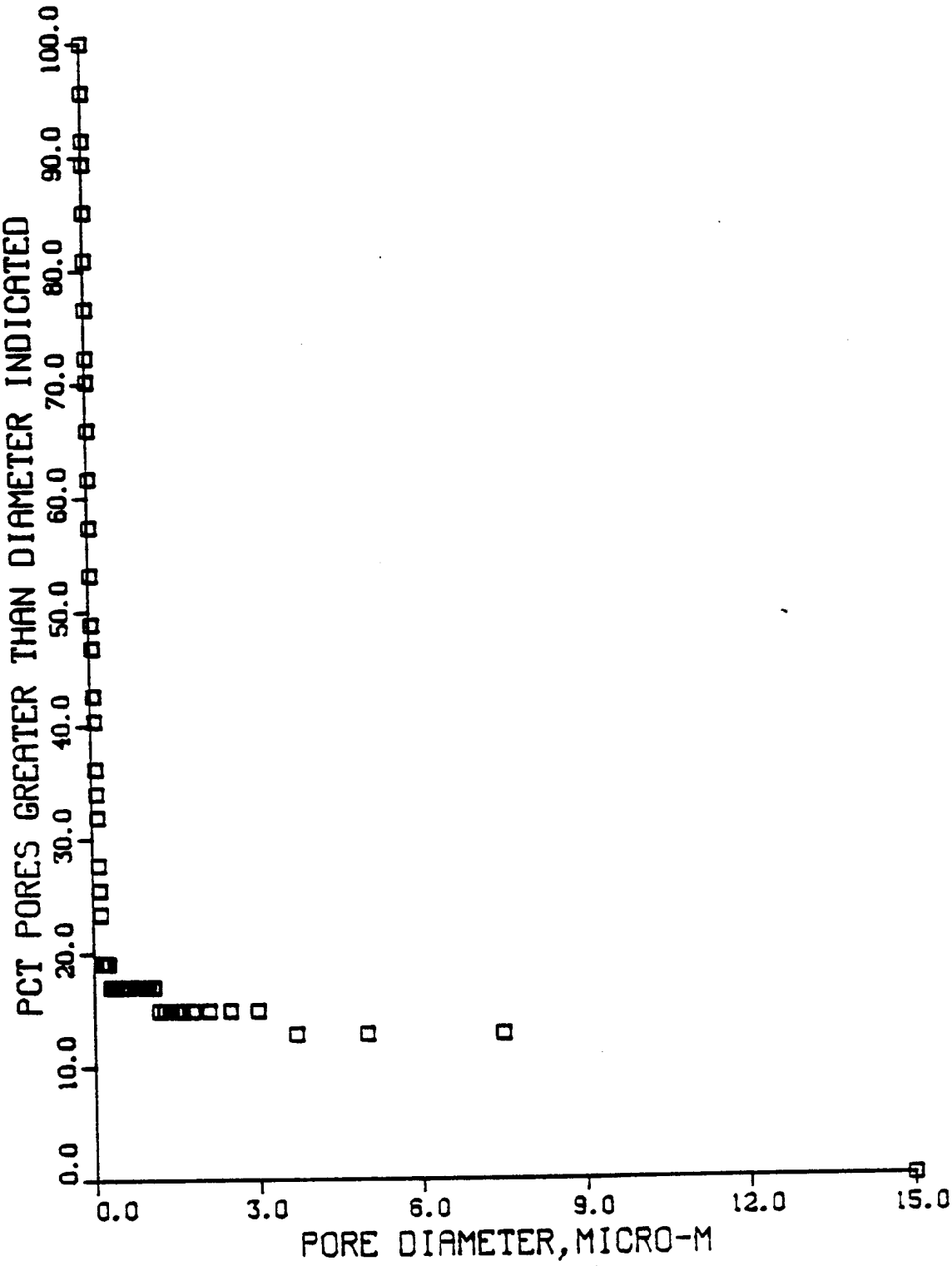
UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76534.



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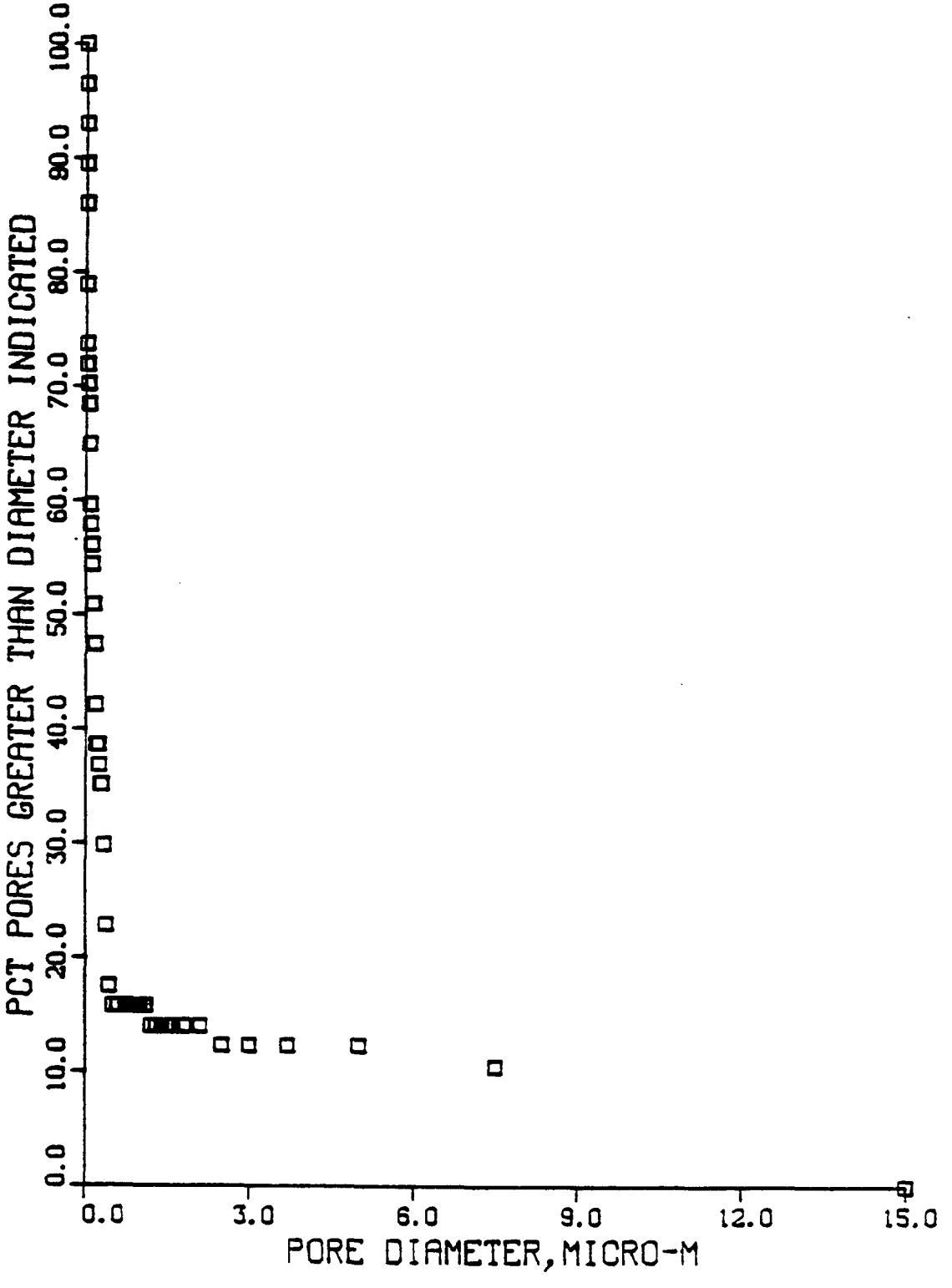
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76514.



31

UGR File #211 Appendix A
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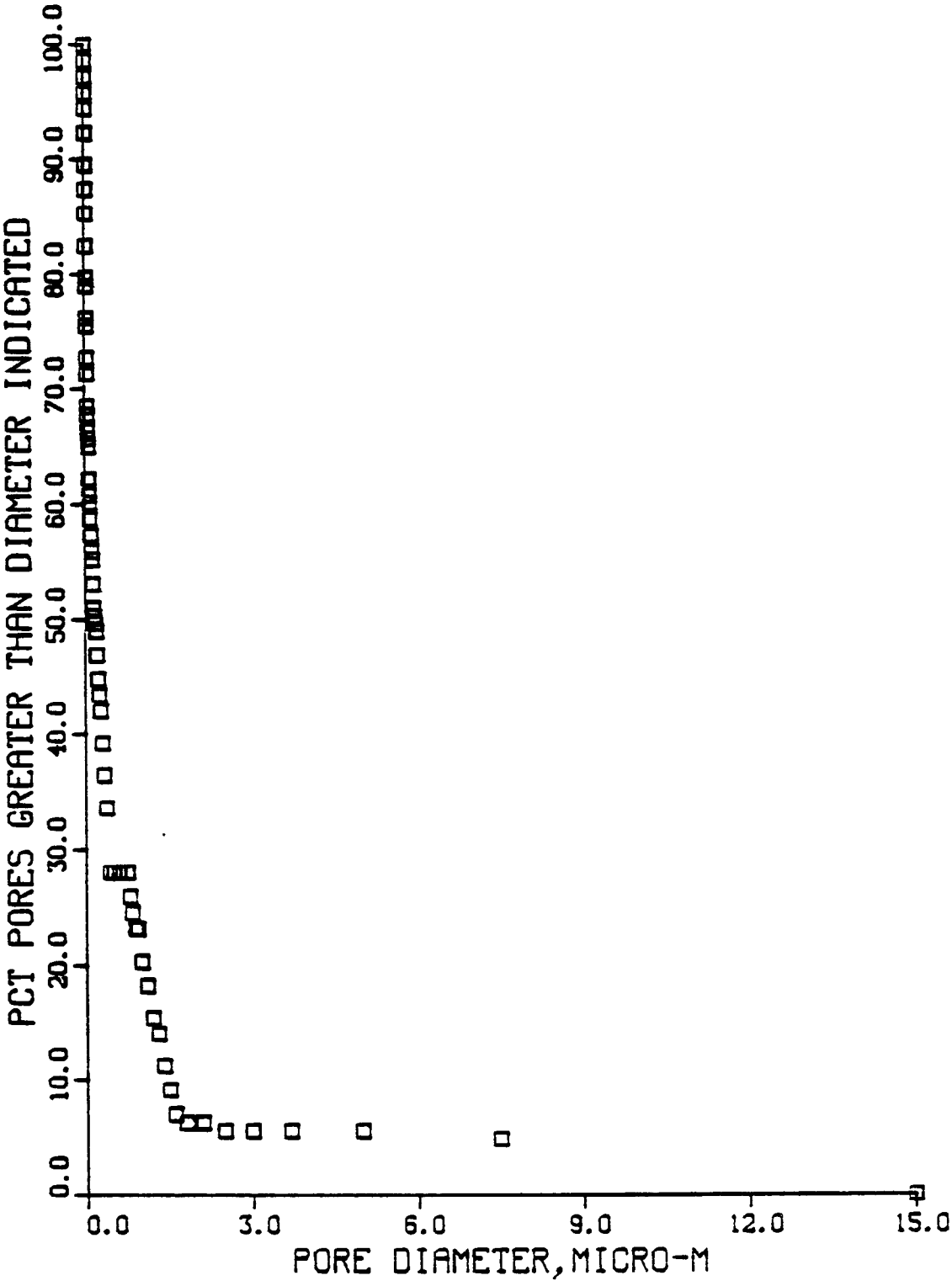
August 15, 1979
Battelle Columbus Labs.

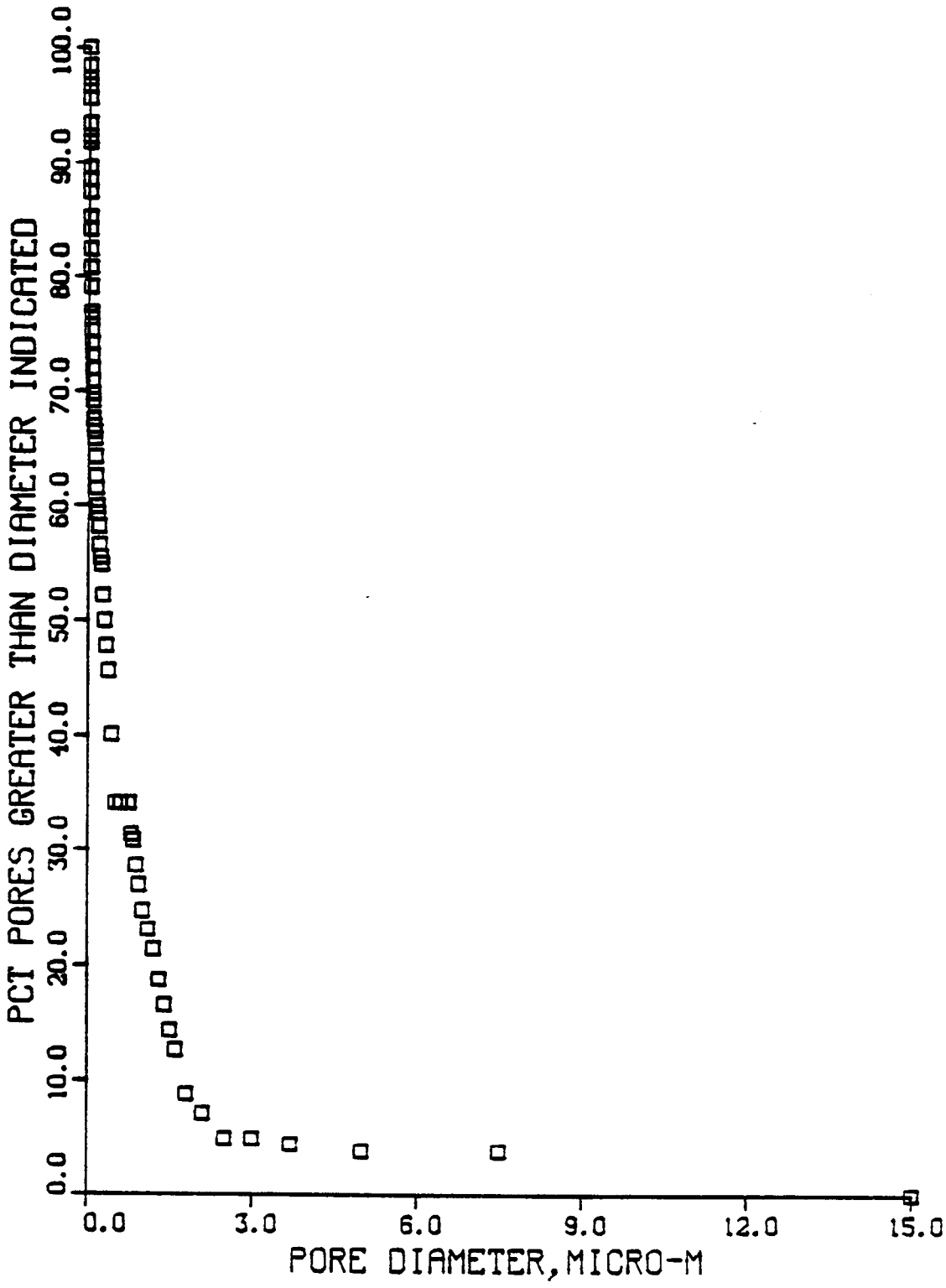
V 76497.



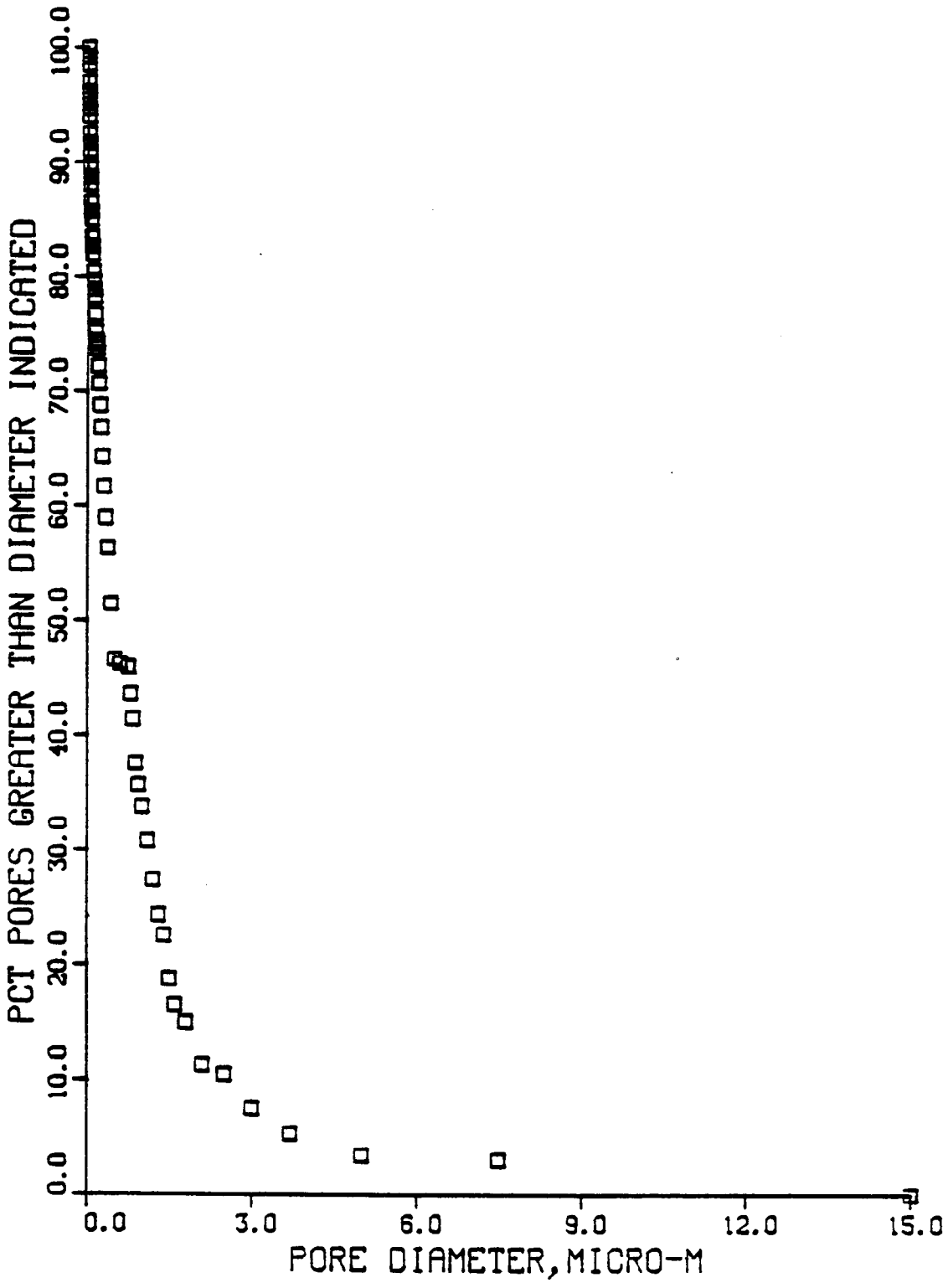
32

UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76407.



V 76391.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60.0
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80.0
90.0
100.0
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6.0
9.0
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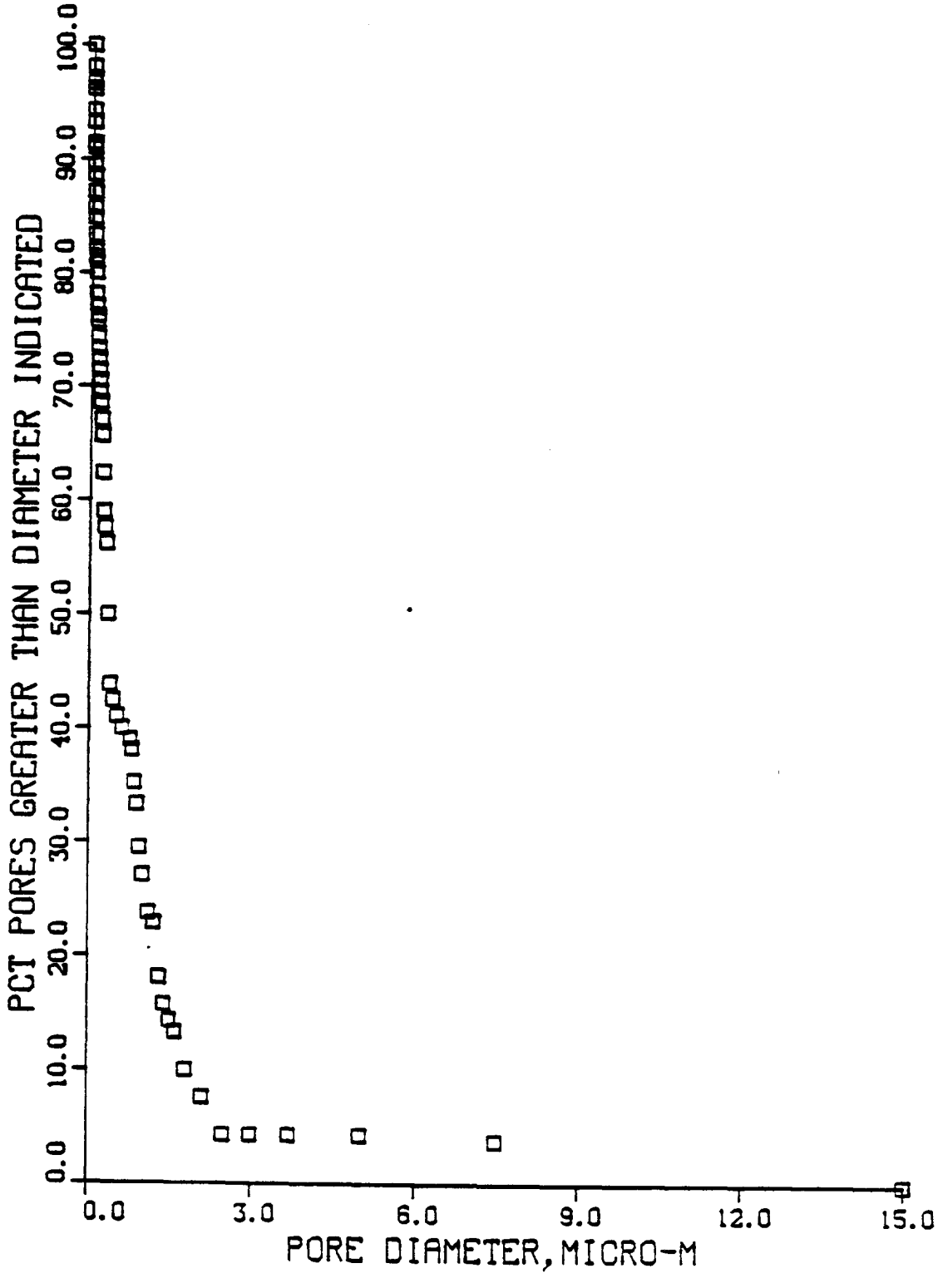
15.0
PORE DIAMETER,MICRO-M

34

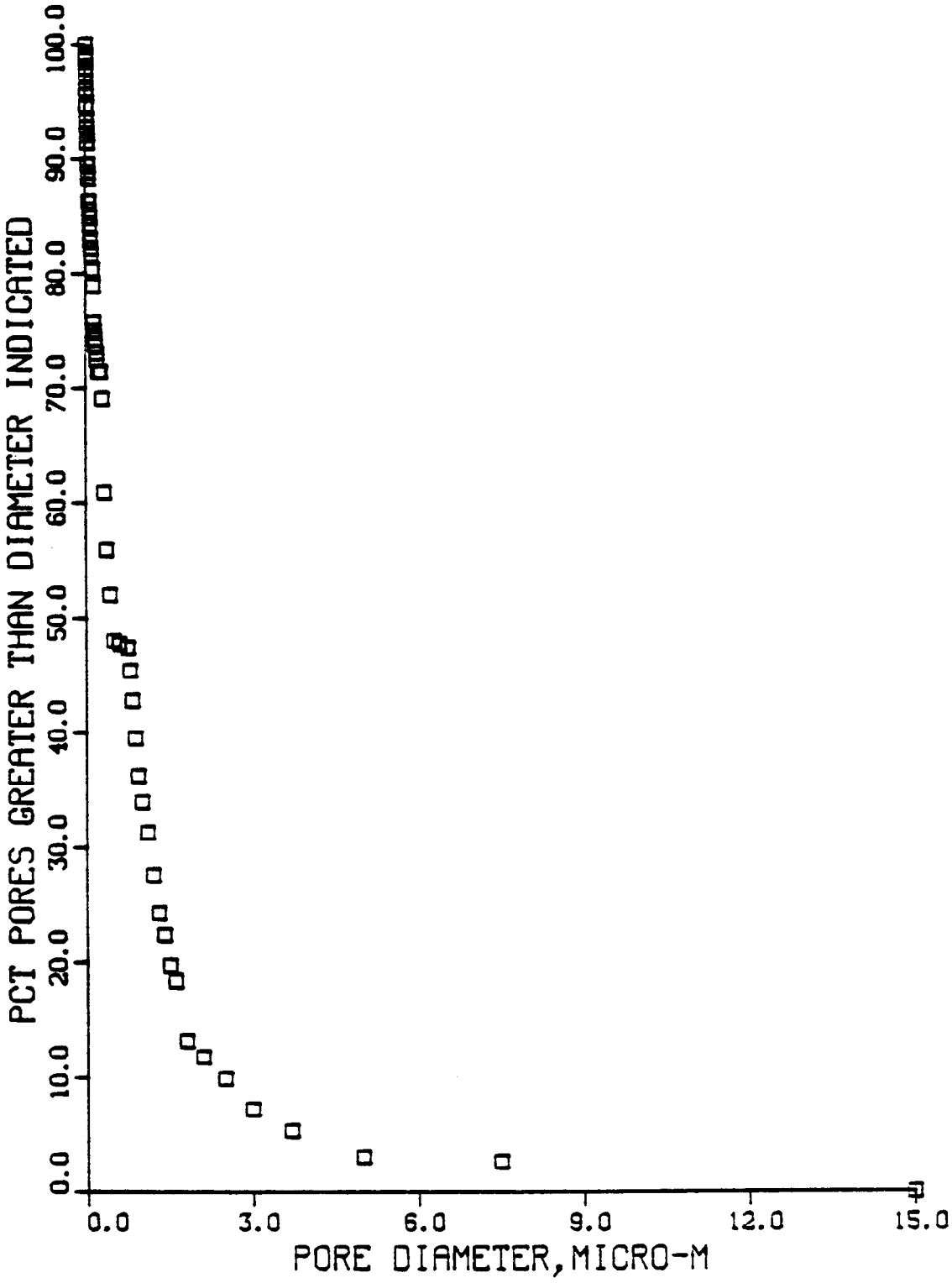
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76371.



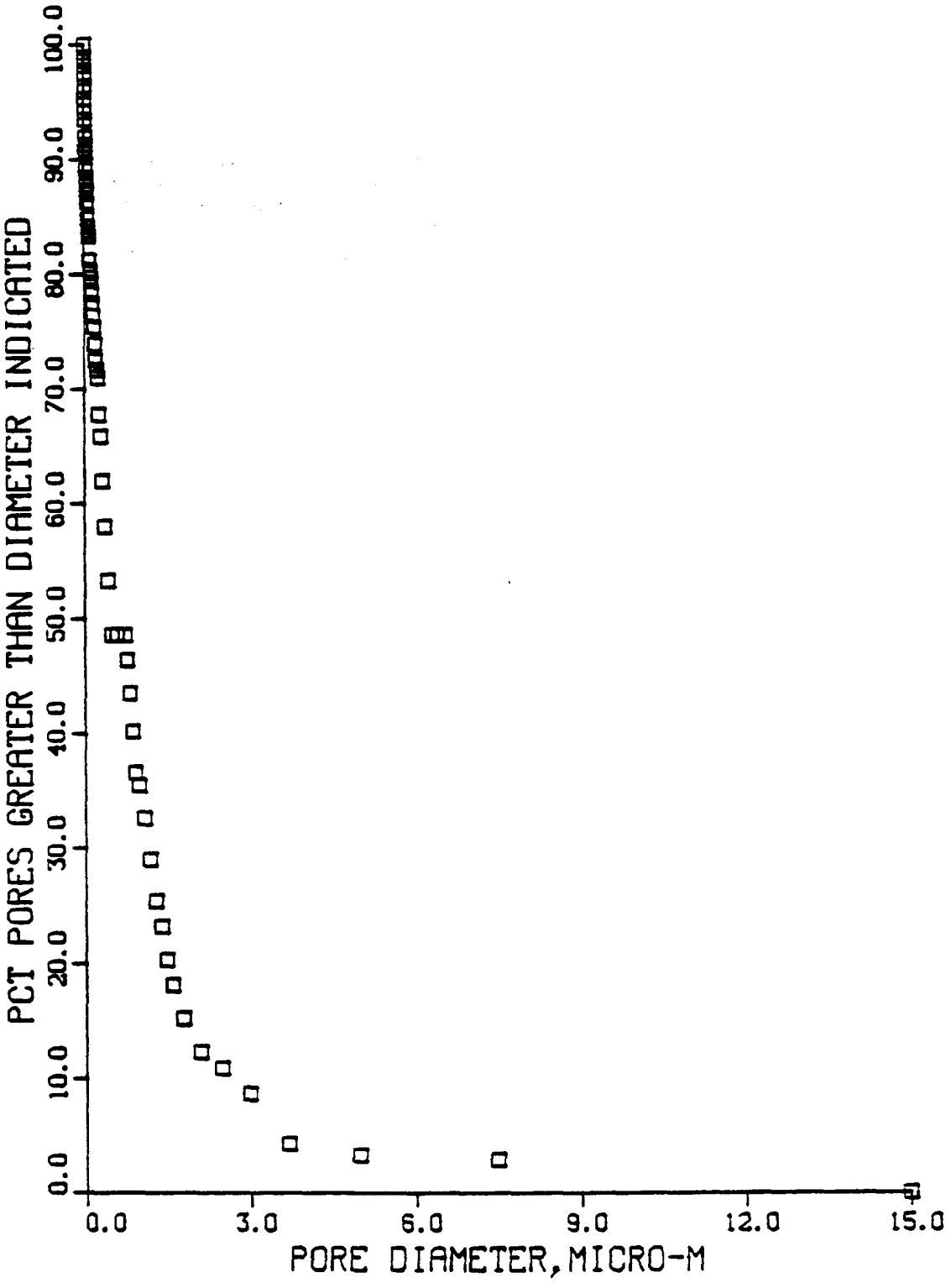
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76351.



JGR File #211 Appendex A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76323.



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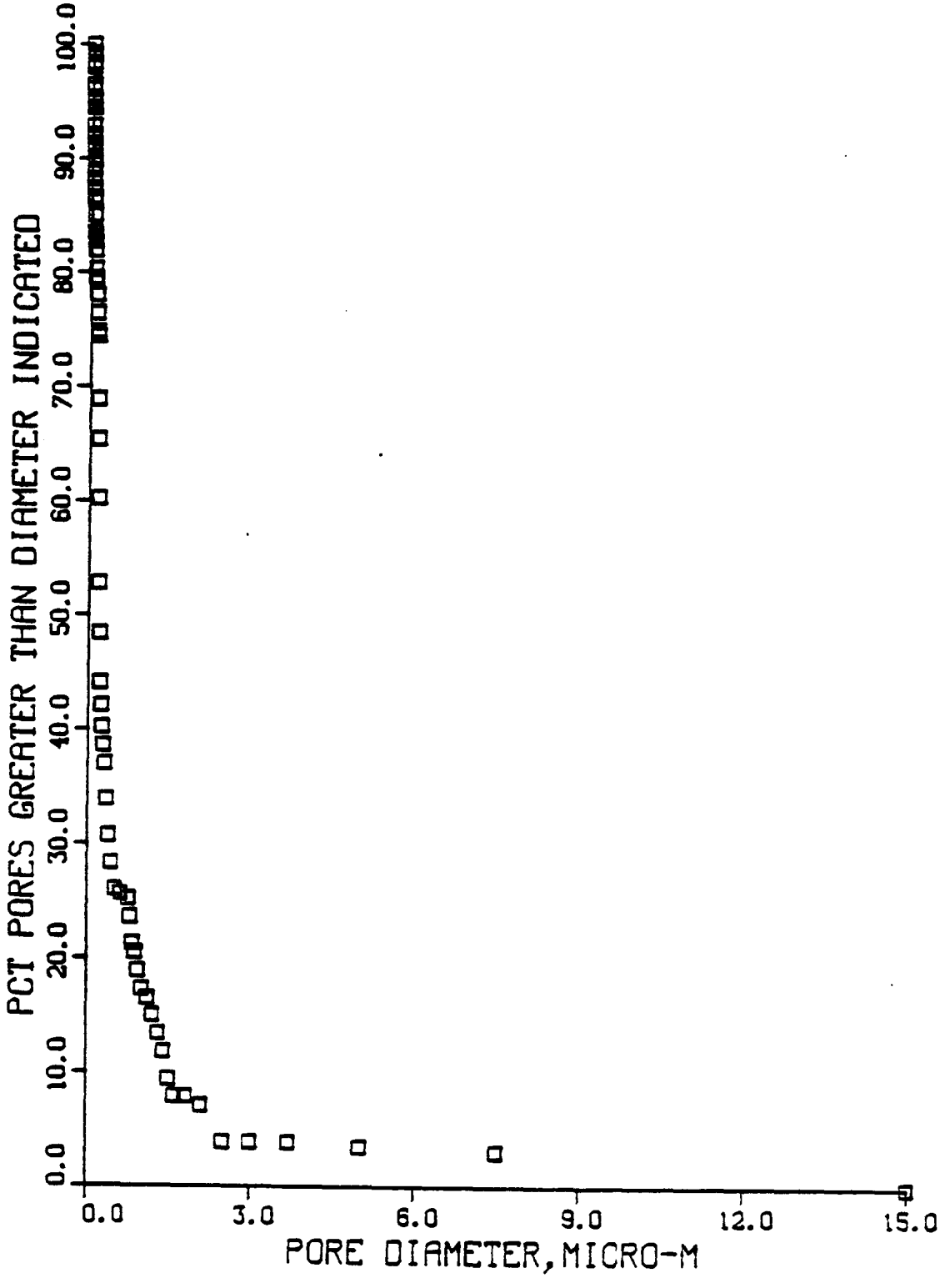
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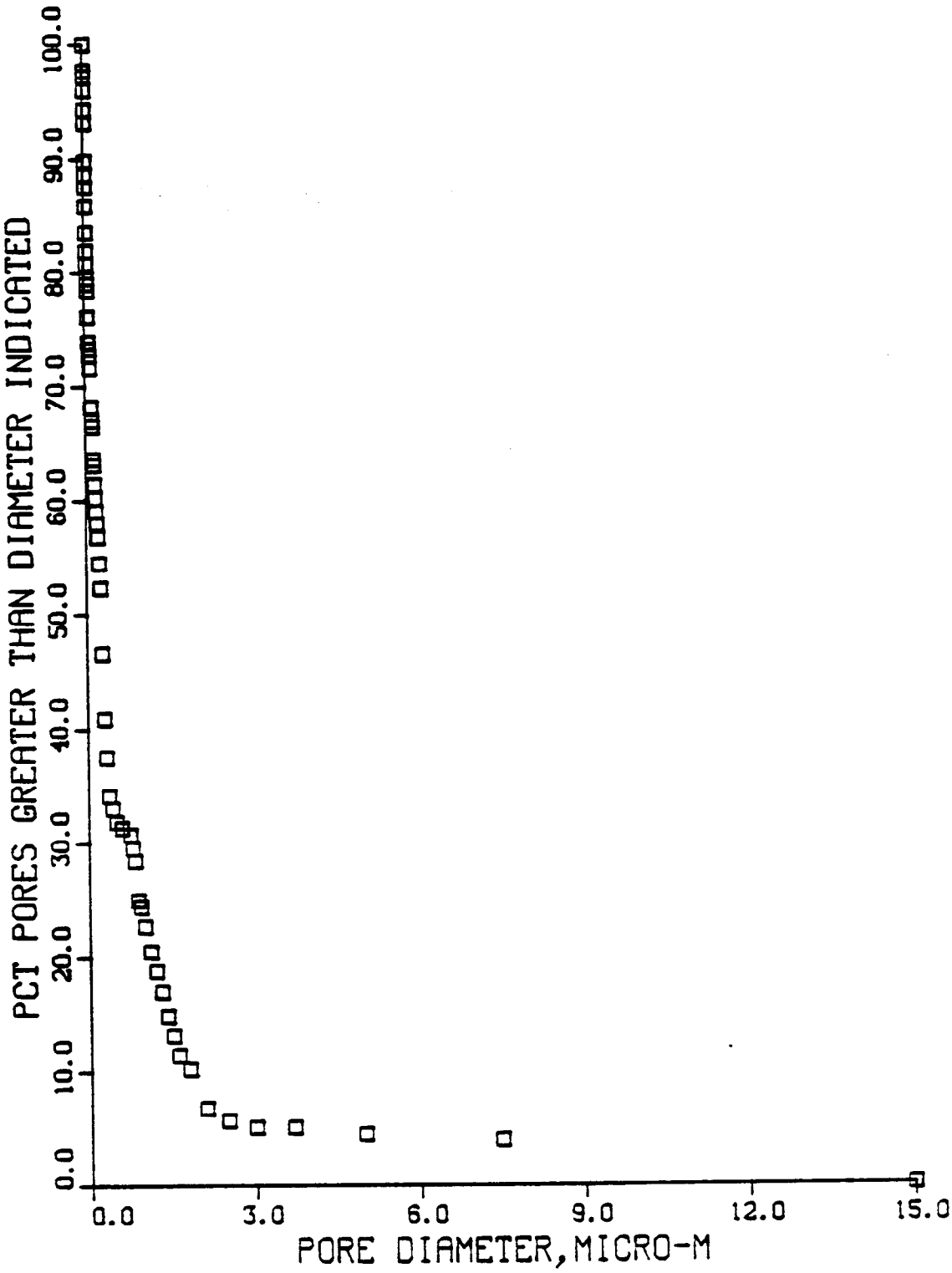
15.0
PORE DIAMETER, MICRO-M

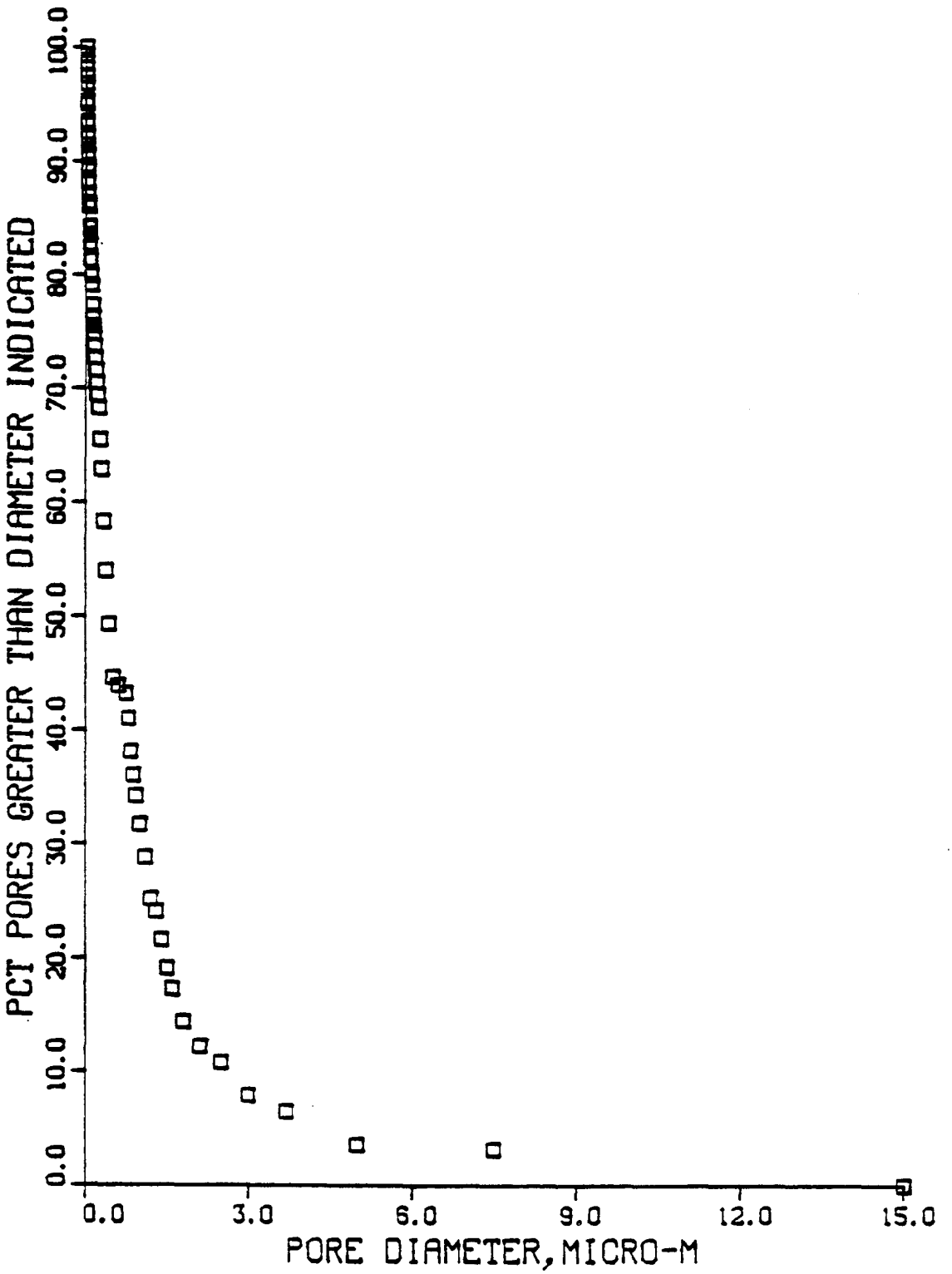
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76283.



ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

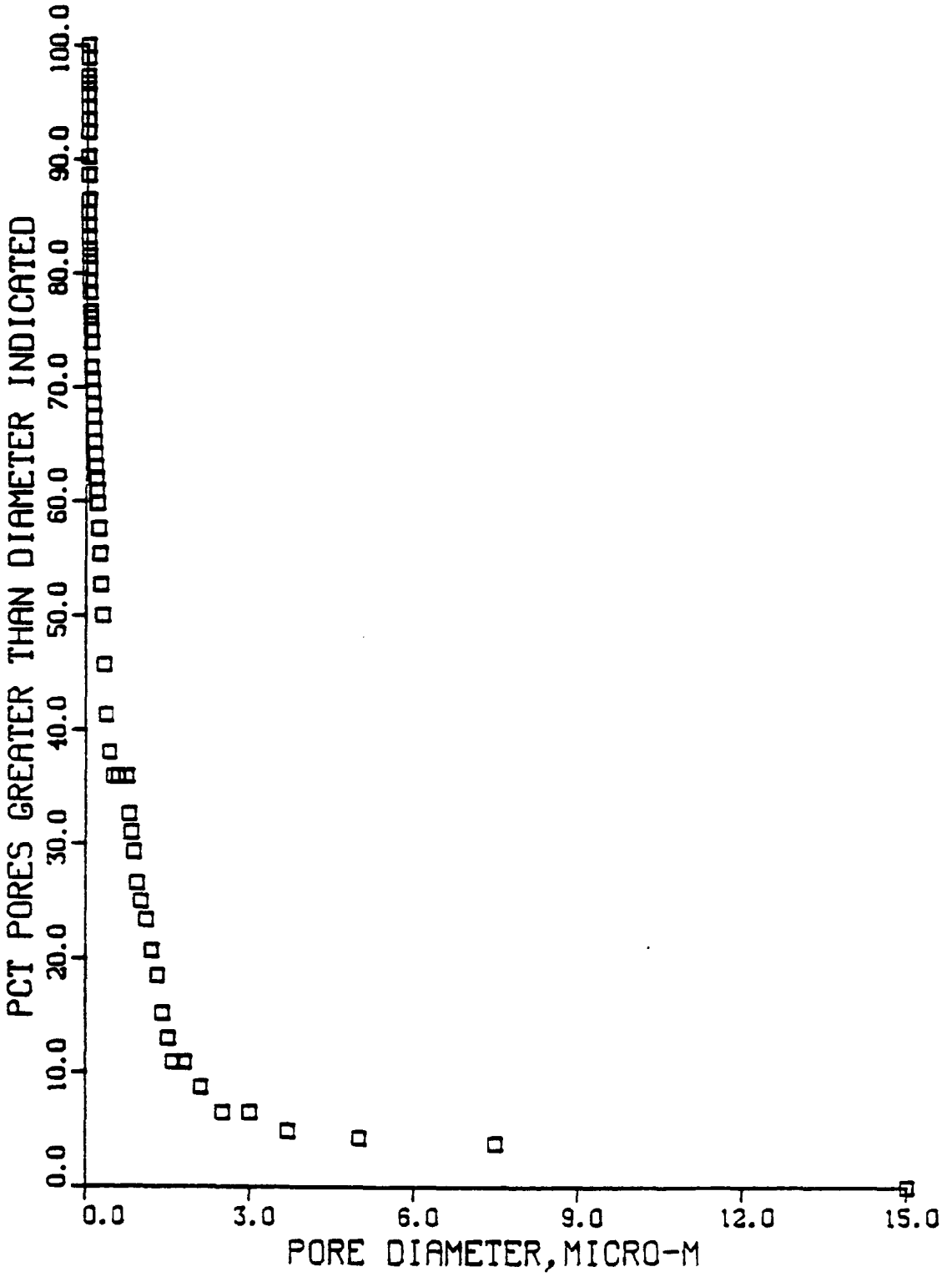
V 76264.



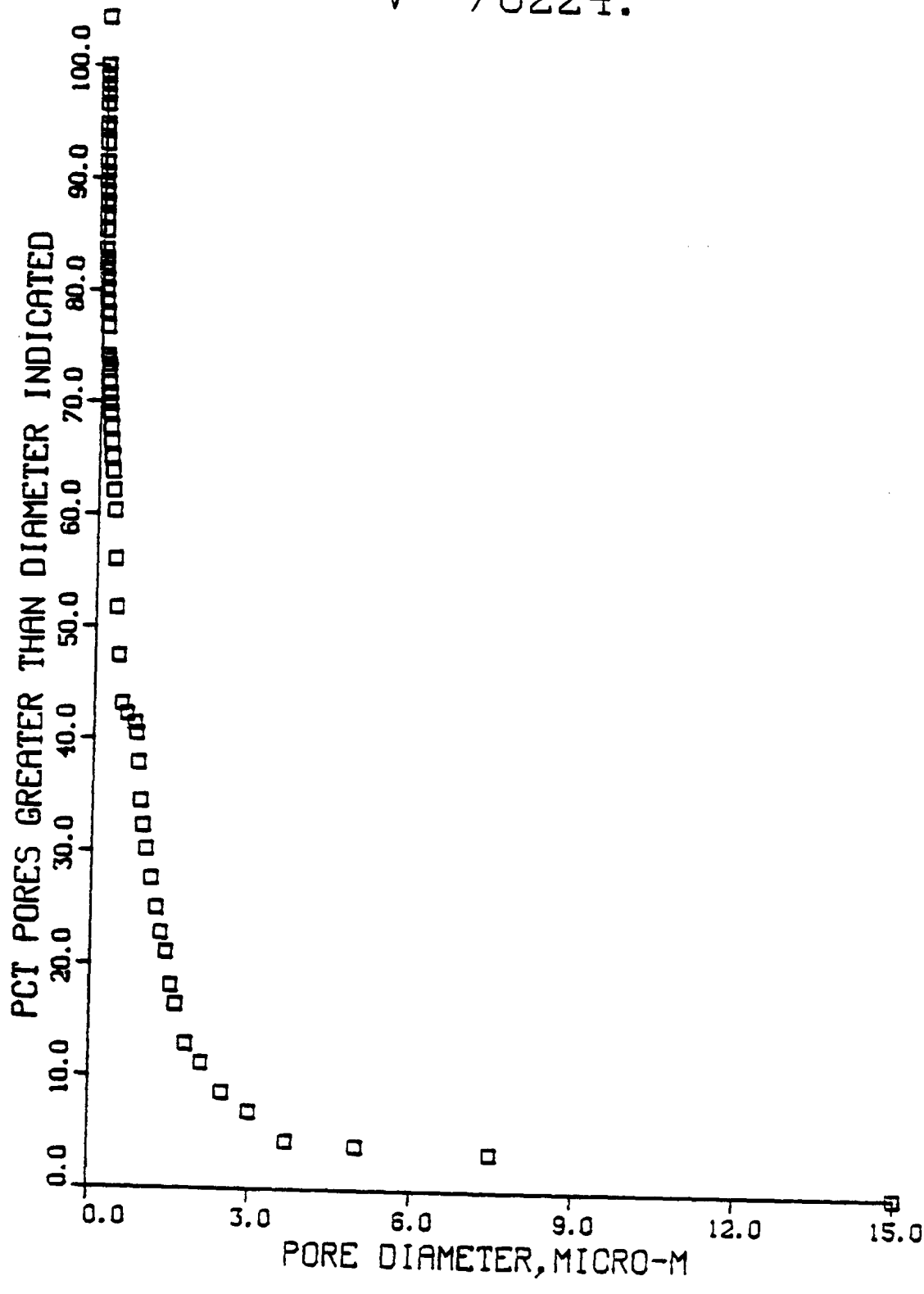
40

ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76244.



V 76224.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0.0
3.0
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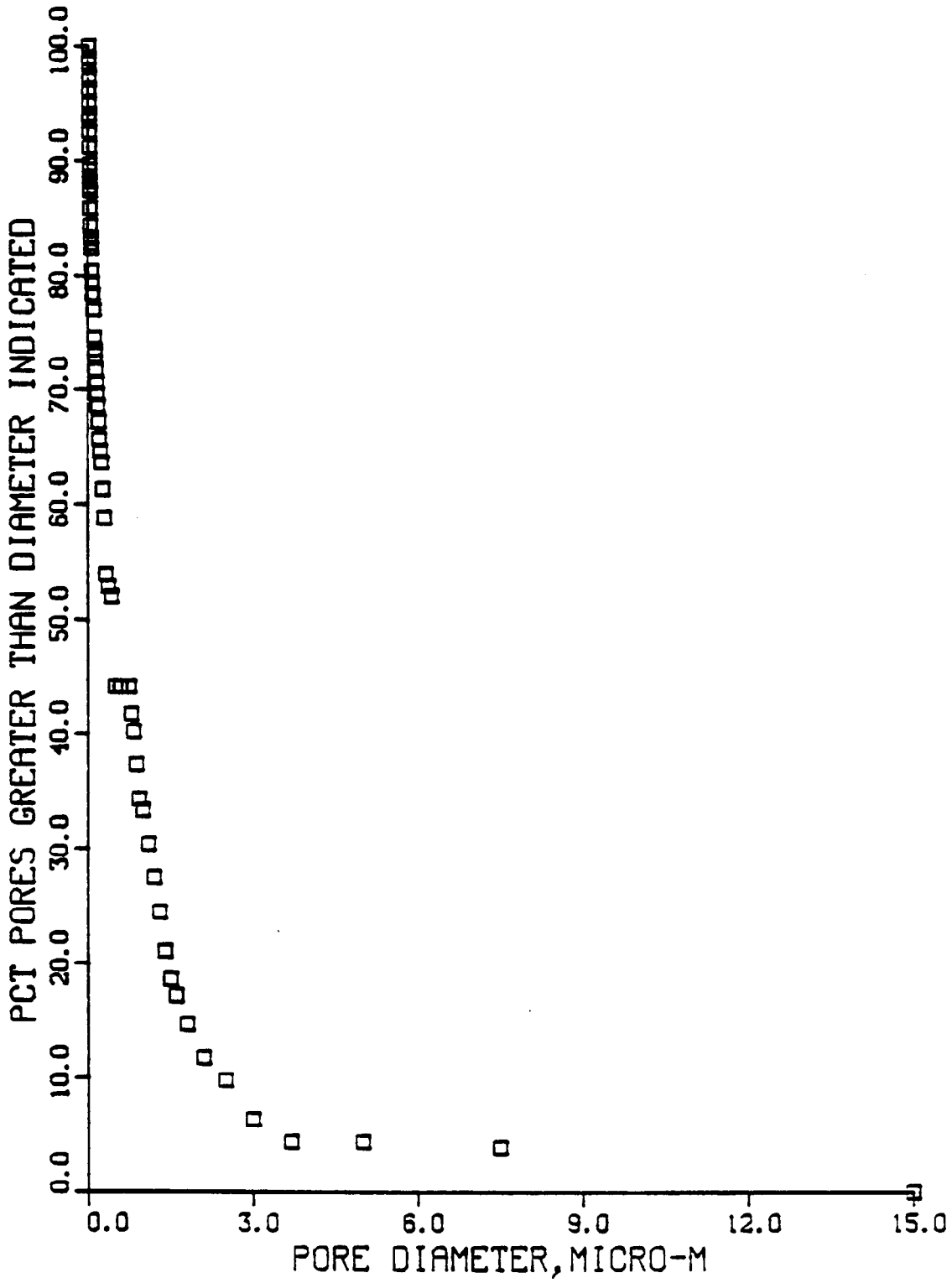
PORE DIAMETER, MICRO-M

42

ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76204.



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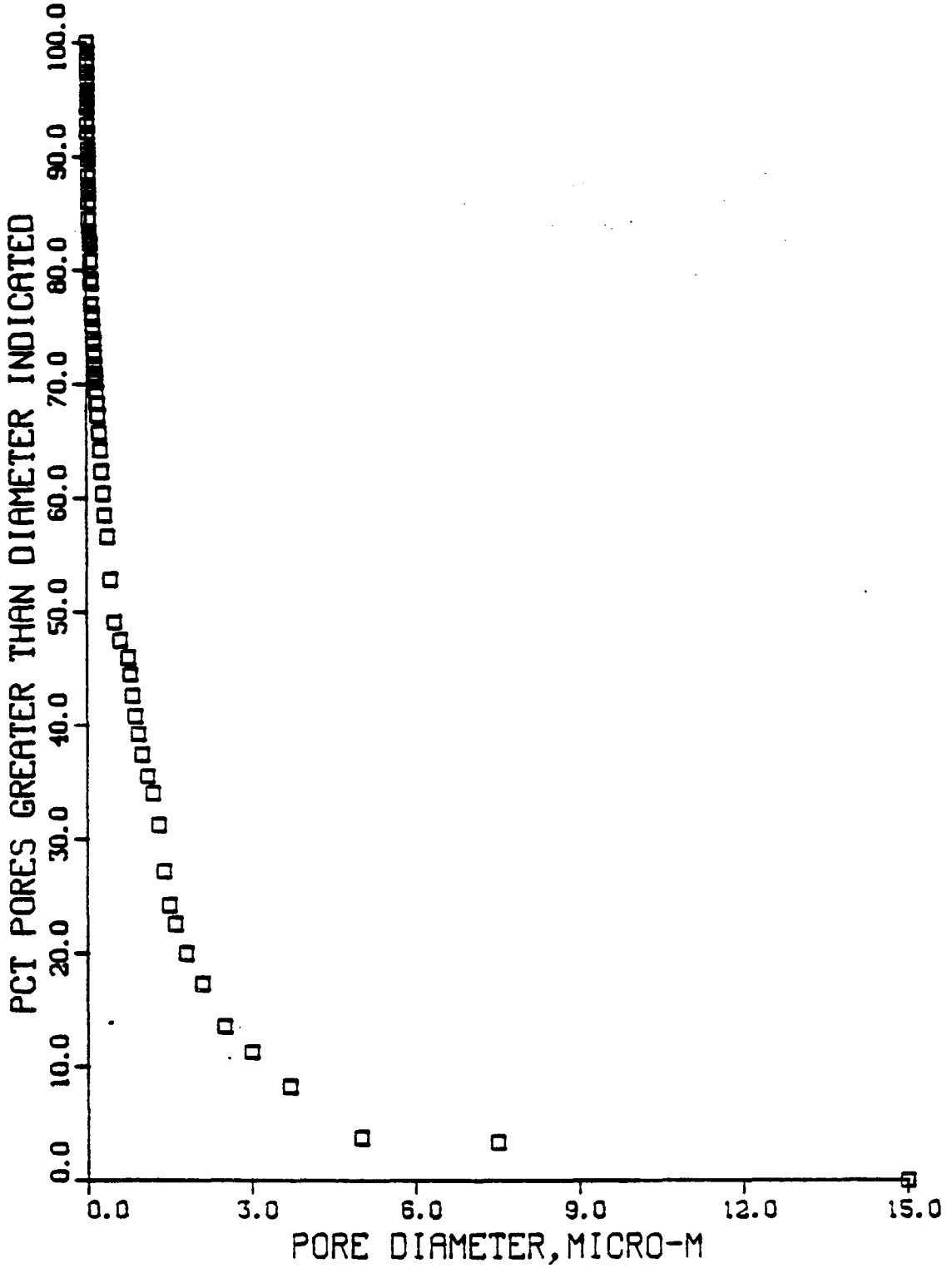
UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76184.



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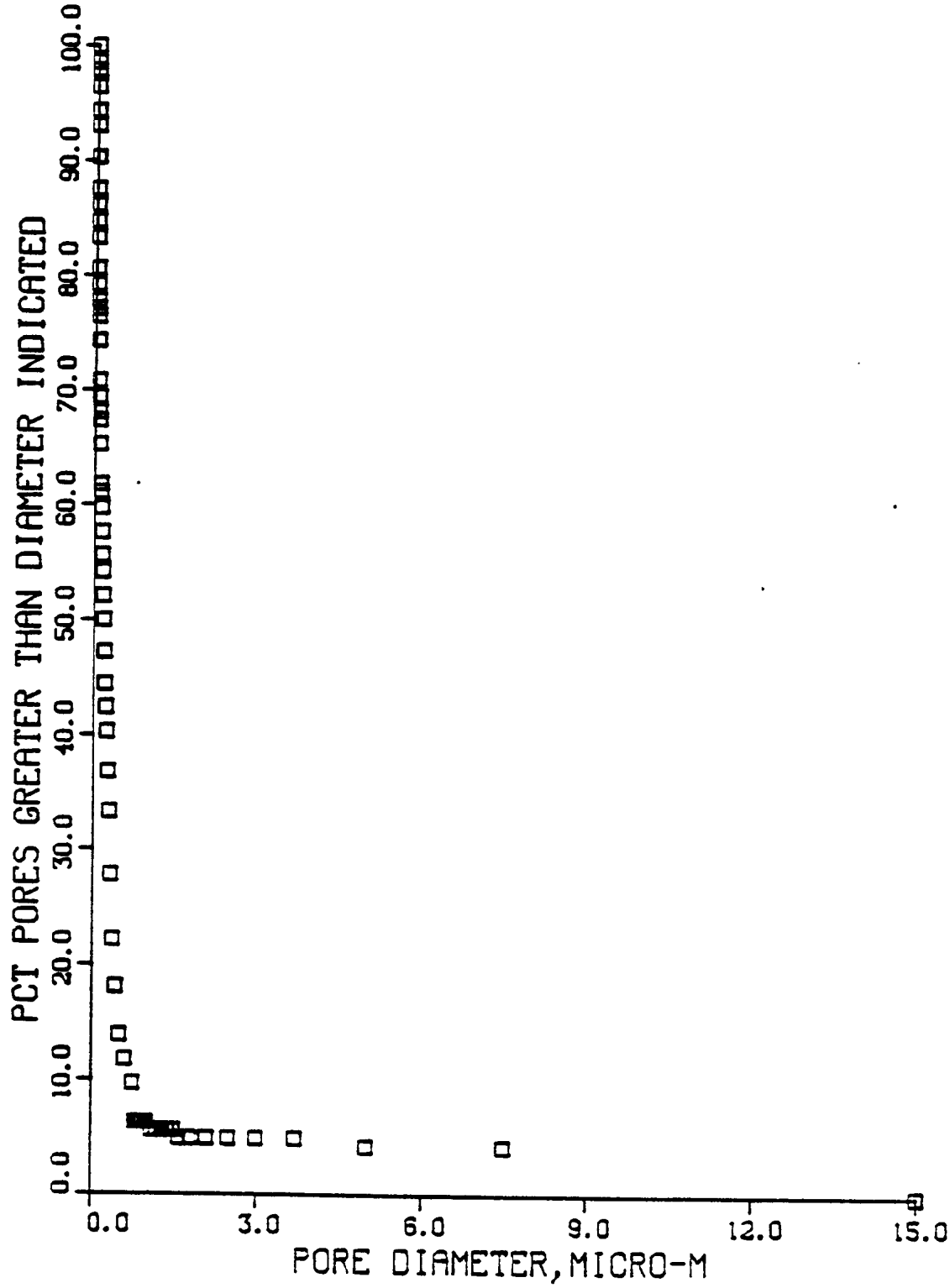
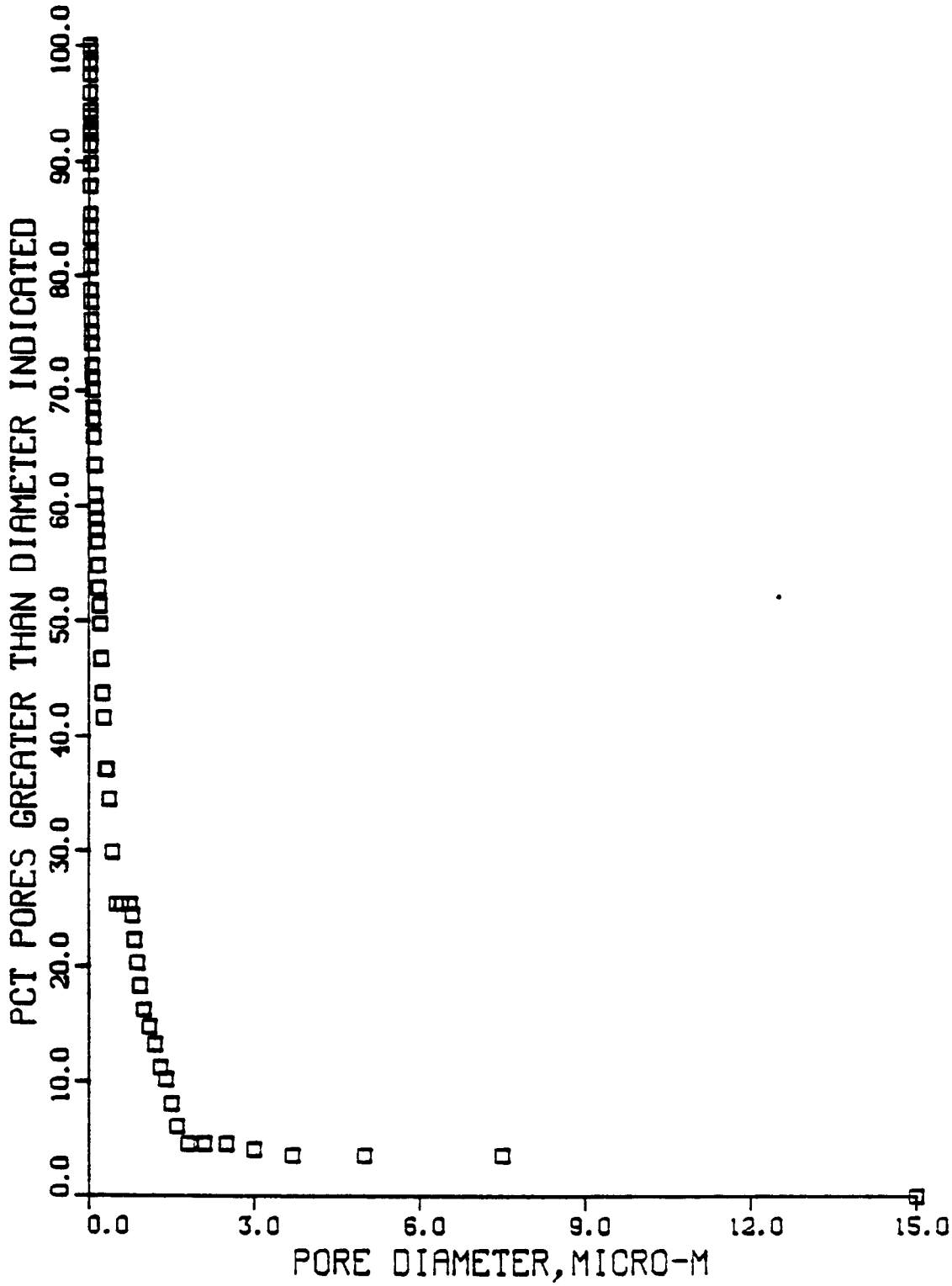
UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76164.



ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

V 76144.



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UGR File #211 Appendix A
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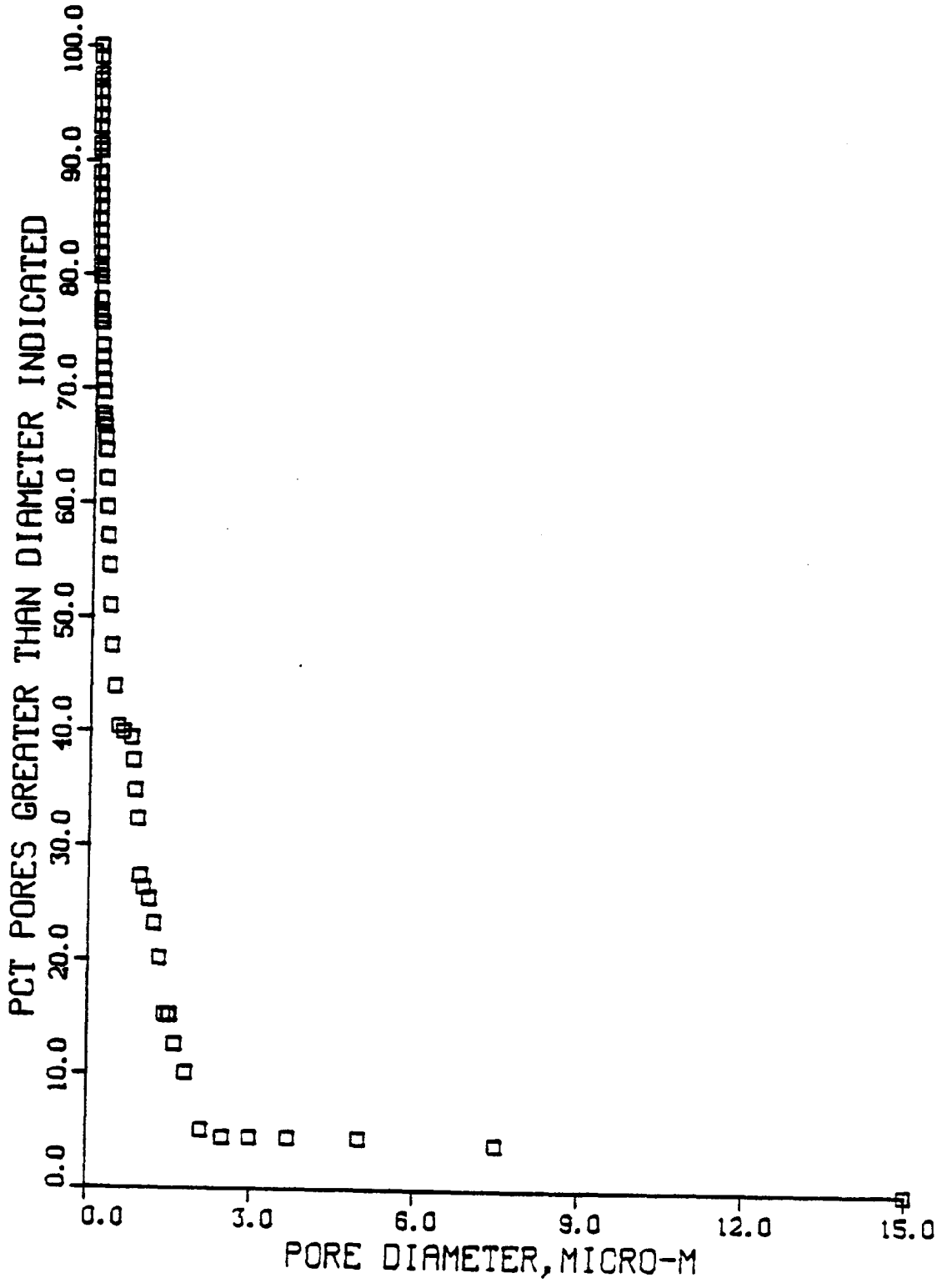
August 15, 1979
Battelle Columbus Labs.

V 76124.



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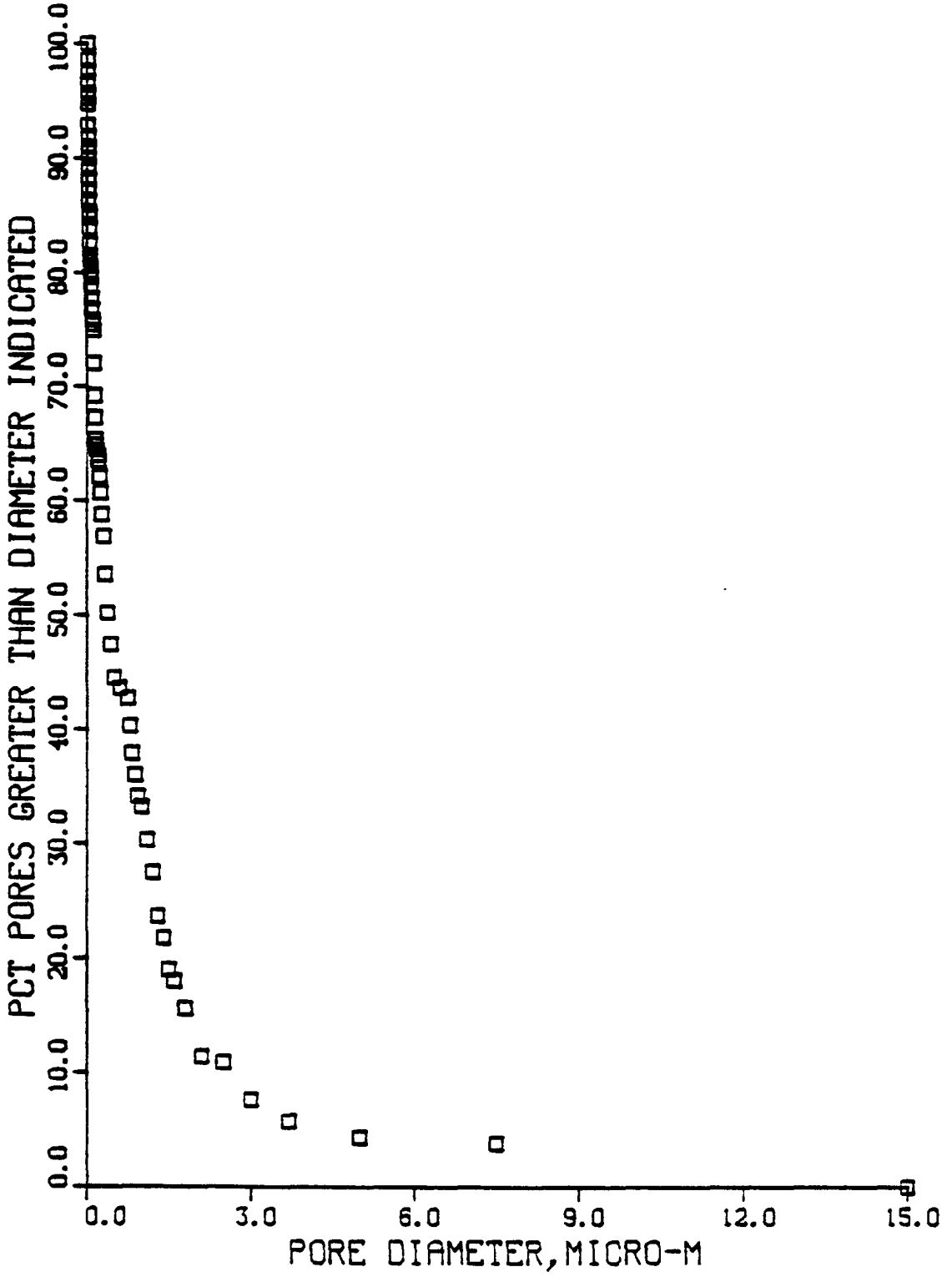
V 76104.



POROSITY DATA FOR SAMPLE V 7-6174.

SEQUENCE NUMBER 1
PORE VOLUME .025 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0248 | .0 |
| 2. | 29.392 | 7.500 | .0009 | .0239 | 3.8 |
| 3. | 44.088 | 5.000 | .0011 | .0237 | 4.3 |
| 4. | 58.784 | 3.700 | .0014 | .0234 | 5.7 |
| 5. | 73.480 | 3.000 | .0019 | .0229 | 7.6 |
| 6. | 88.176 | 2.500 | .0027 | .0221 | 10.9 |
| 7. | 102.872 | 2.100 | .0028 | .0220 | 11.4 |
| 8. | 117.568 | 1.800 | .0039 | .0209 | 15.6 |
| 9. | 132.264 | 1.600 | .0045 | .0203 | 18.0 |
| 10. | 146.960 | 1.500 | .0047 | .0201 | 19.0 |
| 11. | 161.656 | 1.400 | .0054 | .0194 | 21.8 |
| 12. | 176.352 | 1.300 | .0059 | .0189 | 23.7 |
| 13. | 191.048 | 1.200 | .0068 | .0180 | 27.5 |
| 14. | 205.744 | 1.100 | .0075 | .0173 | 30.3 |
| 15. | 220.440 | 1.000 | .0082 | .0166 | 33.2 |
| 16. | 235.136 | .930 | .0085 | .0163 | 34.1 |
| 17. | 249.832 | .880 | .0089 | .0159 | 36.0 |
| 18. | 264.528 | .830 | .0094 | .0154 | 37.9 |
| 19. | 279.224 | .790 | .0100 | .0148 | 40.3 |
| 20. | 293.920 | .750 | .0106 | .0142 | 42.7 |
| 25. | 367.400 | .600 | .0108 | .0140 | 43.6 |
| 30. | 440.880 | .500 | .0110 | .0137 | 44.5 |
| 35. | 514.360 | .430 | .0117 | .0130 | 47.4 |
| 40. | 587.840 | .370 | .0125 | .0123 | 50.2 |
| 45. | 661.320 | .330 | .0133 | .0115 | 53.6 |
| 50. | 734.800 | .300 | .0141 | .0107 | 56.9 |
| 55. | 808.280 | .270 | .0146 | .0102 | 58.8 |
| 60. | 881.760 | .250 | .0150 | .0098 | 60.7 |
| 65. | 955.240 | .230 | .0154 | .0094 | 62.1 |
| 70. | 1028.720 | .210 | .0157 | .0091 | 63.5 |
| 75. | 1102.200 | .200 | .0159 | .0089 | 64.0 |
| 80. | 1175.680 | .180 | .0160 | .0088 | 64.5 |
| 85. | 1249.160 | .170 | .0161 | .0087 | 64.3 |

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POROSITY DATA FOR SAMPLE W 7-6164.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0162 | .0086 | 65.4 |
| 100. | 1469.600 | .150 | .0167 | .0081 | 67.3 |
| 110. | 1616.560 | .140 | .0172 | .0076 | 69.2 |
| 120. | 1763.520 | .130 | .0179 | .0069 | 72.0 |
| 130. | 1910.480 | .120 | .0186 | .0062 | 74.9 |
| 140. | 2057.440 | .110 | .0187 | .0061 | 75.4 |
| 150. | 2204.400 | .100 | .0188 | .0060 | 75.8 |
| 170. | 2498.320 | .088 | .0190 | .0058 | 76.8 |
| 180. | 2645.280 | .083 | .0193 | .0055 | 77.7 |
| 190. | 2792.240 | .079 | .0195 | .0053 | 78.7 |
| 200. | 2939.200 | .075 | .0197 | .0051 | 79.6 |
| 220. | 3233.120 | .068 | .0199 | .0049 | 80.1 |
| 240. | 3527.040 | .062 | .0200 | .0048 | 80.6 |
| 260. | 3820.960 | .057 | .0201 | .0047 | 81.0 |
| 280. | 4114.880 | .053 | .0202 | .0046 | 81.5 |
| 300. | 4408.800 | .050 | .0204 | .0043 | 82.5 |
| 330. | 4849.696 | .045 | .0208 | .0040 | 83.9 |
| 360. | 5290.560 | .041 | .0210 | .0038 | 84.8 |
| 390. | 5731.440 | .038 | .0211 | .0036 | 85.3 |
| 420. | 6172.320 | .035 | .0214 | .0034 | 86.3 |
| 450. | 6613.200 | .033 | .0216 | .0032 | 87.2 |
| 490. | 7201.040 | .030 | .0219 | .0029 | 88.2 |
| 510. | 7494.960 | .029 | .0221 | .0027 | 89.1 |
| 540. | 7935.840 | .027 | .0223 | .0025 | 90.0 |
| 590. | 8670.640 | .025 | .0224 | .0023 | 90.5 |
| 610. | 8964.560 | .024 | .0226 | .0022 | 91.0 |
| 640. | 9405.440 | .023 | .0228 | .0020 | 91.9 |
| 700. | 10287.200 | .021 | .0230 | .0018 | 92.9 |
| 740. | 10875.040 | .020 | .0235 | .0013 | 94.8 |
| 770. | 11315.920 | .019 | .0235 | .0013 | 94.8 |
| 800. | 11756.800 | .019 | .0236 | .0012 | 95.3 |
| 830. | 12197.680 | .018 | .0237 | .0011 | 95.7 |
| 860. | 12638.560 | .017 | .0240 | .0008 | 96.7 |
| 900. | 13226.400 | .017 | .0242 | .0006 | 97.6 |
| 930. | 13667.280 | .016 | .0242 | .0006 | 97.6 |
| 960. | 13961.200 | .016 | .0244 | .0004 | 98.6 |
| 1000. | 14696.000 | .014 | .0248 | .0000 | 100.0 |

POROSITY DATA FOR SAMPLE V 7-6124.

SEQUENCE NUMBER 3
PORE VOLUME .020 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0204 | .0 |
| 2. | 29.392 | 7.500 | .0008 | .0195 | 4.0 |
| 3. | 44.088 | 5.000 | .0009 | .0194 | 4.5 |
| 4. | 58.784 | 3.700 | .0009 | .0194 | 4.5 |
| 5. | 73.480 | 3.000 | .0009 | .0194 | 4.5 |
| 6. | 88.176 | 2.500 | .0009 | .0194 | 4.5 |
| 7. | 102.872 | 2.100 | .0010 | .0193 | 5.1 |
| 8. | 117.568 | 1.800 | .0021 | .0183 | 10.1 |
| 9. | 132.264 | 1.600 | .0026 | .0179 | 12.6 |
| 10. | 146.960 | 1.500 | .0031 | .0173 | 15.2 |
| 11. | 161.656 | 1.400 | .0031 | .0173 | 15.2 |
| 12. | 176.352 | 1.300 | .0041 | .0162 | 20.2 |
| 13. | 191.048 | 1.200 | .0047 | .0156 | 23.2 |
| 14. | 205.744 | 1.100 | .0051 | .0152 | 25.3 |
| 15. | 220.440 | 1.000 | .0053 | .0150 | 26.3 |
| 16. | 235.136 | .930 | .0056 | .0148 | 27.3 |
| 17. | 249.832 | .880 | .0066 | .0138 | 32.3 |
| 18. | 264.528 | .830 | .0071 | .0133 | 34.8 |
| 19. | 279.224 | .790 | .0076 | .0127 | 37.4 |
| 20. | 293.920 | .750 | .0080 | .0123 | 39.4 |
| 25. | 367.400 | .600 | .0081 | .0122 | 39.9 |
| 30. | 440.880 | .500 | .0082 | .0121 | 40.4 |
| 35. | 514.360 | .430 | .0089 | .0114 | 43.9 |
| 40. | 587.840 | .370 | .0097 | .0107 | 47.5 |
| 45. | 661.320 | .330 | .0104 | .0100 | 51.0 |
| 50. | 734.800 | .300 | .0111 | .0093 | 54.5 |
| 55. | 808.280 | .270 | .0116 | .0087 | 57.1 |
| 60. | 881.760 | .250 | .0121 | .0082 | 59.6 |
| 65. | 955.240 | .230 | .0126 | .0077 | 62.1 |
| 70. | 1028.720 | .210 | .0132 | .0072 | 64.6 |
| 75. | 1102.200 | .200 | .0134 | .0070 | 65.7 |
| 80. | 1175.680 | .180 | .0136 | .0068 | 66.7 |
| 85. | 1249.160 | .170 | .0137 | .0067 | 67.2 |



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POROSITY DATA FOR SAMPLE V 7-6124.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0138 | .0066 | 67.7 |
| 100. | 1469.600 | .150 | .0142 | .0062 | 69.7 |
| 110. | 1616.560 | .140 | .0144 | .0060 | 70.7 |
| 120. | 1763.520 | .130 | .0146 | .0058 | 71.7 |
| 130. | 1910.480 | .120 | .0148 | .0056 | 72.7 |
| 140. | 2057.440 | .110 | .0150 | .0053 | 73.7 |
| 150. | 2204.400 | .100 | .0154 | .0049 | 75.8 |
| 170. | 2498.320 | .088 | .0154 | .0049 | 75.8 |
| 180. | 2645.280 | .083 | .0154 | .0049 | 75.8 |
| 190. | 2792.240 | .079 | .0155 | .0048 | 76.3 |
| 200. | 2939.200 | .075 | .0156 | .0047 | 76.8 |
| 220. | 3233.120 | .068 | .0158 | .0045 | 77.8 |
| 240. | 3527.040 | .062 | .0162 | .0041 | 79.8 |
| 260. | 3820.960 | .057 | .0163 | .0040 | 80.3 |
| 280. | 4114.880 | .053 | .0164 | .0039 | 80.8 |
| 300. | 4408.800 | .050 | .0167 | .0037 | 81.8 |
| 330. | 4849.680 | .045 | .0169 | .0035 | 82.8 |
| 360. | 5290.560 | .041 | .0171 | .0033 | 83.8 |
| 390. | 5731.440 | .038 | .0173 | .0031 | 84.8 |
| 420. | 6172.320 | .035 | .0175 | .0029 | 85.9 |
| 450. | 6613.200 | .033 | .0177 | .0027 | 86.9 |
| 490. | 7201.040 | .030 | .0179 | .0025 | 87.9 |
| 510. | 7494.960 | .029 | .0181 | .0023 | 88.9 |
| 540. | 7935.840 | .027 | .0181 | .0023 | 88.9 |
| 590. | 8670.640 | .025 | .0185 | .0019 | 90.9 |
| 610. | 8964.560 | .024 | .0186 | .0017 | 91.4 |
| 640. | 9405.440 | .023 | .0186 | .0017 | 91.4 |
| 700. | 10287.200 | .021 | .0189 | .0014 | 92.9 |
| 740. | 10875.040 | .020 | .0191 | .0012 | 93.9 |
| 770. | 11315.920 | .019 | .0191 | .0012 | 93.9 |
| 800. | 11756.800 | .019 | .0193 | .0010 | 94.9 |
| 830. | 12197.680 | .018 | .0195 | .0008 | 96.0 |
| 860. | 12638.560 | .017 | .0197 | .0006 | 97.0 |
| 900. | 13226.400 | .017 | .0198 | .0005 | 97.5 |
| 930. | 13667.280 | .016 | .0201 | .0002 | 99.0 |
| 960. | 13961.200 | .016 | .0204 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0204 | .0000 | 100.0 |



UGR File #211 Appedix A
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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6144.

SEQUENCE NUMBER 5
PORE VOLUME .021 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0210 | .0 |
| 2. | 29.392 | 7.500 | .0007 | .0203 | 3.6 |
| 3. | 44.088 | 5.000 | .0007 | .0203 | 3.6 |
| 4. | 58.784 | 3.700 | .0007 | .0203 | 3.6 |
| 5. | 73.480 | 3.000 | .0009 | .0202 | 4.1 |
| 6. | 88.176 | 2.500 | .0010 | .0201 | 4.6 |
| 7. | 102.872 | 2.100 | .0010 | .0201 | 4.6 |
| 8. | 117.568 | 1.800 | .0010 | .0201 | 4.6 |
| 9. | 132.264 | 1.600 | .0013 | .0197 | 6.1 |
| 10. | 146.960 | 1.500 | .0017 | .0193 | 6.1 |
| 11. | 161.656 | 1.400 | .0021 | .0189 | 10.2 |
| 12. | 176.352 | 1.300 | .0023 | .0187 | 11.2 |
| 13. | 191.048 | 1.200 | .0028 | .0182 | 13.2 |
| 14. | 205.744 | 1.100 | .0031 | .0179 | 14.7 |
| 15. | 220.440 | 1.000 | .0034 | .0176 | 16.2 |
| 16. | 235.136 | .930 | .0038 | .0172 | 18.3 |
| 17. | 249.832 | .880 | .0043 | .0167 | 20.3 |
| 18. | 264.528 | .830 | .0047 | .0163 | 22.3 |
| 19. | 279.224 | .790 | .0051 | .0159 | 24.4 |
| 20. | 293.920 | .750 | .0053 | .0157 | 25.4 |
| 25. | 367.400 | .600 | .0053 | .0157 | 25.4 |
| 30. | 440.880 | .500 | .0053 | .0157 | 25.4 |
| 35. | 514.360 | .430 | .0063 | .0147 | 29.9 |
| 40. | 587.840 | .370 | .0073 | .0137 | 34.5 |
| 45. | 661.320 | .330 | .0078 | .0132 | 37.1 |
| 50. | 734.800 | .300 | .0078 | .0132 | 37.1 |
| 55. | 808.280 | .270 | .0087 | .0123 | 41.6 |
| 60. | 881.760 | .250 | .0092 | .0118 | 43.7 |
| 65. | 955.240 | .230 | .0098 | .0112 | 46.7 |
| 70. | 1028.720 | .210 | .0105 | .0106 | 49.7 |
| 75. | 1102.200 | .200 | .0108 | .0102 | 51.3 |
| 80. | 1175.680 | .180 | .0111 | .0099 | 52.8 |
| 85. | 1249.160 | .170 | .0115 | .0095 | 54.8 |



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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6144.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0119 | .0091 | 56.9 |
| 100. | 1469.600 | .150 | .0122 | .0089 | 57.9 |
| 110. | 1616.560 | .140 | .0124 | .0086 | 58.9 |
| 120. | 1763.520 | .130 | .0126 | .0084 | 59.9 |
| 130. | 1910.480 | .120 | .0128 | .0082 | 60.9 |
| 140. | 2057.440 | .110 | .0133 | .0077 | 63.5 |
| 150. | 2204.400 | .100 | .0133 | .0077 | 63.5 |
| 170. | 2498.320 | .088 | .0139 | .0071 | 66.0 |
| 180. | 2645.280 | .083 | .0139 | .0071 | 66.0 |
| 190. | 2792.240 | .079 | .0142 | .0068 | 67.5 |
| 200. | 2939.200 | .075 | .0144 | .0066 | 68.5 |
| 220. | 3233.120 | .068 | .0147 | .0063 | 70.1 |
| 240. | 3527.040 | .062 | .0149 | .0061 | 71.1 |
| 260. | 3820.960 | .057 | .0151 | .0059 | 72.1 |
| 280. | 4114.880 | .053 | .0156 | .0054 | 74.1 |
| 300. | 4408.800 | .050 | .0158 | .0052 | 75.1 |
| 330. | 4849.680 | .045 | .0160 | .0050 | 76.1 |
| 360. | 5290.560 | .041 | .0163 | .0047 | 77.7 |
| 390. | 5731.440 | .038 | .0165 | .0045 | 78.7 |
| 420. | 6172.320 | .035 | .0170 | .0041 | 80.7 |
| 450. | 6613.200 | .033 | .0172 | .0038 | 81.7 |
| 480. | 7201.040 | .030 | .0175 | .0035 | 83.2 |
| 510. | 7494.960 | .029 | .0177 | .0033 | 84.3 |
| 540. | 7835.840 | .027 | .0179 | .0031 | 85.3 |
| 590. | 8670.640 | .025 | .0185 | .0026 | 87.8 |
| 610. | 8964.560 | .024 | .0185 | .0026 | 87.8 |
| 640. | 9405.440 | .023 | .0189 | .0021 | 89.8 |
| 700. | 10287.200 | .021 | .0192 | .0018 | 91.4 |
| 740. | 10875.040 | .020 | .0194 | .0016 | 92.4 |
| 770. | 11315.920 | .019 | .0195 | .0015 | 92.9 |
| 800. | 11756.800 | .019 | .0197 | .0013 | 93.9 |
| 830. | 12197.680 | .018 | .0198 | .0012 | 94.4 |
| 860. | 12638.560 | .017 | .0202 | .0009 | 95.9 |
| 900. | 13226.400 | .017 | .0205 | .0006 | 97.5 |
| 930. | 13667.280 | .016 | .0207 | .0003 | 98.5 |
| 960. | 13961.200 | .016 | .0209 | .0001 | 99.5 |
| 1000. | 14696.000 | .014 | .0210 | .0000 | 100.0 |



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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6164.

SEQUENCE NUMBER 7
PORE VOLUME .017 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0171 | .0 |
| 2. | 29.392 | 7.500 | .0007 | .0164 | 4.2 |
| 3. | 44.088 | 5.000 | .0007 | .0164 | 4.2 |
| 4. | 58.784 | 3.700 | .0008 | .0163 | 4.9 |
| 5. | 73.480 | 3.000 | .0008 | .0163 | 4.9 |
| 6. | 88.176 | 2.500 | .0008 | .0163 | 4.9 |
| 7. | 102.872 | 2.100 | .0008 | .0163 | 4.9 |
| 8. | 117.568 | 1.800 | .0008 | .0163 | 4.9 |
| 9. | 132.264 | 1.600 | .0008 | .0163 | 4.9 |
| 10. | 146.960 | 1.500 | .0010 | .0162 | 5.6 |
| 11. | 161.656 | 1.400 | .0010 | .0162 | 5.6 |
| 12. | 176.352 | 1.300 | .0010 | .0162 | 5.6 |
| 13. | 191.048 | 1.200 | .0010 | .0162 | 5.6 |
| 14. | 205.744 | 1.100 | .0010 | .0162 | 5.6 |
| 15. | 220.440 | 1.000 | .0011 | .0161 | 6.3 |
| 16. | 235.136 | .930 | .0011 | .0161 | 6.3 |
| 17. | 249.832 | .880 | .0011 | .0161 | 6.3 |
| 18. | 264.528 | .830 | .0011 | .0161 | 6.3 |
| 19. | 279.224 | .790 | .0011 | .0161 | 6.3 |
| 20. | 293.920 | .750 | .0017 | .0155 | 9.7 |
| 25. | 367.400 | .600 | .0020 | .0151 | 11.8 |
| 30. | 440.880 | .500 | .0024 | .0148 | 13.9 |
| 35. | 514.360 | .430 | .0031 | .0140 | 18.1 |
| 40. | 587.840 | .370 | .0038 | .0133 | 22.2 |
| 45. | 661.320 | .330 | .0048 | .0124 | 27.8 |
| 50. | 734.800 | .300 | .0057 | .0114 | 33.3 |
| 55. | 808.280 | .270 | .0063 | .0108 | 36.8 |
| 60. | 881.760 | .250 | .0069 | .0102 | 40.3 |
| 65. | 955.240 | .230 | .0073 | .0099 | 42.4 |
| 70. | 1028.720 | .210 | .0076 | .0095 | 44.4 |
| 75. | 1102.200 | .200 | .0081 | .0090 | 47.2 |
| 80. | 1175.680 | .180 | .0086 | .0086 | 50.0 |
| 85. | 1249.160 | .170 | .0089 | .0082 | 52.1 |

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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6164.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0093 | .0079 | 54.2 |
| 100. | 1469.600 | .150 | .0095 | .0076 | 55.6 |
| 110. | 1616.560 | .140 | .0099 | .0073 | 57.6 |
| 120. | 1763.520 | .130 | .0102 | .0069 | 59.7 |
| 130. | 1910.480 | .120 | .0105 | .0067 | 61.1 |
| 140. | 2057.440 | .110 | .0106 | .0065 | 61.8 |
| 150. | 2204.400 | .100 | .0106 | .0065 | 61.8 |
| 170. | 2498.320 | .088 | .0112 | .0060 | 65.3 |
| 180. | 2645.280 | .083 | .0115 | .0056 | 67.4 |
| 190. | 2792.240 | .079 | .0117 | .0055 | 68.1 |
| 200. | 2939.200 | .075 | .0119 | .0052 | 69.4 |
| 220. | 3233.120 | .068 | .0119 | .0052 | 69.4 |
| 240. | 3527.040 | .062 | .0121 | .0050 | 70.8 |
| 260. | 3820.960 | .057 | .0127 | .0044 | 74.3 |
| 280. | 4114.880 | .053 | .0127 | .0044 | 74.3 |
| 300. | 4408.800 | .050 | .0131 | .0040 | 76.4 |
| 330. | 4849.680 | .045 | .0132 | .0039 | 77.1 |
| 360. | 5290.560 | .041 | .0133 | .0038 | 77.8 |
| 390. | 5731.440 | .038 | .0136 | .0036 | 79.2 |
| 420. | 6172.320 | .035 | .0138 | .0033 | 80.6 |
| 450. | 6613.200 | .033 | .0143 | .0029 | 83.3 |
| 490. | 7201.040 | .030 | .0143 | .0029 | 83.3 |
| 510. | 7494.960 | .029 | .0145 | .0026 | 84.7 |
| 540. | 7935.840 | .027 | .0148 | .0024 | 86.1 |
| 590. | 8670.640 | .025 | .0150 | .0021 | 87.5 |
| 610. | 8964.560 | .024 | .0155 | .0017 | 90.3 |
| 640. | 9405.440 | .023 | .0155 | .0017 | 90.3 |
| 700. | 10287.200 | .021 | .0159 | .0012 | 93.1 |
| 740. | 10875.040 | .020 | .0162 | .0010 | 94.4 |
| 770. | 11315.920 | .019 | .0162 | .0010 | 94.4 |
| 800. | 11756.800 | .019 | .0162 | .0010 | 94.4 |
| 830. | 12197.680 | .018 | .0165 | .0006 | 96.5 |
| 860. | 12638.560 | .017 | .0168 | .0004 | 97.9 |
| 900. | 13226.400 | .017 | .0168 | .0004 | 97.9 |
| 930. | 13667.280 | .016 | .0169 | .0002 | 98.6 |
| 960. | 13961.200 | .016 | .0169 | .0002 | 98.6 |
| 1090. | 14696.000 | .014 | .0171 | .0000 | 100.0 |



UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6164.

SEQUENCE NUMBER 9
PORE VOLUME .029 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0291 | .0 |
| 2. | 29.392 | 7.500 | .0010 | .0281 | 3.4 |
| 3. | 44.088 | 5.000 | .0011 | .0280 | 3.8 |
| 4. | 58.784 | 3.700 | .0024 | .0267 | 8.3 |
| 5. | 73.480 | 3.000 | .0033 | .0258 | 11.3 |
| 6. | 88.176 | 2.500 | .0040 | .0252 | 13.6 |
| 7. | 102.872 | 2.100 | .0051 | .0241 | 17.4 |
| 8. | 117.568 | 1.800 | .0058 | .0233 | 20.0 |
| 9. | 132.264 | 1.600 | .0066 | .0225 | 22.6 |
| 10. | 146.960 | 1.500 | .0070 | .0221 | 24.2 |
| 11. | 161.656 | 1.400 | .0079 | .0212 | 27.2 |
| 12. | 176.352 | 1.300 | .0091 | .0200 | 31.3 |
| 13. | 191.048 | 1.200 | .0099 | .0192 | 34.0 |
| 14. | 205.744 | 1.100 | .0103 | .0188 | 35.5 |
| 15. | 220.440 | 1.000 | .0109 | .0182 | 37.4 |
| 16. | 235.136 | .930 | .0114 | .0177 | 39.2 |
| 17. | 249.832 | .880 | .0119 | .0173 | 40.9 |
| 18. | 264.528 | .830 | .0124 | .0167 | 42.6 |
| 19. | 279.224 | .790 | .0130 | .0162 | 44.5 |
| 20. | 293.920 | .750 | .0134 | .0157 | 46.0 |
| 25. | 367.400 | .600 | .0138 | .0153 | 47.5 |
| 30. | 440.880 | .500 | .0143 | .0148 | 49.1 |
| 35. | 514.360 | .430 | .0154 | .0137 | 52.8 |
| 40. | 587.840 | .370 | .0165 | .0126 | 56.6 |
| 45. | 661.320 | .330 | .0170 | .0121 | 58.5 |
| 50. | 734.800 | .300 | .0176 | .0115 | 60.4 |
| 55. | 808.280 | .270 | .0181 | .0110 | 62.3 |
| 60. | 881.760 | .250 | .0187 | .0104 | 64.2 |
| 65. | 955.240 | .230 | .0191 | .0100 | 65.7 |
| 70. | 1028.720 | .210 | .0196 | .0096 | 67.2 |
| 75. | 1102.200 | .200 | .0199 | .0092 | 68.3 |
| 80. | 1175.680 | .190 | .0202 | .0089 | 69.4 |
| 85. | 1249.160 | .170 | .0204 | .0087 | 70.2 |

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UGR File #211 AppendixA
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6184.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0207 | .0085 | 70.9 |
| 100. | 1469.600 | .150 | .0209 | .0082 | 71.7 |
| 110. | 1616.560 | .140 | .0211 | .0080 | 72.5 |
| 120. | 1763.520 | .130 | .0215 | .0076 | 74.0 |
| 130. | 1910.480 | .120 | .0218 | .0074 | 74.7 |
| 140. | 2057.440 | .110 | .0221 | .0070 | 75.8 |
| 150. | 2204.400 | .100 | .0222 | .0069 | 76.2 |
| 170. | 2498.320 | .088 | .0224 | .0067 | 77.0 |
| 180. | 2645.280 | .083 | .0230 | .0062 | 78.3 |
| 190. | 2792.240 | .079 | .0231 | .0060 | 79.2 |
| 200. | 2939.200 | .075 | .0231 | .0060 | 79.2 |
| 220. | 3233.120 | .068 | .0235 | .0056 | 80.8 |
| 240. | 3527.040 | .062 | .0240 | .0052 | 82.3 |
| 260. | 3820.960 | .057 | .0241 | .0051 | 82.6 |
| 280. | 4114.880 | .053 | .0242 | .0049 | 83.0 |
| 300. | 4408.800 | .050 | .0243 | .0048 | 83.4 |
| 330. | 4849.680 | .045 | .0246 | .0045 | 84.5 |
| 360. | 5290.560 | .041 | .0251 | .0041 | 86.0 |
| 390. | 5731.440 | .038 | .0253 | .0038 | 86.8 |
| 420. | 6172.320 | .035 | .0255 | .0036 | 87.5 |
| 450. | 6613.200 | .033 | .0257 | .0034 | 88.3 |
| 480. | 7201.040 | .030 | .0262 | .0030 | 89.8 |
| 510. | 7494.960 | .029 | .0263 | .0029 | 90.2 |
| 540. | 7935.840 | .027 | .0264 | .0027 | 90.6 |
| 580. | 8670.640 | .025 | .0268 | .0023 | 92.1 |
| 610. | 8964.560 | .024 | .0268 | .0023 | 92.1 |
| 640. | 9405.440 | .023 | .0270 | .0021 | 92.8 |
| 700. | 10287.200 | .021 | .0275 | .0016 | 94.3 |
| 740. | 10875.040 | .020 | .0276 | .0015 | 94.7 |
| 770. | 11315.920 | .019 | .0277 | .0014 | 95.1 |
| 800. | 11756.800 | .019 | .0279 | .0012 | 95.8 |
| 830. | 12197.680 | .018 | .0281 | .0010 | 96.6 |
| 860. | 12638.560 | .017 | .0283 | .0008 | 97.4 |
| 900. | 13226.400 | .017 | .0286 | .0005 | 98.1 |
| 930. | 13667.280 | .016 | .0287 | .0004 | 98.5 |
| 960. | 13961.200 | .016 | .0289 | .0002 | 99.2 |
| 1000. | 14696.000 | .014 | .0291 | .0000 | 100.0 |



UGR File #211 Appendix A
ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs

POROSITY DATA FOR SAMPLE V 7-62`4.

SEQUENCE NUMBER 11
PORE VOLUME .022 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0216 | .0 |
| 2. | 29.392 | 7.500 | .0008 | .0208 | 3.9 |
| 3. | 44.088 | 5.000 | .0010 | .0207 | 4.4 |
| 4. | 58.784 | 3.700 | .0010 | .0207 | 4.4 |
| 5. | 73.480 | 3.000 | .0014 | .0203 | 6.4 |
| 6. | 88.176 | 2.500 | .0021 | .0195 | 9.8 |
| 7. | 102.872 | 2.100 | .0025 | .0191 | 11.8 |
| 8. | 117.568 | 1.800 | .0032 | .0185 | 14.7 |
| 9. | 132.264 | 1.600 | .0037 | .0179 | 17.2 |
| 10. | 146.960 | 1.500 | .0040 | .0176 | 18.6 |
| 11. | 161.656 | 1.400 | .0046 | .0171 | 21.1 |
| 12. | 176.352 | 1.300 | .0053 | .0163 | 24.5 |
| 13. | 191.048 | 1.200 | .0059 | .0157 | 27.5 |
| 14. | 205.744 | 1.100 | .0066 | .0151 | 30.4 |
| 15. | 220.440 | 1.000 | .0072 | .0144 | 33.3 |
| 16. | 235.136 | .930 | .0074 | .0142 | 34.3 |
| 17. | 249.832 | .880 | .0081 | .0136 | 37.3 |
| 18. | 264.528 | .830 | .0087 | .0129 | 40.2 |
| 19. | 279.224 | .790 | .0090 | .0126 | 41.7 |
| 20. | 293.920 | .750 | .0095 | .0121 | 44.1 |
| 25. | 367.400 | .600 | .0095 | .0121 | 44.1 |
| 30. | 440.880 | .500 | .0095 | .0121 | 44.1 |
| 35. | 514.360 | .430 | .0112 | .0104 | 52.0 |
| 40. | 587.840 | .370 | .0115 | .0102 | 52.9 |
| 45. | 661.320 | .330 | .0117 | .0100 | 53.9 |
| 50. | 734.800 | .300 | .0127 | .0089 | 58.8 |
| 55. | 808.280 | .270 | .0133 | .0084 | 61.3 |
| 60. | 881.760 | .250 | .0138 | .0079 | 63.7 |
| 65. | 955.240 | .230 | .0140 | .0076 | 64.7 |
| 70. | 1028.720 | .210 | .0142 | .0074 | 65.7 |
| 75. | 1102.200 | .200 | .0145 | .0071 | 67.2 |
| 80. | 1175.680 | .180 | .0149 | .0068 | 68.6 |
| 85. | 1249.160 | .170 | .0151 | .0066 | 69.6 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6204.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0153 | .0064 | 70.6 |
| 100. | 1469.600 | .150 | .0155 | .0062 | 71.6 |
| 110. | 1616.560 | .140 | .0158 | .0058 | 73.0 |
| 120. | 1763.520 | .130 | .0159 | .0057 | 73.5 |
| 130. | 1910.480 | .120 | .0161 | .0055 | 74.5 |
| 140. | 2057.440 | .110 | .0167 | .0050 | 77.0 |
| 150. | 2204.400 | .100 | .0167 | .0050 | 77.0 |
| 170. | 2498.320 | .088 | .0170 | .0047 | 78.4 |
| 180. | 2645.280 | .083 | .0170 | .0047 | 78.4 |
| 190. | 2792.240 | .079 | .0170 | .0047 | 78.4 |
| 200. | 2939.200 | .075 | .0172 | .0045 | 79.4 |
| 220. | 3233.120 | .068 | .0174 | .0042 | 80.4 |
| 240. | 3527.040 | .062 | .0178 | .0039 | 82.4 |
| 260. | 3920.960 | .057 | .0179 | .0037 | 82.8 |
| 280. | 4114.880 | .053 | .0180 | .0036 | 83.3 |
| 300. | 4408.800 | .050 | .0180 | .0036 | 83.3 |
| 330. | 4849.680 | .045 | .0182 | .0034 | 84.3 |
| 360. | 5290.560 | .041 | .0186 | .0031 | 85.8 |
| 390. | 5731.440 | .038 | .0189 | .0028 | 87.3 |
| 420. | 6172.320 | .035 | .0190 | .0027 | 87.7 |
| 450. | 6613.200 | .033 | .0191 | .0025 | 88.2 |
| 480. | 7201.040 | .030 | .0193 | .0023 | 89.2 |
| 510. | 7494.960 | .029 | .0194 | .0022 | 89.7 |
| 540. | 7935.840 | .027 | .0197 | .0019 | 91.2 |
| 590. | 8670.640 | .025 | .0201 | .0016 | 92.6 |
| 610. | 8964.560 | .024 | .0201 | .0016 | 92.6 |
| 640. | 9405.440 | .023 | .0203 | .0014 | 93.6 |
| 700. | 10287.200 | .021 | .0204 | .0013 | 94.1 |
| 740. | 10875.040 | .020 | .0206 | .0011 | 95.1 |
| 770. | 11315.920 | .019 | .0208 | .0008 | 96.1 |
| 800. | 11756.800 | .019 | .0210 | .0006 | 97.1 |
| 830. | 12197.680 | .018 | .0211 | .0005 | 97.5 |
| 860. | 12638.560 | .017 | .0211 | .0005 | 97.5 |
| 900. | 13226.400 | .017 | .0213 | .0003 | 98.5 |
| 930. | 13667.280 | .016 | .0214 | .0002 | 99.0 |
| 960. | 14061.200 | .016 | .0216 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0216 | .0000 | 100.0 |

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ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6224.

SEQUENCE NUMBER 13
PORE VOLUME .022 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0225 | .0 |
| 2. | 29.392 | 7.500 | .0008 | .0217 | 3.4 |
| 3. | 44.089 | 5.000 | .0009 | .0216 | 3.9 |
| 4. | 58.784 | 3.700 | .0010 | .0215 | 4.3 |
| 5. | 73.480 | 3.000 | .0016 | .0209 | 6.9 |
| 6. | 88.176 | 2.500 | .0019 | .0206 | 8.6 |
| 7. | 102.872 | 2.100 | .0025 | .0200 | 11.2 |
| 8. | 117.568 | 1.800 | .0029 | .0196 | 12.9 |
| 9. | 132.264 | 1.600 | .0037 | .0188 | 16.4 |
| 10. | 146.960 | 1.500 | .0041 | .0184 | 18.1 |
| 11. | 161.656 | 1.400 | .0048 | .0177 | 21.1 |
| 12. | 176.352 | 1.300 | .0051 | .0174 | 22.8 |
| 13. | 191.048 | 1.200 | .0056 | .0169 | 25.0 |
| 14. | 205.744 | 1.100 | .0062 | .0163 | 27.6 |
| 15. | 220.440 | 1.000 | .0068 | .0157 | 30.2 |
| 16. | 235.136 | .930 | .0073 | .0152 | 32.3 |
| 17. | 249.832 | .880 | .0078 | .0147 | 34.5 |
| 18. | 264.528 | .830 | .0085 | .0140 | 37.9 |
| 19. | 279.224 | .790 | .0091 | .0134 | 40.5 |
| 20. | 293.920 | .750 | .0093 | .0132 | 41.4 |
| 25. | 367.400 | .600 | .0095 | .0130 | 42.2 |
| 30. | 440.880 | .500 | .0097 | .0128 | 43.1 |
| 35. | 514.360 | .430 | .0107 | .0118 | 47.4 |
| 40. | 587.840 | .370 | .0116 | .0109 | 51.7 |
| 45. | 661.320 | .330 | .0126 | .0099 | 56.0 |
| 50. | 734.800 | .300 | .0136 | .0089 | 60.3 |
| 55. | 808.280 | .270 | .0140 | .0085 | 62.1 |
| 62. | 881.760 | .250 | .0143 | .0081 | 63.4 |
| 65. | 955.240 | .230 | .0146 | .0078 | 65.1 |
| 70. | 1028.720 | .210 | .0149 | .0076 | 66.4 |
| 75. | 1102.200 | .200 | .0152 | .0073 | 67.7 |
| 80. | 1175.680 | .180 | .0155 | .0070 | 69.0 |
| 85. | 1249.160 | .170 | .0157 | .0064 | 69.9 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6224.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0159 | .0066 | 70.7 |
| 100. | 1469.600 | .150 | .0161 | .0064 | 71.6 |
| 110. | 1616.560 | .140 | .0164 | .0061 | 72.8 |
| 120. | 1763.520 | .130 | .0165 | .0060 | 73.3 |
| 130. | 1910.440 | .120 | .0166 | .0059 | 73.7 |
| 140. | 2057.440 | .110 | .0167 | .0058 | 74.1 |
| 150. | 2204.400 | .100 | .0173 | .0052 | 76.7 |
| 170. | 2498.320 | .088 | .0175 | .0049 | 78.0 |
| 180. | 2645.240 | .083 | .0175 | .0049 | 78.0 |
| 190. | 2792.240 | .079 | .0175 | .0049 | 78.0 |
| 200. | 2939.200 | .075 | .0177 | .0048 | 78.9 |
| 220. | 3233.120 | .068 | .0180 | .0045 | 80.2 |
| 240. | 3527.040 | .062 | .0182 | .0043 | 81.0 |
| 260. | 3820.960 | .057 | .0184 | .0041 | 81.9 |
| 280. | 4114.880 | .053 | .0185 | .0040 | 82.3 |
| 300. | 4408.800 | .050 | .0186 | .0039 | 82.8 |
| 330. | 4849.680 | .045 | .0188 | .0037 | 83.6 |
| 360. | 5290.560 | .041 | .0192 | .0033 | 85.3 |
| 390. | 5731.440 | .038 | .0195 | .0030 | 86.6 |
| 420. | 6172.320 | .035 | .0197 | .0028 | 87.5 |
| 450. | 6613.200 | .033 | .0198 | .0027 | 87.9 |
| 490. | 7201.040 | .030 | .0200 | .0025 | 88.8 |
| 510. | 7494.960 | .029 | .0202 | .0023 | 89.7 |
| 540. | 7935.840 | .027 | .0204 | .0021 | 90.5 |
| 590. | 8670.640 | .025 | .0235 | ***** | 104.3 |
| 610. | 8964.560 | .024 | .0206 | .0019 | 91.4 |
| 640. | 9405.440 | .023 | .0209 | .0016 | 93.1 |
| 700. | 10287.200 | .021 | .0212 | .0013 | 94.4 |
| 740. | 10875.040 | .020 | .0212 | .0013 | 94.4 |
| 770. | 11315.920 | .019 | .0213 | .0012 | 94.8 |
| 800. | 11756.800 | .019 | .0217 | .0008 | 96.6 |
| 830. | 12197.680 | .018 | .0217 | .0008 | 96.6 |
| 860. | 12638.560 | .017 | .0219 | .0006 | 97.4 |
| 900. | 13226.400 | .017 | .0221 | .0004 | 98.3 |
| 930. | 13667.280 | .016 | .0223 | .0002 | 99.1 |
| 960. | 13961.200 | .016 | .0225 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0225 | .0000 | 100.0 |

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ORO-52-5-11-1
August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6244.

SEQUENCE NUMBER 15
PORE VOLUME .017 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.635 | 15.000 | .0000 | .0175 | .0 |
| 2. | 29.332 | 7.500 | .0007 | .0168 | 3.8 |
| 3. | 44.084 | 5.000 | .0008 | .0167 | 4.3 |
| 4. | 58.784 | 3.700 | .0009 | .0166 | 4.3 |
| 5. | 73.480 | 3.000 | .0011 | .0163 | 6.5 |
| 6. | 88.176 | 2.500 | .0011 | .0163 | 6.5 |
| 7. | 102.872 | 2.100 | .0015 | .0160 | 8.7 |
| 8. | 117.568 | 1.800 | .0019 | .0156 | 10.9 |
| 9. | 132.264 | 1.600 | .0019 | .0156 | 10.9 |
| 10. | 146.960 | 1.500 | .0023 | .0152 | 13.0 |
| 11. | 161.656 | 1.400 | .0027 | .0148 | 15.2 |
| 12. | 176.352 | 1.300 | .0032 | .0142 | 18.5 |
| 13. | 191.048 | 1.200 | .0036 | .0139 | 20.7 |
| 14. | 205.744 | 1.100 | .0041 | .0134 | 23.4 |
| 15. | 220.440 | 1.000 | .0044 | .0131 | 25.0 |
| 16. | 235.136 | .930 | .0047 | .0128 | 26.6 |
| 17. | 249.832 | .880 | .0051 | .0123 | 29.3 |
| 18. | 264.528 | .830 | .0054 | .0121 | 31.0 |
| 19. | 279.224 | .790 | .0057 | .0118 | 32.6 |
| 20. | 293.920 | .750 | .0063 | .0112 | 35.9 |
| 25. | 367.400 | .600 | .0063 | .0112 | 35.9 |
| 30. | 440.880 | .500 | .0063 | .0112 | 35.9 |
| 35. | 514.360 | .430 | .0066 | .0109 | 38.0 |
| 40. | 587.840 | .370 | .0072 | .0103 | 41.3 |
| 45. | 661.320 | .330 | .0080 | .0095 | 45.7 |
| 50. | 734.800 | .300 | .0087 | .0088 | 50.0 |
| 55. | 808.280 | .270 | .0092 | .0083 | 52.7 |
| 60. | 881.760 | .250 | .0097 | .0078 | 55.4 |
| 65. | 955.240 | .230 | .0101 | .0074 | 57.6 |
| 70. | 1028.720 | .210 | .0104 | .0070 | 59.8 |
| 75. | 1102.200 | .200 | .0106 | .0068 | 60.9 |
| 80. | 1175.680 | .180 | .0108 | .0066 | 62.0 |
| 85. | 1249.160 | .170 | .0110 | .0065 | 63.0 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6244.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0112 | .0063 | 64.1 |
| 100. | 1469.600 | .150 | .0114 | .0061 | 65.2 |
| 110. | 1616.560 | .140 | .0116 | .0059 | 66.3 |
| 120. | 1763.520 | .130 | .0118 | .0057 | 67.4 |
| 130. | 1910.480 | .120 | .0120 | .0055 | 68.5 |
| 140. | 2057.440 | .110 | .0122 | .0053 | 69.6 |
| 150. | 2204.400 | .100 | .0123 | .0051 | 70.7 |
| 170. | 2498.320 | .088 | .0125 | .0049 | 71.7 |
| 180. | 2645.280 | .083 | .0129 | .0046 | 73.9 |
| 190. | 2792.240 | .079 | .0131 | .0044 | 75.0 |
| 200. | 2939.200 | .075 | .0131 | .0044 | 75.0 |
| 220. | 3233.120 | .069 | .0133 | .0042 | 76.1 |
| 240. | 3527.040 | .062 | .0134 | .0041 | 76.6 |
| 260. | 3820.960 | .057 | .0137 | .0038 | 78.3 |
| 290. | 4114.880 | .053 | .0139 | .0036 | 79.3 |
| 300. | 4408.800 | .050 | .0141 | .0034 | 80.4 |
| 330. | 4949.680 | .045 | .0142 | .0032 | 81.5 |
| 360. | 5290.560 | .041 | .0142 | .0032 | 81.5 |
| 390. | 5731.440 | .038 | .0143 | .0031 | 82.1 |
| 420. | 6172.320 | .035 | .0145 | .0029 | 83.2 |
| 450. | 6613.200 | .033 | .0147 | .0028 | 84.2 |
| 490. | 7201.040 | .030 | .0149 | .0026 | 85.3 |
| 510. | 7494.960 | .029 | .0151 | .0024 | 86.4 |
| 540. | 7935.840 | .027 | .0151 | .0024 | 86.4 |
| 590. | 8670.640 | .025 | .0155 | .0021 | 88.6 |
| 610. | 8964.560 | .024 | .0155 | .0020 | 88.6 |
| 640. | 9405.440 | .023 | .0158 | .0017 | 90.2 |
| 700. | 10287.200 | .021 | .0161 | .0015 | 92.4 |
| 740. | 10875.040 | .020 | .0163 | .0011 | 93.5 |
| 770. | 11315.920 | .019 | .0163 | .0011 | 93.5 |
| 800. | 11756.800 | .019 | .0165 | .0009 | 94.6 |
| 830. | 12197.680 | .018 | .0167 | .0008 | 95.7 |
| 860. | 12638.560 | .017 | .0169 | .0006 | 96.7 |
| 900. | 13226.400 | .017 | .0170 | .0005 | 97.3 |
| 930. | 13667.280 | .016 | .0173 | .0002 | 98.9 |
| 960. | 13961.200 | .016 | .0175 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0175 | .0000 | 100.0 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6264.

SEQUENCE NUMBER 17
PORE VOLUME .025 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0249 | .0 |
| 2. | 29.392 | 7.500 | .0008 | .0241 | 3.2 |
| 3. | 44.088 | 5.000 | .0009 | .0240 | 3.6 |
| 4. | 58.784 | 3.700 | .0016 | .0233 | 6.5 |
| 5. | 73.480 | 3.000 | .0020 | .0230 | 7.9 |
| 6. | 88.176 | 2.500 | .0027 | .0223 | 10.8 |
| 7. | 102.872 | 2.100 | .0031 | .0219 | 12.2 |
| 8. | 117.568 | 1.800 | .0036 | .0214 | 14.4 |
| 9. | 132.264 | 1.600 | .0043 | .0206 | 17.3 |
| 10. | 146.960 | 1.500 | .0048 | .0202 | 19.1 |
| 11. | 161.656 | 1.400 | .0054 | .0196 | 21.6 |
| 12. | 176.352 | 1.300 | .0060 | .0189 | 24.1 |
| 13. | 191.048 | 1.200 | .0063 | .0187 | 25.2 |
| 14. | 205.744 | 1.100 | .0072 | .0178 | 28.8 |
| 15. | 220.440 | 1.000 | .0079 | .0171 | 31.7 |
| 16. | 235.136 | .930 | .0085 | .0164 | 34.2 |
| 17. | 249.832 | .880 | .0090 | .0160 | 36.0 |
| 18. | 264.528 | .830 | .0095 | .0154 | 38.1 |
| 19. | 279.224 | .790 | .0102 | .0147 | 41.0 |
| 20. | 293.920 | .750 | .0108 | .0142 | 43.2 |
| 25. | 367.400 | .600 | .0109 | .0141 | 43.9 |
| 30. | 440.880 | .500 | .0111 | .0138 | 44.6 |
| 35. | 514.360 | .430 | .0123 | .0127 | 49.3 |
| 40. | 587.840 | .370 | .0135 | .0115 | 54.0 |
| 45. | 661.320 | .330 | .0145 | .0104 | 58.3 |
| 50. | 734.800 | .300 | .0157 | .0092 | 62.9 |
| 55. | 808.280 | .270 | .0163 | .0086 | 65.5 |
| 60. | 881.760 | .250 | .0171 | .0079 | 68.3 |
| 65. | 955.240 | .230 | .0173 | .0076 | 69.4 |
| 70. | 1028.720 | .210 | .0176 | .0074 | 70.5 |
| 75. | 1102.200 | .200 | .0179 | .0071 | 71.6 |
| 80. | 1175.680 | .180 | .0181 | .0068 | 72.7 |
| 85. | 1249.160 | .170 | .0184 | .0066 | 73.7 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6284.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0187 | .0063 | 74.8 |
| 100. | 1469.600 | .150 | .0188 | .0061 | 75.5 |
| 110. | 1616.560 | .140 | .0190 | .0059 | 76.3 |
| 120. | 1763.520 | .130 | .0193 | .0057 | 77.3 |
| 130. | 1910.480 | .120 | .0193 | .0057 | 77.3 |
| 140. | 2057.440 | .110 | .0197 | .0052 | 79.1 |
| 150. | 2204.400 | .100 | .0199 | .0050 | 79.9 |
| 170. | 2498.320 | .088 | .0203 | .0047 | 81.3 |
| 180. | 2645.280 | .083 | .0203 | .0047 | 81.3 |
| 190. | 2792.240 | .079 | .0203 | .0047 | 81.3 |
| 200. | 2939.200 | .075 | .0206 | .0043 | 82.7 |
| 220. | 3233.120 | .068 | .0208 | .0041 | 83.5 |
| 240. | 3527.040 | .062 | .0210 | .0039 | 84.2 |
| 260. | 3820.960 | .057 | .0214 | .0035 | 86.0 |
| 280. | 4114.880 | .053 | .0214 | .0035 | 86.0 |
| 300. | 4408.800 | .050 | .0215 | .0034 | 86.3 |
| 330. | 4849.680 | .045 | .0217 | .0032 | 87.1 |
| 360. | 5290.560 | .041 | .0220 | .0030 | 88.1 |
| 390. | 5731.440 | .038 | .0223 | .0027 | 89.2 |
| 420. | 6172.320 | .035 | .0223 | .0026 | 89.6 |
| 450. | 6613.200 | .033 | .0226 | .0023 | 90.6 |
| 480. | 7201.040 | .030 | .0226 | .0023 | 90.6 |
| 510. | 7494.960 | .029 | .0228 | .0022 | 91.4 |
| 540. | 7935.840 | .027 | .0230 | .0020 | 92.1 |
| 590. | 8670.640 | .025 | .0232 | .0017 | 93.2 |
| 610. | 8964.560 | .024 | .0233 | .0016 | 93.5 |
| 640. | 9405.440 | .023 | .0237 | .0013 | 95.0 |
| 700. | 10287.200 | .021 | .0238 | .0012 | 95.3 |
| 740. | 10875.040 | .020 | .0238 | .0012 | 95.3 |
| 770. | 11315.920 | .019 | .0241 | .0008 | 96.8 |
| 800. | 11756.800 | .019 | .0243 | .0006 | 97.5 |
| 830. | 12197.680 | .018 | .0243 | .0006 | 97.5 |
| 860. | 12638.560 | .017 | .0246 | .0004 | 98.6 |
| 900. | 13226.400 | .017 | .0248 | .0002 | 99.3 |
| 930. | 13667.280 | .016 | .0248 | .0002 | 99.3 |
| 960. | 13961.200 | .016 | .0249 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0249 | .0000 | 100.0 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6283.

SEQUENCE NUMBER 19
PORE VOLUME .021 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0211 | .0 |
| 2. | 29.392 | 7.500 | .0008 | .0203 | 4.0 |
| 3. | 44.088 | 5.000 | .0010 | .0202 | 4.5 |
| 4. | 58.784 | 3.700 | .0011 | .0201 | 5.1 |
| 5. | 73.480 | 3.000 | .0011 | .0201 | 5.1 |
| 6. | 88.176 | 2.500 | .0012 | .0199 | 5.7 |
| 7. | 102.872 | 2.100 | .0014 | .0197 | 6.8 |
| 8. | 117.568 | 1.800 | .0022 | .0190 | 10.2 |
| 9. | 132.264 | 1.600 | .0024 | .0187 | 11.4 |
| 10. | 146.960 | 1.500 | .0028 | .0184 | 13.1 |
| 11. | 161.656 | 1.400 | .0031 | .0180 | 14.6 |
| 12. | 176.352 | 1.300 | .0036 | .0175 | 17.0 |
| 13. | 191.048 | 1.200 | .0040 | .0172 | 18.8 |
| 14. | 205.744 | 1.100 | .0043 | .0168 | 20.5 |
| 15. | 220.440 | 1.000 | .0048 | .0163 | 22.7 |
| 16. | 235.136 | .930 | .0052 | .0160 | 24.4 |
| 17. | 249.832 | .880 | .0053 | .0158 | 25.0 |
| 18. | 264.528 | .830 | .0060 | .0151 | 28.4 |
| 19. | 279.224 | .790 | .0062 | .0149 | 29.5 |
| 20. | 293.920 | .750 | .0065 | .0146 | 30.7 |
| 25. | 367.400 | .600 | .0066 | .0145 | 31.3 |
| 30. | 440.880 | .500 | .0067 | .0144 | 31.8 |
| 35. | 514.360 | .430 | .0070 | .0142 | 33.0 |
| 40. | 587.840 | .370 | .0072 | .0139 | 34.1 |
| 45. | 661.320 | .330 | .0079 | .0132 | 37.5 |
| 50. | 734.800 | .300 | .0086 | .0125 | 40.9 |
| 55. | 808.280 | .270 | .0098 | .0113 | 46.6 |
| 60. | 881.760 | .250 | .0110 | .0101 | 52.3 |
| 65. | 955.240 | .230 | .0115 | .0096 | 54.5 |
| 70. | 1028.720 | .210 | .0120 | .0091 | 56.8 |
| 75. | 1102.200 | .200 | .0122 | .0089 | 58.0 |
| 80. | 1175.680 | .180 | .0125 | .0086 | 59.1 |
| 85. | 1249.160 | .170 | .0127 | .0084 | 60.2 |

POROSITY DATA FOR SAMPLE V 7-6283.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0130 | .0082 | 61.4 |
| 100. | 1469.600 | .150 | .0133 | .0078 | 63.1 |
| 110. | 1616.560 | .140 | .0134 | .0077 | 63.6 |
| 120. | 1763.520 | .130 | .0140 | .0071 | 66.5 |
| 130. | 1910.480 | .120 | .0142 | .0070 | 67.0 |
| 140. | 2057.440 | .110 | .0144 | .0067 | 68.2 |
| 150. | 2204.400 | .100 | .0144 | .0067 | 68.2 |
| 170. | 2498.320 | .088 | .0151 | .0060 | 71.6 |
| 180. | 2645.280 | .083 | .0154 | .0058 | 72.7 |
| 190. | 2792.240 | .079 | .0154 | .0058 | 72.7 |
| 200. | 2939.200 | .075 | .0155 | .0056 | 73.3 |
| 220. | 3233.120 | .068 | .0156 | .0055 | 73.9 |
| 240. | 3527.040 | .062 | .0156 | .0055 | 73.9 |
| 260. | 3820.960 | .057 | .0161 | .0050 | 76.1 |
| 280. | 4114.880 | .053 | .0166 | .0046 | 78.4 |
| 300. | 4408.800 | .050 | .0167 | .0044 | 79.0 |
| 330. | 4849.680 | .045 | .0168 | .0043 | 79.5 |
| 360. | 5290.560 | .041 | .0171 | .0041 | 80.7 |
| 390. | 5731.440 | .038 | .0173 | .0038 | 81.8 |
| 420. | 6172.320 | .035 | .0177 | .0035 | 83.5 |
| 450. | 6613.200 | .033 | .0177 | .0035 | 83.5 |
| 490. | 7201.040 | .030 | .0181 | .0031 | 85.8 |
| 510. | 7494.960 | .029 | .0181 | .0030 | 85.9 |
| 540. | 7935.840 | .027 | .0185 | .0026 | 87.5 |
| 590. | 8670.640 | .025 | .0187 | .0024 | 88.6 |
| 610. | 8964.560 | .024 | .0190 | .0022 | 89.8 |
| 640. | 9405.440 | .023 | .0190 | .0022 | 89.8 |
| 700. | 10287.200 | .021 | .0197 | .0014 | 93.2 |
| 740. | 10875.040 | .020 | .0197 | .0014 | 93.2 |
| 770. | 11315.920 | .019 | .0199 | .0012 | 94.3 |
| 800. | 11756.800 | .019 | .0199 | .0012 | 94.3 |
| 830. | 12197.680 | .018 | .0203 | .0008 | 96.0 |
| 860. | 12638.560 | .017 | .0205 | .0006 | 97.2 |
| 900. | 13226.400 | .017 | .0205 | .0006 | 97.2 |
| 930. | 13667.280 | .016 | .0207 | .0005 | 97.7 |
| 960. | 13961.200 | .016 | .0207 | .0005 | 97.7 |
| 1000. | 14696.000 | .014 | .0211 | .0000 | 100.0 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-63.3.

SEQUENCE NUMBER 21
PORE VOLUME .033 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0332 | .0 |
| 2. | 29.392 | 7.500 | .0010 | .0322 | 3.1 |
| 3. | 44.088 | 5.000 | .0012 | .0321 | 3.5 |
| 4. | 58.784 | 3.700 | .0013 | .0319 | 3.9 |
| 5. | 73.480 | 3.000 | .0013 | .0319 | 3.9 |
| 6. | 88.176 | 2.500 | .0013 | .0319 | 3.9 |
| 7. | 102.872 | 2.100 | .0024 | .0309 | 7.1 |
| 8. | 117.568 | 1.800 | .0026 | .0306 | 7.9 |
| 9. | 132.264 | 1.600 | .0026 | .0306 | 7.9 |
| 10. | 146.960 | 1.500 | .0031 | .0301 | 9.4 |
| 11. | 161.656 | 1.400 | .0039 | .0293 | 11.8 |
| 12. | 176.352 | 1.300 | .0044 | .0288 | 13.4 |
| 13. | 191.048 | 1.200 | .0050 | .0283 | 15.0 |
| 14. | 205.744 | 1.100 | .0055 | .0277 | 16.5 |
| 15. | 220.440 | 1.000 | .0058 | .0275 | 17.3 |
| 16. | 235.136 | .930 | .0063 | .0270 | 18.9 |
| 17. | 249.832 | .880 | .0068 | .0264 | 20.5 |
| 18. | 264.528 | .830 | .0071 | .0262 | 21.3 |
| 19. | 279.224 | .790 | .0079 | .0254 | 23.6 |
| 20. | 293.920 | .750 | .0084 | .0249 | 25.2 |
| 25. | 367.400 | .600 | .0085 | .0247 | 25.6 |
| 30. | 440.880 | .500 | .0086 | .0246 | 26.0 |
| 35. | 514.360 | .430 | .0094 | .0238 | 28.3 |
| 40. | 587.840 | .370 | .0102 | .0230 | 30.7 |
| 45. | 661.320 | .330 | .0113 | .0220 | 33.9 |
| 50. | 734.800 | .300 | .0123 | .0209 | 37.0 |
| 55. | 808.280 | .270 | .0128 | .0204 | 38.6 |
| 60. | 881.760 | .250 | .0133 | .0199 | 40.2 |
| 65. | 955.240 | .230 | .0140 | .0192 | 42.1 |
| 70. | 1028.720 | .210 | .0147 | .0186 | 44.1 |
| 75. | 1102.200 | .200 | .0161 | .0171 | 48.4 |
| 80. | 1175.680 | .180 | .0175 | .0157 | 52.8 |
| 85. | 1249.160 | .170 | .0200 | .0132 | 60.2 |

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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE W 7-6303.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0217 | .0115 | 65.4 |
| 100. | 1469.600 | .150 | .0229 | .0103 | 68.9 |
| 110. | 1616.560 | .140 | .0247 | .0095 | 74.4 |
| 120. | 1763.520 | .130 | .0249 | .0084 | 74.8 |
| 130. | 1910.480 | .120 | .0254 | .0079 | 76.4 |
| 140. | 2057.440 | .110 | .0259 | .0073 | 78.0 |
| 150. | 2204.400 | .100 | .0259 | .0073 | 78.0 |
| 170. | 2498.320 | .088 | .0263 | .0069 | 79.1 |
| 180. | 2645.280 | .083 | .0264 | .0068 | 79.5 |
| 190. | 2792.240 | .079 | .0264 | .0068 | 79.5 |
| 200. | 2939.200 | .075 | .0267 | .0065 | 80.3 |
| 220. | 3233.120 | .068 | .0272 | .0060 | 81.9 |
| 240. | 3527.040 | .062 | .0275 | .0058 | 82.7 |
| 260. | 3820.960 | .057 | .0276 | .0056 | 83.1 |
| 280. | 4114.880 | .053 | .0277 | .0055 | 83.5 |
| 300. | 4408.800 | .050 | .0283 | .0050 | 85.0 |
| 330. | 4849.680 | .045 | .0287 | .0046 | 86.2 |
| 360. | 5290.560 | .041 | .0288 | .0044 | 86.6 |
| 390. | 5731.440 | .038 | .0291 | .0042 | 87.4 |
| 420. | 6172.320 | .035 | .0293 | .0039 | 88.2 |
| 450. | 6613.200 | .033 | .0296 | .0037 | 89.0 |
| 480. | 7201.040 | .030 | .0298 | .0034 | 89.8 |
| 510. | 7494.960 | .029 | .0301 | .0031 | 90.6 |
| 540. | 7935.840 | .027 | .0302 | .0030 | 90.9 |
| 590. | 8670.640 | .025 | .0304 | .0029 | 91.3 |
| 610. | 8964.560 | .024 | .0306 | .0026 | 92.1 |
| 640. | 9405.440 | .023 | .0309 | .0024 | 92.9 |
| 700. | 10287.200 | .021 | .0314 | .0018 | 94.5 |
| 740. | 10875.040 | .020 | .0315 | .0017 | 94.9 |
| 770. | 11315.920 | .019 | .0317 | .0016 | 95.3 |
| 800. | 11756.800 | .019 | .0319 | .0013 | 96.1 |
| 830. | 12197.680 | .018 | .0321 | .0012 | 96.5 |
| 860. | 12638.560 | .017 | .0326 | .0007 | 98.0 |
| 930. | 13226.400 | .017 | .0327 | .0005 | 98.4 |
| 940. | 13667.280 | .016 | .0327 | .0005 | 98.4 |
| 960. | 13961.200 | .016 | .0330 | .0003 | 99.2 |
| 1000. | 14696.000 | .014 | .0332 | .0000 | 100.0 |

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UGR File #211 Appendix A
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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6323.

SEQUENCE NUMBER 23
PORE VOLUME .030 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0296 | .0 |
| 2. | 29.392 | 7.500 | .0009 | .0287 | 2.9 |
| 3. | 44.088 | 5.000 | .0010 | .0286 | 3.3 |
| 4. | 58.784 | 3.700 | .0013 | .0283 | 4.3 |
| 5. | 73.480 | 3.000 | .0026 | .0270 | 8.7 |
| 6. | 88.176 | 2.500 | .0032 | .0264 | 10.9 |
| 7. | 102.872 | 2.100 | .0036 | .0260 | 12.3 |
| 8. | 117.568 | 1.800 | .0045 | .0251 | 15.2 |
| 9. | 132.264 | 1.600 | .0054 | .0242 | 18.1 |
| 10. | 146.960 | 1.500 | .0060 | .0236 | 20.3 |
| 11. | 161.656 | 1.400 | .0069 | .0227 | 23.2 |
| 12. | 176.352 | 1.300 | .0075 | .0221 | 25.4 |
| 13. | 191.048 | 1.200 | .0086 | .0210 | 29.0 |
| 14. | 205.744 | 1.100 | .0097 | .0200 | 32.6 |
| 15. | 220.440 | 1.000 | .0105 | .0191 | 35.5 |
| 16. | 235.136 | .930 | .0108 | .0188 | 36.6 |
| 17. | 249.832 | .880 | .0119 | .0177 | 40.2 |
| 18. | 264.528 | .830 | .0129 | .0167 | 43.5 |
| 19. | 279.224 | .790 | .0137 | .0159 | 46.4 |
| 20. | 293.920 | .750 | .0144 | .0152 | 48.6 |
| 25. | 367.400 | .600 | .0144 | .0152 | 48.6 |
| 30. | 440.880 | .500 | .0144 | .0152 | 48.6 |
| 35. | 514.360 | .430 | .0158 | .0138 | 53.3 |
| 40. | 587.840 | .370 | .0172 | .0124 | 58.0 |
| 45. | 661.320 | .330 | .0183 | .0113 | 62.0 |
| 50. | 734.800 | .300 | .0195 | .0101 | 66.9 |
| 55. | 808.280 | .270 | .0201 | .0095 | 67.8 |
| 60. | 881.760 | .250 | .0210 | .0086 | 71.0 |
| 65. | 955.240 | .230 | .0212 | .0084 | 71.7 |
| 70. | 1028.720 | .210 | .0215 | .0082 | 72.5 |
| 75. | 1102.200 | .200 | .0219 | .0077 | 73.9 |
| 80. | 1175.680 | .180 | .0223 | .0073 | 75.4 |
| 85. | 1249.160 | .170 | .0226 | .0070 | 76.4 |



UGR File #211 Appendix A
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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6323.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0230 | .0067 | 77.5 |
| 100. | 1469.600 | .150 | .0230 | .0067 | 77.5 |
| 110. | 1616.560 | .140 | .0232 | .0064 | 78.3 |
| 120. | 1763.520 | .130 | .0236 | .0060 | 79.7 |
| 130. | 1910.480 | .120 | .0237 | .0059 | 80.1 |
| 140. | 2057.440 | .110 | .0238 | .0058 | 80.4 |
| 150. | 2204.400 | .100 | .0240 | .0056 | 81.2 |
| 170. | 2498.320 | .088 | .0247 | .0049 | 83.3 |
| 180. | 2645.280 | .083 | .0247 | .0049 | 83.3 |
| 190. | 2792.240 | .079 | .0248 | .0048 | 83.7 |
| 200. | 2939.200 | .075 | .0249 | .0047 | 84.1 |
| 220. | 3233.120 | .068 | .0251 | .0045 | 84.8 |
| 240. | 3527.040 | .062 | .0255 | .0041 | 86.2 |
| 260. | 3820.960 | .057 | .0257 | .0039 | 87.0 |
| 280. | 4114.880 | .053 | .0259 | .0038 | 87.3 |
| 300. | 4408.800 | .050 | .0260 | .0036 | 87.7 |
| 330. | 4949.680 | .045 | .0262 | .0034 | 88.4 |
| 360. | 5290.560 | .041 | .0264 | .0032 | 89.1 |
| 390. | 5731.440 | .038 | .0266 | .0028 | 90.6 |
| 420. | 6172.320 | .035 | .0268 | .0028 | 90.6 |
| 450. | 6613.200 | .033 | .0269 | .0027 | 90.9 |
| 490. | 7201.040 | .030 | .0270 | .0026 | 91.3 |
| 510. | 7494.960 | .029 | .0270 | .0026 | 91.3 |
| 540. | 7935.840 | .027 | .0272 | .0024 | 92.0 |
| 580. | 8670.640 | .025 | .0277 | .0019 | 93.5 |
| 610. | 8964.560 | .024 | .0277 | .0019 | 93.5 |
| 640. | 9405.440 | .023 | .0279 | .0017 | 94.2 |
| 700. | 10287.200 | .021 | .0282 | .0014 | 95.3 |
| 740. | 10875.040 | .020 | .0284 | .0012 | 96.0 |
| 770. | 11315.920 | .019 | .0285 | .0011 | 96.4 |
| 800. | 11756.800 | .019 | .0285 | .0011 | 96.4 |
| 830. | 12197.680 | .018 | .0289 | .0008 | 97.5 |
| 860. | 12638.560 | .017 | .0291 | .0005 | 98.2 |
| 900. | 13226.400 | .017 | .0292 | .0004 | 98.6 |
| 930. | 13667.280 | .016 | .0293 | .0003 | 98.9 |
| 960. | 13961.200 | .016 | .0296 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0296 | .0000 | 100.0 |



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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6391.

SEQUENCE NUMBER 25
PORE VOLUME .028 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.695 | 15.000 | .0000 | .0275 | .0 |
| 2. | 29.392 | 7.500 | .0007 | .0268 | 2.6 |
| 3. | 44.088 | 5.000 | .0008 | .0267 | 3.0 |
| 4. | 58.784 | 3.700 | .0014 | .0261 | 5.3 |
| 5. | 73.480 | 3.000 | .0020 | .0255 | 7.2 |
| 6. | 88.176 | 2.500 | .0027 | .0249 | 9.9 |
| 7. | 102.872 | 2.100 | .0033 | .0243 | 11.8 |
| 8. | 117.568 | 1.800 | .0036 | .0239 | 13.2 |
| 9. | 132.264 | 1.600 | .0051 | .0224 | 16.4 |
| 10. | 146.960 | 1.500 | .0054 | .0221 | 19.7 |
| 11. | 161.656 | 1.400 | .0062 | .0214 | 22.4 |
| 12. | 176.352 | 1.300 | .0067 | .0208 | 24.3 |
| 13. | 191.048 | 1.200 | .0076 | .0199 | 27.6 |
| 14. | 205.744 | 1.100 | .0086 | .0189 | 31.3 |
| 15. | 220.440 | 1.000 | .0093 | .0182 | 33.9 |
| 16. | 235.136 | .930 | .0100 | .0176 | 36.2 |
| 17. | 249.832 | .880 | .0109 | .0167 | 39.5 |
| 18. | 264.528 | .830 | .0118 | .0158 | 42.8 |
| 19. | 279.224 | .790 | .0125 | .0151 | 45.4 |
| 20. | 293.920 | .750 | .0130 | .0145 | 47.4 |
| 25. | 367.400 | .600 | .0131 | .0144 | 47.7 |
| 30. | 440.880 | .500 | .0132 | .0143 | 48.0 |
| 35. | 514.360 | .430 | .0143 | .0132 | 52.0 |
| 40. | 587.840 | .370 | .0154 | .0121 | 55.9 |
| 45. | 661.320 | .330 | .0167 | .0108 | 60.9 |
| 50. | 734.800 | .300 | .0190 | .0085 | 69.1 |
| 55. | 808.280 | .270 | .0196 | .0079 | 71.4 |
| 60. | 881.760 | .250 | .0196 | .0079 | 71.4 |
| 65. | 955.240 | .230 | .0196 | .0079 | 71.4 |
| 70. | 1028.720 | .210 | .0199 | .0076 | 72.4 |
| 75. | 1102.200 | .200 | .0201 | .0074 | 73.0 |
| 80. | 1175.680 | .180 | .0203 | .0072 | 73.7 |
| 85. | 1249.160 | .170 | .0205 | .0071 | 74.3 |

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POROSITY DATA FOR SAMPLE V 7-63F1.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0206 | .0069 | 75.0 |
| 100. | 1469.600 | .150 | .0208 | .0067 | 75.7 |
| 110. | 1616.560 | .140 | .0217 | .0058 | 78.9 |
| 120. | 1763.520 | .130 | .0221 | .0054 | 80.3 |
| 130. | 1910.440 | .120 | .0221 | .0054 | 80.3 |
| 140. | 2057.440 | .110 | .0224 | .0051 | 81.6 |
| 150. | 2204.400 | .100 | .0228 | .0049 | 82.2 |
| 170. | 2498.320 | .088 | .0228 | .0047 | 82.9 |
| 180. | 2645.280 | .083 | .0232 | .0043 | 84.2 |
| 190. | 2792.240 | .079 | .0234 | .0042 | 84.9 |
| 200. | 2939.200 | .075 | .0234 | .0042 | 84.9 |
| 220. | 3233.120 | .068 | .0235 | .0040 | 85.5 |
| 240. | 3527.040 | .062 | .0237 | .0038 | 86.2 |
| 260. | 3820.960 | .057 | .0237 | .0038 | 86.2 |
| 280. | 4114.880 | .053 | .0243 | .0033 | 88.2 |
| 300. | 4408.800 | .050 | .0244 | .0031 | 88.8 |
| 330. | 4849.680 | .045 | .0246 | .0029 | 89.5 |
| 360. | 5290.560 | .041 | .0246 | .0029 | 89.5 |
| 390. | 5731.440 | .038 | .0252 | .0024 | 91.4 |
| 420. | 6172.320 | .035 | .0252 | .0024 | 91.4 |
| 450. | 6613.200 | .033 | .0253 | .0022 | 92.1 |
| 480. | 7201.040 | .030 | .0255 | .0020 | 92.8 |
| 510. | 7494.960 | .029 | .0255 | .0020 | 92.8 |
| 540. | 7935.840 | .027 | .0257 | .0018 | 93.4 |
| 590. | 8670.640 | .025 | .0261 | .0014 | 94.7 |
| 610. | 8964.560 | .024 | .0261 | .0014 | 94.7 |
| 640. | 9405.440 | .023 | .0263 | .0012 | 95.7 |
| 700. | 10287.200 | .021 | .0264 | .0011 | 96.1 |
| 740. | 10876.040 | .020 | .0266 | .0009 | 96.7 |
| 770. | 11315.920 | .019 | .0268 | .0007 | 97.4 |
| 800. | 11756.800 | .019 | .0270 | .0005 | 98.0 |
| 830. | 12197.680 | .018 | .0272 | .0004 | 98.7 |
| 860. | 12638.560 | .017 | .0272 | .0003 | 99.0 |
| 900. | 13226.400 | .017 | .0272 | .0003 | 99.0 |
| 930. | 13667.280 | .016 | .0273 | .0002 | 99.3 |
| 960. | 13961.200 | .016 | .0273 | .0002 | 99.3 |
| 1000. | 14696.000 | .014 | .0275 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE V 7-6371.

SEQUENCE NUMBER 27
PORE VOLUME .023 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0230 | .0 |
| 2. | 29.392 | 7.500 | .0009 | .0221 | 3.8 |
| 3. | 44.088 | 5.000 | .0010 | .0220 | 4.3 |
| 4. | 58.784 | 3.700 | .0010 | .0220 | 4.3 |
| 5. | 73.480 | 3.000 | .0010 | .0220 | 4.3 |
| 6. | 88.176 | 2.500 | .0010 | .0220 | 4.3 |
| 7. | 102.872 | 2.100 | .0018 | .0212 | 7.6 |
| 8. | 117.568 | 1.800 | .0023 | .0207 | 10.0 |
| 9. | 132.264 | 1.600 | .0031 | .0199 | 13.3 |
| 10. | 146.960 | 1.500 | .0033 | .0197 | 14.3 |
| 11. | 161.656 | 1.400 | .0036 | .0194 | 15.7 |
| 12. | 176.352 | 1.300 | .0042 | .0188 | 18.1 |
| 13. | 191.048 | 1.200 | .0053 | .0177 | 22.9 |
| 14. | 205.744 | 1.100 | .0055 | .0175 | 23.8 |
| 15. | 220.441 | 1.000 | .0062 | .0168 | 27.1 |
| 16. | 235.136 | .930 | .0068 | .0162 | 29.5 |
| 17. | 249.832 | .880 | .0077 | .0153 | 33.3 |
| 18. | 264.528 | .830 | .0081 | .0149 | 35.2 |
| 19. | 279.224 | .790 | .0088 | .0142 | 38.1 |
| 20. | 293.920 | .750 | .0090 | .0140 | 39.0 |
| 25. | 367.401 | .600 | .0092 | .0138 | 40.0 |
| 30. | 440.881 | .500 | .0094 | .0136 | 41.0 |
| 35. | 514.361 | .430 | .0097 | .0133 | 42.4 |
| 40. | 587.840 | .370 | .0101 | .0129 | 43.8 |
| 45. | 661.320 | .330 | .0115 | .0115 | 50.0 |
| 50. | 734.800 | .300 | .0129 | .0101 | 56.2 |
| 55. | 808.280 | .270 | .0132 | .0097 | 57.6 |
| 60. | 881.761 | .250 | .0136 | .0094 | 59.0 |
| 65. | 955.241 | .230 | .0143 | .0087 | 62.4 |
| 70. | 1028.720 | .210 | .0151 | .0079 | 65.7 |
| 75. | 1102.200 | .200 | .0154 | .0076 | 67.1 |
| 80. | 1175.681 | .180 | .0158 | .0072 | 68.6 |
| 85. | 1249.161 | .170 | .0160 | .0071 | 69.5 |



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POROSITY DATA FOR SAMPLE V 7-6371.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0162 | .0068 | 70.5 |
| 100. | 1469.600 | .150 | .0164 | .0066 | 71.4 |
| 110. | 1616.560 | .140 | .0166 | .0064 | 72.4 |
| 120. | 1763.520 | .130 | .0169 | .0061 | 73.3 |
| 130. | 1910.480 | .120 | .0171 | .0059 | 74.3 |
| 140. | 2057.440 | .110 | .0174 | .0056 | 75.7 |
| 150. | 2204.400 | .100 | .0175 | .0055 | 76.2 |
| 170. | 2498.320 | .088 | .0177 | .0053 | 77.1 |
| 180. | 2645.280 | .083 | .0177 | .0053 | 77.1 |
| 190. | 2792.240 | .079 | .0180 | .0050 | 78.1 |
| 200. | 2939.200 | .075 | .0184 | .0046 | 80.0 |
| 220. | 3233.120 | .068 | .0186 | .0044 | 81.0 |
| 240. | 3527.040 | .062 | .0187 | .0043 | 81.4 |
| 260. | 3820.960 | .057 | .0187 | .0043 | 81.4 |
| 280. | 4114.880 | .053 | .0188 | .0042 | 81.9 |
| 300. | 4408.800 | .050 | .0192 | .0039 | 83.3 |
| 330. | 4849.680 | .045 | .0195 | .0035 | 84.8 |
| 360. | 5290.560 | .041 | .0197 | .0033 | 85.7 |
| 390. | 5731.440 | .038 | .0200 | .0030 | 87.1 |
| 420. | 6172.320 | .035 | .0200 | .0030 | 87.1 |
| 450. | 6613.200 | .033 | .0204 | .0026 | 88.6 |
| 480. | 7201.040 | .030 | .0204 | .0026 | 88.6 |
| 510. | 7494.960 | .029 | .0206 | .0024 | 89.5 |
| 540. | 7935.840 | .027 | .0209 | .0021 | 91.0 |
| 590. | 8670.640 | .025 | .0209 | .0021 | 91.0 |
| 610. | 8964.560 | .024 | .0210 | .0020 | 91.4 |
| 640. | 9405.440 | .023 | .0210 | .0020 | 91.4 |
| 700. | 10287.200 | .021 | .0215 | .0015 | 93.3 |
| 740. | 10875.040 | .020 | .0217 | .0013 | 94.3 |
| 770. | 11315.920 | .019 | .0221 | .0009 | 96.2 |
| 800. | 11756.800 | .019 | .0221 | .0009 | 96.2 |
| 830. | 12197.680 | .018 | .0221 | .0009 | 96.2 |
| 860. | 12638.560 | .017 | .0222 | .0008 | 96.7 |
| 900. | 13226.400 | .017 | .0223 | .0007 | 97.1 |
| 930. | 13667.280 | .016 | .0226 | .0004 | 98.1 |
| 960. | 13961.200 | .016 | .0230 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0230 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE V 7-6391.

SEQUENCE NUMBER 29
PORE VOLUME .023 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0232 | .0 |
| 2. | 29.392 | 7.500 | .0007 | .0225 | 3.0 |
| 3. | 44.088 | 5.000 | .0008 | .0225 | 3.4 |
| 4. | 58.784 | 3.700 | .0012 | .0220 | 5.3 |
| 5. | 73.480 | 3.000 | .0017 | .0215 | 7.5 |
| 6. | 88.176 | 2.500 | .0024 | .0208 | 10.5 |
| 7. | 102.872 | 2.100 | .0026 | .0206 | 11.3 |
| 8. | 117.568 | 1.800 | .0035 | .0197 | 15.0 |
| 9. | 132.264 | 1.600 | .0038 | .0194 | 16.5 |
| 10. | 146.960 | 1.500 | .0044 | .0189 | 18.8 |
| 11. | 161.656 | 1.400 | .0052 | .0180 | 22.6 |
| 12. | 176.352 | 1.300 | .0057 | .0176 | 24.4 |
| 13. | 191.048 | 1.200 | .0064 | .0169 | 27.4 |
| 14. | 205.744 | 1.100 | .0072 | .0161 | 30.8 |
| 15. | 220.440 | 1.000 | .0079 | .0154 | 33.8 |
| 16. | 235.136 | .930 | .0083 | .0149 | 35.7 |
| 17. | 249.832 | .880 | .0087 | .0145 | 37.6 |
| 18. | 264.528 | .830 | .0096 | .0136 | 41.4 |
| 19. | 279.224 | .790 | .0101 | .0131 | 43.6 |
| 20. | 293.920 | .750 | .0107 | .0126 | 45.9 |
| 25. | 367.400 | .600 | .0107 | .0125 | 46.2 |
| 30. | 440.880 | .500 | .0108 | .0124 | 46.6 |
| 35. | 514.360 | .430 | .0120 | .0113 | 51.5 |
| 40. | 587.840 | .370 | .0131 | .0101 | 56.4 |
| 45. | 661.320 | .330 | .0137 | .0095 | 59.0 |
| 50. | 734.800 | .300 | .0143 | .0089 | 61.7 |
| 55. | 808.280 | .270 | .0149 | .0083 | 64.3 |
| 60. | 881.760 | .250 | .0156 | .0077 | 66.9 |
| 65. | 955.240 | .230 | .0160 | .0073 | 68.8 |
| 70. | 1028.720 | .210 | .0164 | .0069 | 70.7 |
| 75. | 1102.200 | .200 | .0168 | .0065 | 72.2 |
| 80. | 1175.680 | .180 | .0171 | .0061 | 73.7 |
| 85. | 1249.160 | .170 | .0172 | .0060 | 74.1 |

POROSITY DATA FOR SAMPLE V 7-6391.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0173 | .0059 | 74.4 |
| 100. | 1469.600 | .150 | .0175 | .0054 | 75.2 |
| 110. | 1616.560 | .140 | .0178 | .0054 | 76.7 |
| 120. | 1763.520 | .130 | .0182 | .0051 | 78.2 |
| 130. | 1910.480 | .120 | .0183 | .0049 | 78.9 |
| 140. | 2057.440 | .110 | .0185 | .0047 | 79.7 |
| 150. | 2204.400 | .100 | .0187 | .0045 | 80.5 |
| 170. | 2498.320 | .088 | .0190 | .0042 | 82.0 |
| 180. | 2645.280 | .083 | .0192 | .0040 | 82.7 |
| 190. | 2792.240 | .079 | .0192 | .0040 | 82.7 |
| 200. | 2939.200 | .075 | .0192 | .0040 | 82.7 |
| 220. | 3233.120 | .068 | .0194 | .0038 | 83.5 |
| 240. | 3527.040 | .062 | .0197 | .0035 | 85.0 |
| 260. | 3820.960 | .057 | .0199 | .0033 | 85.7 |
| 280. | 4114.880 | .053 | .0199 | .0033 | 85.7 |
| 300. | 4408.800 | .050 | .0201 | .0031 | 86.5 |
| 330. | 4849.680 | .045 | .0204 | .0029 | 88.0 |
| 360. | 5290.560 | .041 | .0206 | .0026 | 88.7 |
| 390. | 5731.440 | .039 | .0208 | .0024 | 89.5 |
| 420. | 6172.320 | .035 | .0211 | .0022 | 90.6 |
| 450. | 6613.200 | .033 | .0211 | .0022 | 90.6 |
| 490. | 7201.040 | .030 | .0211 | .0021 | 91.0 |
| 510. | 7494.960 | .029 | .0213 | .0019 | 91.7 |
| 540. | 7935.840 | .027 | .0215 | .0017 | 92.5 |
| 590. | 8673.640 | .025 | .0218 | .0014 | 94.0 |
| 610. | 8964.560 | .024 | .0218 | .0014 | 94.0 |
| 640. | 9405.440 | .023 | .0220 | .0012 | 94.7 |
| 700. | 10287.200 | .021 | .0222 | .0010 | 95.5 |
| 740. | 10875.040 | .020 | .0222 | .0010 | 95.5 |
| 770. | 11315.920 | .019 | .0224 | .0009 | 96.2 |
| 800. | 11756.800 | .019 | .0225 | .0007 | 97.0 |
| 830. | 12197.680 | .018 | .0225 | .0007 | 97.0 |
| 860. | 12638.560 | .017 | .0229 | .0003 | 98.5 |
| 900. | 13226.400 | .017 | .0229 | .0003 | 98.5 |
| 930. | 13667.280 | .016 | .0231 | .0002 | 99.2 |
| 960. | 13961.200 | .016 | .0232 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0232 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE V 7-6467.

SEQUENCE NUMBER 31
PORE VOLUME .030 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.695 | 15.000 | .0000 | .0299 | .0 |
| 2. | 29.392 | 7.500 | .0012 | .0288 | 3.8 |
| 3. | 44.088 | 5.000 | .0012 | .0289 | 3.8 |
| 4. | 58.784 | 3.700 | .0013 | .0286 | 4.4 |
| 5. | 73.480 | 3.000 | .0015 | .0284 | 4.9 |
| 6. | 88.176 | 2.500 | .0015 | .0284 | 4.9 |
| 7. | 102.872 | 2.100 | .0021 | .0278 | 7.1 |
| 8. | 117.568 | 1.800 | .0026 | .0273 | 8.8 |
| 9. | 132.264 | 1.600 | .0038 | .0261 | 12.6 |
| 10. | 146.960 | 1.500 | .0043 | .0256 | 14.3 |
| 11. | 161.656 | 1.400 | .0049 | .0250 | 16.5 |
| 12. | 176.352 | 1.300 | .0056 | .0243 | 18.7 |
| 13. | 191.048 | 1.200 | .0064 | .0235 | 21.4 |
| 14. | 205.744 | 1.100 | .0069 | .0231 | 23.1 |
| 15. | 220.440 | 1.000 | .0074 | .0225 | 24.7 |
| 16. | 235.136 | .930 | .0081 | .0219 | 26.9 |
| 17. | 249.832 | .880 | .0085 | .0214 | 28.6 |
| 18. | 264.528 | .830 | .0092 | .0207 | 30.8 |
| 19. | 279.224 | .790 | .0094 | .0205 | 31.3 |
| 20. | 293.920 | .750 | .0102 | .0197 | 34.1 |
| 25. | 367.400 | .600 | .0102 | .0197 | 34.1 |
| 30. | 440.880 | .500 | .0102 | .0197 | 34.1 |
| 35. | 514.360 | .430 | .0120 | .0179 | 40.1 |
| 40. | 587.840 | .370 | .0136 | .0163 | 45.6 |
| 45. | 661.320 | .330 | .0143 | .0156 | 47.8 |
| 50. | 734.800 | .300 | .0150 | .0150 | 50.0 |
| 55. | 808.280 | .270 | .0156 | .0143 | 52.2 |
| 60. | 881.760 | .250 | .0164 | .0135 | 54.9 |
| 65. | 955.240 | .230 | .0166 | .0133 | 55.5 |
| 70. | 1028.720 | .210 | .0169 | .0131 | 56.6 |
| 75. | 1102.200 | .200 | .0174 | .0125 | 58.2 |
| 80. | 1175.680 | .180 | .0177 | .0122 | 59.3 |
| 85. | 1249.160 | .170 | .0179 | .0121 | 59.9 |

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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6467.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0179 | .0120 | 59.9 |
| 100. | 1469.600 | .150 | .0184 | .0115 | 61.5 |
| 110. | 1616.560 | .140 | .0187 | .0112 | 62.6 |
| 120. | 1763.520 | .130 | .0192 | .0107 | 64.3 |
| 130. | 1910.480 | .120 | .0197 | .0102 | 65.9 |
| 140. | 2057.440 | .110 | .0199 | .0100 | 66.5 |
| 150. | 2204.400 | .100 | .0200 | .0099 | 67.0 |
| 170. | 2498.320 | .088 | .0202 | .0097 | 67.6 |
| 180. | 2645.280 | .083 | .0207 | .0092 | 69.2 |
| 190. | 2792.240 | .079 | .0209 | .0090 | 69.8 |
| 200. | 2939.200 | .075 | .0212 | .0087 | 70.9 |
| 220. | 3233.120 | .068 | .0215 | .0084 | 72.0 |
| 240. | 3527.040 | .062 | .0219 | .0081 | 73.1 |
| 260. | 3820.960 | .057 | .0222 | .0077 | 74.2 |
| 280. | 4114.880 | .053 | .0225 | .0074 | 75.3 |
| 300. | 4408.800 | .050 | .0228 | .0071 | 76.4 |
| 330. | 4849.680 | .045 | .0230 | .0069 | 76.9 |
| 360. | 5290.560 | .041 | .0237 | .0062 | 79.1 |
| 390. | 5731.440 | .038 | .0242 | .0058 | 80.8 |
| 420. | 6172.320 | .035 | .0242 | .0058 | 80.8 |
| 450. | 6613.200 | .033 | .0247 | .0053 | 82.4 |
| 490. | 7201.040 | .030 | .0251 | .0049 | 84.1 |
| 510. | 7494.960 | .029 | .0251 | .0049 | 84.1 |
| 540. | 7935.840 | .027 | .0255 | .0044 | 85.2 |
| 590. | 8670.640 | .025 | .0261 | .0038 | 87.4 |
| 610. | 8964.560 | .024 | .0265 | .0035 | 88.5 |
| 640. | 9405.440 | .023 | .0268 | .0031 | 89.6 |
| 700. | 10287.200 | .021 | .0274 | .0025 | 91.5 |
| 740. | 10875.040 | .020 | .0276 | .0023 | 92.3 |
| 770. | 11315.920 | .019 | .0279 | .0020 | 93.4 |
| 800. | 11756.800 | .019 | .0279 | .0020 | 93.4 |
| 830. | 12197.680 | .018 | .0286 | .0013 | 95.6 |
| 860. | 12638.560 | .017 | .0289 | .0010 | 96.7 |
| 900. | 13226.400 | .017 | .0291 | .0008 | 97.3 |
| 930. | 13667.280 | .016 | .0291 | .0008 | 97.3 |
| 960. | 13961.200 | .016 | .0294 | .0005 | 98.4 |
| 1000. | 14696.080 | .014 | .0299 | .0000 | 100.0 |

POROSITY DATA FOR SAMPLE V 7-6477.

SEQUENCE NUMBER 33
PORE VOLUME .021 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0211 | .0 |
| 2. | 29.392 | 7.500 | .0011 | .0200 | 5.0 |
| 3. | 44.088 | 5.000 | .0011 | .0200 | 5.0 |
| 4. | 58.784 | 3.700 | .0012 | .0199 | 5.7 |
| 5. | 73.480 | 3.000 | .0012 | .0199 | 5.7 |
| 6. | 88.176 | 2.500 | .0014 | .0197 | 6.4 |
| 7. | 102.872 | 2.100 | .0014 | .0197 | 6.4 |
| 8. | 117.568 | 1.800 | .0014 | .0197 | 6.4 |
| 9. | 132.264 | 1.600 | .0020 | .0191 | 9.3 |
| 10. | 146.960 | 1.500 | .0023 | .0188 | 10.7 |
| 11. | 161.656 | 1.400 | .0029 | .0182 | 13.6 |
| 12. | 176.352 | 1.300 | .0032 | .0179 | 15.0 |
| 13. | 191.349 | 1.200 | .0035 | .0176 | 16.4 |
| 14. | 205.744 | 1.100 | .0042 | .0169 | 20.0 |
| 15. | 220.440 | 1.000 | .0045 | .0166 | 21.4 |
| 16. | 235.136 | .930 | .0045 | .0166 | 21.4 |
| 17. | 249.832 | .880 | .0048 | .0163 | 22.9 |
| 18. | 264.529 | .830 | .0053 | .0158 | 25.0 |
| 19. | 279.224 | .790 | .0057 | .0154 | 27.1 |
| 20. | 293.920 | .750 | .0060 | .0151 | 28.6 |
| 25. | 367.400 | .600 | .0060 | .0151 | 28.6 |
| 30. | 440.880 | .500 | .0060 | .0151 | 28.6 |
| 35. | 514.360 | .430 | .0065 | .0146 | 30.7 |
| 40. | 587.840 | .370 | .0072 | .0139 | 34.3 |
| 45. | 661.320 | .330 | .0077 | .0134 | 36.4 |
| 50. | 734.800 | .300 | .0080 | .0131 | 37.9 |
| 55. | 808.280 | .270 | .0084 | .0127 | 40.0 |
| 60. | 881.760 | .250 | .0087 | .0124 | 41.4 |
| 65. | 955.240 | .230 | .0092 | .0119 | 43.6 |
| 70. | 1028.720 | .210 | .0095 | .0116 | 45.0 |
| 75. | 1102.200 | .200 | .0095 | .0116 | 45.0 |
| 80. | 1175.680 | .180 | .0099 | .0111 | 47.1 |
| 85. | 1249.160 | .170 | .0102 | .0108 | 48.6 |

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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6477.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0104 | .0107 | 49.3 |
| 100. | 1469.600 | .150 | .0107 | .0104 | 50.7 |
| 110. | 1616.560 | .140 | .0108 | .0102 | 51.4 |
| 120. | 1763.520 | .130 | .0110 | .0101 | 52.1 |
| 130. | 1910.480 | .120 | .0113 | .0098 | 53.6 |
| 140. | 2057.440 | .110 | .0116 | .0095 | 55.0 |
| 150. | 2204.400 | .100 | .0119 | .0092 | 56.4 |
| 170. | 2498.320 | .088 | .0122 | .0089 | 57.9 |
| 180. | 2645.280 | .083 | .0122 | .0089 | 57.9 |
| 190. | 2792.240 | .079 | .0127 | .0084 | 60.0 |
| 200. | 2939.200 | .075 | .0130 | .0081 | 61.4 |
| 220. | 3233.120 | .068 | .0133 | .0078 | 62.9 |
| 240. | 3527.040 | .062 | .0136 | .0075 | 64.3 |
| 260. | 3820.960 | .057 | .0139 | .0072 | 65.7 |
| 280. | 4114.880 | .053 | .0140 | .0071 | 66.4 |
| 300. | 4408.800 | .050 | .0140 | .0071 | 66.4 |
| 330. | 4849.680 | .045 | .0149 | .0062 | 70.7 |
| 360. | 5290.560 | .041 | .0149 | .0062 | 70.7 |
| 390. | 5731.440 | .038 | .0155 | .0056 | 73.6 |
| 420. | 6172.320 | .035 | .0157 | .0054 | 74.3 |
| 450. | 6613.200 | .033 | .0158 | .0053 | 75.0 |
| 490. | 7201.040 | .030 | .0163 | .0048 | 77.1 |
| 510. | 7494.960 | .029 | .0170 | .0041 | 80.7 |
| 540. | 7935.840 | .027 | .0173 | .0039 | 82.1 |
| 590. | 8670.640 | .025 | .0176 | .0035 | 83.6 |
| 610. | 8964.560 | .024 | .0176 | .0035 | 83.6 |
| 640. | 9405.440 | .023 | .0178 | .0033 | 84.3 |
| 700. | 10287.200 | .021 | .0185 | .0026 | 87.9 |
| 740. | 10875.040 | .020 | .0188 | .0023 | 89.3 |
| 770. | 11315.920 | .019 | .0191 | .0020 | 90.7 |
| 800. | 11756.800 | .019 | .0194 | .0017 | 92.1 |
| 830. | 12197.680 | .018 | .0194 | .0017 | 92.1 |
| 860. | 12638.560 | .017 | .0200 | .0011 | 95.0 |
| 900. | 13226.400 | .017 | .0206 | .0005 | 97.9 |
| 930. | 13667.280 | .016 | .0208 | .0003 | 98.6 |
| 960. | 13961.200 | .016 | .0208 | .0003 | 98.6 |
| 1000. | 14696.000 | .014 | .0211 | .0000 | 100.0 |

POROSITY DATA FOR SAMPLE V 7-6497.

SEQUENCE NUMBER 35
PORE VOLUME .038 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0380 | .0 |
| 2. | 29.392 | 7.500 | .0019 | .0361 | 4.9 |
| 3. | 44.088 | 5.000 | .0021 | .0358 | 5.6 |
| 4. | 58.784 | 3.700 | .0021 | .0354 | 5.6 |
| 5. | 73.480 | 3.000 | .0021 | .0358 | 5.6 |
| 6. | 88.176 | 2.500 | .0021 | .0358 | 5.6 |
| 7. | 102.872 | 2.100 | .0024 | .0356 | 6.3 |
| 8. | 117.568 | 1.800 | .0024 | .0356 | 6.3 |
| 9. | 132.264 | 1.600 | .0027 | .0353 | 7.0 |
| 10. | 146.960 | 1.500 | .0035 | .0345 | 9.1 |
| 11. | 161.656 | 1.400 | .0042 | .0337 | 11.2 |
| 12. | 176.352 | 1.300 | .0053 | .0327 | 14.0 |
| 13. | 191.048 | 1.200 | .0058 | .0321 | 15.4 |
| 14. | 205.744 | 1.100 | .0069 | .0311 | 18.2 |
| 15. | 220.440 | 1.000 | .0077 | .0303 | 20.3 |
| 16. | 235.136 | .930 | .0088 | .0292 | 23.1 |
| 17. | 249.832 | .880 | .0088 | .0292 | 23.1 |
| 18. | 264.528 | .830 | .0093 | .0287 | 24.5 |
| 19. | 279.224 | .790 | .0098 | .0281 | 25.9 |
| 20. | 293.920 | .750 | .0106 | .0273 | 28.0 |
| 25. | 367.400 | .600 | .0106 | .0273 | 28.0 |
| 30. | 440.880 | .500 | .0106 | .0273 | 28.0 |
| 35. | 514.360 | .430 | .0106 | .0273 | 28.0 |
| 40. | 587.840 | .370 | .0127 | .0252 | 33.6 |
| 45. | 661.320 | .330 | .0138 | .0242 | 36.4 |
| 50. | 734.800 | .300 | .0149 | .0231 | 39.2 |
| 55. | 808.280 | .270 | .0159 | .0221 | 42.0 |
| 60. | 881.760 | .250 | .0165 | .0215 | 43.4 |
| 65. | 955.240 | .230 | .0170 | .0210 | 44.8 |
| 70. | 1028.720 | .210 | .0178 | .0202 | 46.9 |
| 75. | 1102.200 | .200 | .0186 | .0194 | 49.0 |
| 80. | 1175.680 | .180 | .0189 | .0191 | 49.7 |
| 85. | 1249.160 | .170 | .0189 | .0191 | 49.7 |



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POROSITY DATA FOR SAMPLE V 7-6497.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0191 | .0189 | 50.3 |
| 100. | 1469.600 | .150 | .0194 | .0186 | 51.0 |
| 110. | 1616.560 | .140 | .0202 | .0179 | 53.1 |
| 120. | 1763.520 | .130 | .0210 | .0170 | 55.2 |
| 130. | 1910.480 | .120 | .0212 | .0167 | 55.9 |
| 140. | 2057.440 | .110 | .0218 | .0162 | 57.3 |
| 150. | 2204.400 | .100 | .0218 | .0162 | 57.3 |
| 170. | 2498.320 | .088 | .0223 | .0157 | 58.7 |
| 180. | 2645.280 | .083 | .0228 | .0151 | 60.1 |
| 190. | 2792.240 | .079 | .0231 | .0149 | 60.8 |
| 200. | 2939.200 | .075 | .0236 | .0143 | 62.2 |
| 220. | 3233.120 | .068 | .0236 | .0143 | 62.2 |
| 240. | 3527.040 | .062 | .0247 | .0133 | 65.0 |
| 260. | 3820.960 | .057 | .0250 | .0130 | 65.7 |
| 280. | 4114.880 | .053 | .0252 | .0127 | 66.4 |
| 300. | 4408.800 | .050 | .0258 | .0122 | 67.8 |
| 330. | 4849.680 | .045 | .0260 | .0119 | 68.5 |
| 360. | 5290.560 | .041 | .0271 | .0109 | 71.3 |
| 390. | 5731.440 | .038 | .0276 | .0104 | 72.7 |
| 420. | 6172.320 | .035 | .0287 | .0093 | 75.5 |
| 450. | 6613.200 | .033 | .0289 | .0090 | 76.2 |
| 490. | 7201.040 | .030 | .0300 | .0080 | 79.0 |
| 515. | 7494.960 | .029 | .0300 | .0080 | 79.0 |
| 540. | 7935.840 | .027 | .0303 | .0077 | 79.7 |
| 580. | 8670.640 | .025 | .0313 | .0066 | 82.5 |
| 610. | 8964.560 | .024 | .0313 | .0066 | 82.5 |
| 640. | 9435.440 | .023 | .0324 | .0056 | 85.3 |
| 700. | 10287.200 | .021 | .0332 | .0048 | 87.4 |
| 740. | 10875.040 | .020 | .0340 | .0040 | 89.5 |
| 770. | 11315.920 | .019 | .0340 | .0040 | 89.5 |
| 800. | 11756.800 | .019 | .0350 | .0029 | 92.3 |
| 830. | 12197.680 | .018 | .0350 | .0029 | 92.3 |
| 860. | 12638.560 | .017 | .0358 | .0021 | 94.4 |
| 900. | 13226.400 | .017 | .0364 | .0016 | 95.8 |
| 930. | 13667.280 | .016 | .0369 | .0011 | 97.2 |
| 960. | 13961.200 | .016 | .0374 | .0005 | 98.6 |
| 1000. | 14696.000 | .014 | .0380 | .0000 | 100.0 |

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August 15, 1979
Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6514.

SEQUENCE NUMBER 37
PORE VOLUME .011 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0111 | .0 |
| 2. | 29.392 | 7.500 | .0012 | .0100 | 10.5 |
| 3. | 44.088 | 5.000 | .0014 | .0098 | 12.3 |
| 4. | 58.784 | 3.700 | .0014 | .0099 | 12.3 |
| 5. | 73.480 | 3.000 | .0014 | .0098 | 12.3 |
| 6. | 88.176 | 2.500 | .0014 | .0098 | 12.3 |
| 7. | 102.872 | 2.100 | .0016 | .0096 | 14.0 |
| 8. | 117.568 | 1.800 | .0016 | .0096 | 14.0 |
| 9. | 132.264 | 1.600 | .0016 | .0096 | 14.0 |
| 10. | 146.960 | 1.500 | .0016 | .0096 | 14.0 |
| 11. | 161.656 | 1.400 | .0016 | .0096 | 14.0 |
| 12. | 176.352 | 1.300 | .0016 | .0096 | 14.0 |
| 13. | 191.048 | 1.200 | .0016 | .0096 | 14.0 |
| 14. | 205.744 | 1.100 | .0018 | .0094 | 15.8 |
| 15. | 220.440 | 1.000 | .0018 | .0094 | 15.8 |
| 16. | 235.136 | .930 | .0018 | .0094 | 15.8 |
| 17. | 249.832 | .880 | .0018 | .0094 | 15.8 |
| 18. | 264.528 | .830 | .0018 | .0094 | 15.8 |
| 19. | 279.224 | .790 | .0018 | .0094 | 15.8 |
| 20. | 293.920 | .750 | .0018 | .0094 | 15.8 |
| 25. | 367.400 | .600 | .0018 | .0094 | 15.8 |
| 30. | 440.880 | .500 | .0018 | .0094 | 15.8 |
| 35. | 514.360 | .430 | .0020 | .0092 | 17.5 |
| 40. | 587.840 | .370 | .0025 | .0086 | 22.8 |
| 45. | 661.320 | .330 | .0033 | .0078 | 29.8 |
| 50. | 734.800 | .300 | .0039 | .0072 | 35.1 |
| 55. | 808.280 | .270 | .0039 | .0072 | 35.1 |
| 60. | 881.760 | .250 | .0041 | .0070 | 36.9 |
| 65. | 955.240 | .230 | .0043 | .0068 | 38.6 |
| 70. | 1028.720 | .210 | .0043 | .0068 | 38.6 |
| 75. | 1102.200 | .200 | .0043 | .0068 | 38.6 |
| 80. | 1175.680 | .180 | .0047 | .0065 | 42.1 |
| 85. | 1249.160 | .170 | .0053 | .0059 | 47.4 |

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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6514.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0053 | .0059 | 47.4 |
| 100. | 1469.600 | .150 | .0057 | .0055 | 50.9 |
| 110. | 1616.560 | .140 | .0057 | .0055 | 50.9 |
| 120. | 1763.520 | .130 | .0057 | .0055 | 50.9 |
| 130. | 1910.480 | .120 | .0061 | .0051 | 54.4 |
| 140. | 2057.440 | .110 | .0063 | .0049 | 56.1 |
| 150. | 2204.400 | .100 | .0063 | .0049 | 56.1 |
| 170. | 2498.320 | .088 | .0065 | .0047 | 57.9 |
| 180. | 2645.280 | .083 | .0067 | .0045 | 59.6 |
| 190. | 2792.240 | .079 | .0067 | .0045 | 59.6 |
| 200. | 2939.200 | .075 | .0067 | .0045 | 59.6 |
| 220. | 3233.120 | .068 | .0072 | .0039 | 64.9 |
| 240. | 3527.040 | .062 | .0076 | .0035 | 68.4 |
| 260. | 3820.960 | .057 | .0076 | .0035 | 68.4 |
| 280. | 4114.880 | .053 | .0079 | .0033 | 70.2 |
| 300. | 4408.800 | .050 | .0078 | .0033 | 70.2 |
| 330. | 4849.680 | .045 | .0078 | .0033 | 70.2 |
| 360. | 5290.560 | .041 | .0080 | .0031 | 71.9 |
| 390. | 5731.440 | .038 | .0080 | .0031 | 71.9 |
| 420. | 6172.320 | .035 | .0080 | .0031 | 71.9 |
| 450. | 6613.200 | .033 | .0080 | .0031 | 71.9 |
| 480. | 7201.040 | .030 | .0080 | .0031 | 71.9 |
| 510. | 7494.960 | .029 | .0080 | .0031 | 71.9 |
| 540. | 7935.840 | .027 | .0082 | .0029 | 73.7 |
| 590. | 8670.640 | .025 | .0088 | .0023 | 78.9 |
| 610. | 8964.560 | .024 | .0088 | .0023 | 78.9 |
| 640. | 9405.440 | .023 | .0088 | .0023 | 78.9 |
| 700. | 10287.200 | .021 | .0096 | .0016 | 86.0 |
| 740. | 10875.040 | .020 | .0096 | .0016 | 86.0 |
| 770. | 11315.920 | .019 | .0100 | .0012 | 89.5 |
| 800. | 11756.800 | .019 | .0100 | .0012 | 89.5 |
| 830. | 12197.680 | .018 | .0104 | .0008 | 93.0 |
| 860. | 12638.560 | .017 | .0108 | .0004 | 96.5 |
| 900. | 13226.400 | .017 | .0108 | .0004 | 96.5 |
| 930. | 13667.280 | .016 | .0108 | .0004 | 96.5 |
| 960. | 13961.200 | .016 | .0108 | .0004 | 96.5 |
| 1000. | 14696.000 | .014 | .0111 | .0000 | 100.0 |

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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6574.

SEQUENCE NUMBER 39
PORE VOLUME .009 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0077 | .0 |
| 2. | 29.392 | 7.500 | .0010 | .0067 | 12.8 |
| 3. | 44.088 | 5.000 | .0010 | .0067 | 12.8 |
| 4. | 58.784 | 3.700 | .0010 | .0067 | 12.8 |
| 5. | 73.480 | 3.000 | .0011 | .0065 | 14.9 |
| 6. | 88.176 | 2.500 | .0011 | .0065 | 14.9 |
| 7. | 102.872 | 2.100 | .0011 | .0065 | 14.9 |
| 8. | 117.568 | 1.800 | .0011 | .0065 | 14.9 |
| 9. | 132.264 | 1.600 | .0011 | .0065 | 14.9 |
| 10. | 146.960 | 1.500 | .0011 | .0065 | 14.9 |
| 11. | 161.656 | 1.400 | .0011 | .0065 | 14.9 |
| 12. | 176.352 | 1.300 | .0011 | .0065 | 14.9 |
| 13. | 191.048 | 1.200 | .0011 | .0065 | 14.9 |
| 14. | 205.744 | 1.100 | .0013 | .0064 | 17.0 |
| 15. | 220.440 | 1.000 | .0013 | .0064 | 17.0 |
| 16. | 235.136 | .930 | .0013 | .0064 | 17.0 |
| 17. | 249.832 | .880 | .0013 | .0064 | 17.0 |
| 18. | 264.528 | .830 | .0013 | .0064 | 17.0 |
| 19. | 279.224 | .790 | .0013 | .0064 | 17.0 |
| 20. | 293.920 | .750 | .0013 | .0064 | 17.0 |
| 25. | 367.400 | .600 | .0013 | .0064 | 17.0 |
| 30. | 440.880 | .500 | .0013 | .0064 | 17.0 |
| 35. | 514.360 | .430 | .0013 | .0064 | 17.0 |
| 40. | 587.840 | .370 | .0013 | .0064 | 17.0 |
| 45. | 661.320 | .330 | .0013 | .0064 | 17.0 |
| 50. | 734.800 | .300 | .0013 | .0064 | 17.0 |
| 55. | 808.280 | .270 | .0015 | .0062 | 19.1 |
| 60. | 881.760 | .250 | .0015 | .0062 | 19.1 |
| 65. | 955.240 | .230 | .0015 | .0062 | 19.1 |
| 70. | 1028.720 | .210 | .0015 | .0062 | 19.1 |
| 75. | 1102.200 | .200 | .0015 | .0062 | 19.1 |
| 80. | 1175.680 | .180 | .0015 | .0062 | 19.1 |
| 85. | 1249.160 | .170 | .0015 | .0062 | 19.1 |

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Battelle Columbus Labs.

POROSITY DATA FOR SAMPLE V 7-6514.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0015 | .0062 | 19.1 |
| 100. | 1469.600 | .150 | .0015 | .0062 | 19.1 |
| 110. | 1616.560 | .140 | .0018 | .0059 | 23.4 |
| 120. | 1763.520 | .130 | .0020 | .0057 | 25.5 |
| 130. | 1910.480 | .120 | .0020 | .0057 | 25.5 |
| 140. | 2057.440 | .110 | .0021 | .0056 | 27.7 |
| 150. | 2204.400 | .100 | .0025 | .0052 | 31.9 |
| 170. | 2498.320 | .088 | .0026 | .0051 | 34.0 |
| 180. | 2645.280 | .083 | .0028 | .0049 | 36.2 |
| 190. | 2792.240 | .079 | .0028 | .0049 | 36.2 |
| 200. | 2939.200 | .075 | .0028 | .0049 | 36.2 |
| 220. | 3233.120 | .068 | .0031 | .0046 | 40.4 |
| 240. | 3527.040 | .062 | .0033 | .0044 | 42.6 |
| 260. | 3820.960 | .057 | .0033 | .0044 | 42.6 |
| 280. | 4114.880 | .053 | .0036 | .0041 | 46.8 |
| 300. | 4408.800 | .050 | .0036 | .0041 | 46.8 |
| 330. | 4849.680 | .045 | .0038 | .0039 | 48.9 |
| 360. | 5290.560 | .041 | .0038 | .0039 | 48.9 |
| 390. | 5731.440 | .039 | .0041 | .0036 | 53.2 |
| 420. | 6172.320 | .035 | .0044 | .0033 | 57.4 |
| 450. | 6613.200 | .033 | .0044 | .0033 | 57.4 |
| 490. | 7201.040 | .030 | .0047 | .0029 | 61.7 |
| 510. | 7494.960 | .029 | .0051 | .0026 | 66.0 |
| 540. | 7935.840 | .027 | .0051 | .0026 | 66.0 |
| 590. | 8670.640 | .025 | .0054 | .0023 | 70.2 |
| 610. | 8964.560 | .024 | .0054 | .0023 | 70.2 |
| 640. | 9405.440 | .023 | .0056 | .0021 | 72.3 |
| 700. | 10287.200 | .021 | .0059 | .0018 | 76.6 |
| 740. | 10875.040 | .020 | .0062 | .0015 | 80.9 |
| 770. | 11315.920 | .019 | .0062 | .0015 | 80.9 |
| 800. | 11756.800 | .019 | .0065 | .0011 | 85.1 |
| 830. | 12197.680 | .018 | .0065 | .0011 | 85.1 |
| 860. | 12638.560 | .017 | .0069 | .0008 | 89.4 |
| 900. | 13226.400 | .017 | .0070 | .0007 | 91.5 |
| 930. | 13667.280 | .016 | .0070 | .0007 | 91.5 |
| 960. | 13961.200 | .016 | .0074 | .0003 | 95.7 |
| 1000. | 14696.000 | .014 | .0077 | .0000 | 100.0 |

POROSITY DATA FOR SAMPLE V 7-6554.

SEQUENCE NUMBER 41
PORE VOLUME .034 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0348 | .0 |
| 2. | 29.392 | 7.500 | .0009 | .0339 | 2.7 |
| 3. | 44.088 | 5.000 | .0011 | .0337 | 3.1 |
| 4. | 58.784 | 3.700 | .0012 | .0336 | 3.5 |
| 5. | 73.480 | 3.000 | .0013 | .0335 | 3.9 |
| 6. | 88.176 | 2.500 | .0020 | .0328 | 5.8 |
| 7. | 102.872 | 2.100 | .0028 | .0320 | 8.1 |
| 8. | 117.568 | 1.800 | .0035 | .0313 | 10.1 |
| 9. | 132.264 | 1.600 | .0043 | .0305 | 12.4 |
| 10. | 146.960 | 1.500 | .0051 | .0297 | 14.7 |
| 11. | 161.656 | 1.400 | .0058 | .0290 | 16.7 |
| 12. | 176.352 | 1.300 | .0067 | .0281 | 19.4 |
| 13. | 191.048 | 1.200 | .0077 | .0271 | 22.1 |
| 14. | 205.744 | 1.100 | .0086 | .0262 | 24.8 |
| 15. | 220.440 | 1.000 | .0094 | .0254 | 27.1 |
| 16. | 235.136 | .930 | .0103 | .0246 | 29.5 |
| 17. | 249.832 | .880 | .0113 | .0235 | 32.6 |
| 18. | 264.528 | .830 | .0120 | .0228 | 34.5 |
| 19. | 279.224 | .790 | .0128 | .0220 | 36.8 |
| 20. | 293.920 | .750 | .0139 | .0209 | 39.9 |
| 25. | 367.400 | .600 | .0139 | .0209 | 39.9 |
| 30. | 440.880 | .500 | .0139 | .0209 | 39.9 |
| 35. | 514.360 | .430 | .0169 | .0179 | 48.4 |
| 40. | 587.840 | .370 | .0185 | .0163 | 53.1 |
| 45. | 661.320 | .330 | .0202 | .0146 | 58.1 |
| 50. | 734.800 | .300 | .0212 | .0136 | 60.9 |
| 55. | 808.280 | .270 | .0220 | .0128 | 63.2 |
| 60. | 881.760 | .250 | .0227 | .0121 | 65.1 |
| 65. | 955.240 | .230 | .0233 | .0115 | 67.1 |
| 70. | 1028.720 | .210 | .0239 | .0109 | 68.6 |
| 75. | 1102.200 | .200 | .0243 | .0105 | 69.8 |
| 80. | 1175.680 | .180 | .0246 | .0103 | 70.5 |
| 85. | 1249.160 | .170 | .0248 | .0100 | 71.3 |

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POROSITY DATA FOR SAMPLE V 7-6544.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0252 | .0096 | 72.5 |
| 100. | 1469.600 | .150 | .0256 | .0092 | 73.6 |
| 110. | 1616.560 | .140 | .0259 | .0089 | 74.4 |
| 120. | 1763.520 | .130 | .0264 | .0084 | 76.0 |
| 130. | 1910.480 | .120 | .0266 | .0082 | 76.4 |
| 140. | 2057.440 | .110 | .0270 | .0078 | 77.5 |
| 150. | 2204.400 | .100 | .0273 | .0076 | 78.3 |
| 170. | 2498.320 | .088 | .0277 | .0072 | 79.5 |
| 180. | 2645.280 | .083 | .0279 | .0069 | 80.2 |
| 190. | 2792.240 | .079 | .0281 | .0067 | 80.6 |
| 200. | 2939.200 | .075 | .0281 | .0067 | 80.6 |
| 220. | 3233.120 | .068 | .0286 | .0062 | 82.2 |
| 240. | 3527.040 | .062 | .0289 | .0059 | 82.9 |
| 260. | 3820.960 | .057 | .0291 | .0057 | 83.7 |
| 280. | 4114.880 | .053 | .0294 | .0054 | 84.5 |
| 300. | 4408.800 | .050 | .0294 | .0054 | 84.5 |
| 330. | 4849.680 | .045 | .0300 | .0049 | 86.0 |
| 360. | 5290.560 | .041 | .0301 | .0047 | 86.4 |
| 390. | 5731.440 | .038 | .0304 | .0045 | 87.2 |
| 420. | 6172.320 | .035 | .0306 | .0042 | 88.0 |
| 450. | 6613.200 | .033 | .0309 | .0039 | 88.8 |
| 480. | 7201.040 | .030 | .0313 | .0035 | 89.9 |
| 510. | 7494.960 | .029 | .0313 | .0035 | 89.9 |
| 540. | 7935.840 | .027 | .0318 | .0030 | 91.5 |
| 590. | 8670.640 | .025 | .0321 | .0027 | 92.2 |
| 610. | 8964.560 | .024 | .0321 | .0027 | 92.2 |
| 640. | 9405.440 | .023 | .0327 | .0022 | 93.8 |
| 700. | 10287.200 | .021 | .0331 | .0018 | 95.0 |
| 740. | 10875.040 | .020 | .0333 | .0015 | 95.7 |
| 770. | 11315.920 | .019 | .0336 | .0012 | 96.5 |
| 800. | 11756.800 | .019 | .0336 | .0012 | 96.5 |
| 830. | 12197.680 | .018 | .0340 | .0008 | 97.7 |
| 860. | 12638.560 | .017 | .0341 | .0007 | 98.1 |
| 930. | 13226.400 | .017 | .0344 | .0004 | 98.8 |
| 950. | 13667.280 | .016 | .0347 | .0001 | 99.6 |
| 960. | 13961.200 | .016 | .0347 | .0001 | 99.6 |
| 1000. | 14696.000 | .014 | .0348 | .0000 | 100.0 |



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POROSITY DATA FOR SAMPLE V 7-60-4.

SEQUENCE NUMBER 44
PORE VOLUME .025 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0246 | .0 |
| 2. | 29.392 | 7.500 | .0014 | .0232 | 5.6 |
| 3. | 44.088 | 5.000 | .0016 | .0230 | 6.5 |
| 4. | 58.784 | 3.750 | .0016 | .0230 | 6.5 |
| 5. | 73.480 | 3.000 | .0016 | .0230 | 6.5 |
| 6. | 88.176 | 2.500 | .0018 | .0228 | 7.3 |
| 7. | 102.872 | 2.100 | .0018 | .0228 | 7.3 |
| 8. | 117.568 | 1.800 | .0018 | .0228 | 7.3 |
| 9. | 132.264 | 1.600 | .0020 | .0226 | 8.1 |
| 10. | 146.960 | 1.500 | .0022 | .0224 | 8.9 |
| 11. | 161.656 | 1.400 | .0028 | .0218 | 11.3 |
| 12. | 176.352 | 1.300 | .0036 | .0210 | 14.5 |
| 13. | 191.048 | 1.200 | .0040 | .0206 | 16.1 |
| 14. | 205.744 | 1.100 | .0040 | .0206 | 16.1 |
| 15. | 220.440 | 1.000 | .0042 | .0204 | 16.9 |
| 16. | 235.136 | .930 | .0044 | .0202 | 17.7 |
| 17. | 249.832 | .880 | .0054 | .0192 | 21.8 |
| 18. | 264.528 | .830 | .0054 | .0192 | 21.8 |
| 19. | 279.224 | .790 | .0056 | .0190 | 22.6 |
| 20. | 293.920 | .750 | .0056 | .0190 | 22.6 |
| 25. | 367.400 | .600 | .0056 | .0190 | 22.6 |
| 30. | 440.880 | .500 | .0056 | .0190 | 22.6 |
| 35. | 514.360 | .430 | .0056 | .0190 | 22.6 |
| 40. | 587.840 | .370 | .0065 | .0180 | 26.6 |
| 45. | 661.320 | .330 | .0069 | .0177 | 28.2 |
| 50. | 734.800 | .300 | .0075 | .0171 | 30.6 |
| 55. | 808.280 | .270 | .0079 | .0167 | 32.3 |
| 60. | 881.760 | .250 | .0083 | .0163 | 33.9 |
| 65. | 955.240 | .230 | .0085 | .0161 | 34.7 |
| 70. | 1028.720 | .210 | .0087 | .0159 | 35.5 |
| 75. | 1102.200 | .200 | .0089 | .0157 | 36.3 |
| 80. | 1175.680 | .180 | .0093 | .0153 | 37.9 |
| 85. | 1249.160 | .170 | .0093 | .0153 | 37.9 |

POROSITY DATA FOR SAMPLE V 7-6634.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0099 | .0147 | 40.3 |
| 100. | 1469.600 | .150 | .0101 | .0145 | 41.1 |
| 110. | 1616.560 | .140 | .0105 | .0141 | 42.7 |
| 120. | 1763.520 | .130 | .0109 | .0137 | 44.4 |
| 130. | 1910.480 | .120 | .0113 | .0133 | 46.0 |
| 140. | 2057.440 | .110 | .0113 | .0133 | 46.0 |
| 150. | 2204.400 | .100 | .0117 | .0129 | 47.6 |
| 170. | 2498.320 | .089 | .0117 | .0129 | 47.6 |
| 180. | 2645.280 | .083 | .0121 | .0125 | 49.2 |
| 190. | 2792.240 | .079 | .0123 | .0123 | 50.0 |
| 200. | 2939.200 | .075 | .0127 | .0119 | 51.6 |
| 220. | 3233.120 | .068 | .0127 | .0119 | 51.6 |
| 240. | 3527.040 | .062 | .0131 | .0115 | 53.2 |
| 260. | 3820.960 | .057 | .0135 | .0111 | 54.8 |
| 280. | 4114.880 | .053 | .0139 | .0107 | 56.5 |
| 300. | 4408.800 | .050 | .0141 | .0105 | 57.3 |
| 330. | 4849.680 | .045 | .0145 | .0101 | 58.9 |
| 360. | 5290.560 | .041 | .0151 | .0095 | 61.3 |
| 390. | 5731.440 | .038 | .0155 | .0091 | 62.9 |
| 420. | 6172.320 | .035 | .0159 | .0087 | 64.5 |
| 450. | 6613.200 | .033 | .0163 | .0083 | 66.1 |
| 480. | 7201.040 | .030 | .0167 | .0079 | 67.7 |
| 510. | 7494.960 | .029 | .0171 | .0075 | 69.4 |
| 540. | 7935.840 | .027 | .0175 | .0071 | 71.0 |
| 570. | 8670.640 | .025 | .0182 | .0063 | 74.2 |
| 610. | 8964.560 | .024 | .0184 | .0061 | 75.0 |
| 640. | 9405.440 | .023 | .0188 | .0059 | 76.6 |
| 700. | 10287.200 | .021 | .0196 | .0050 | 79.8 |
| 740. | 10875.040 | .020 | .0204 | .0042 | 83.1 |
| 770. | 11315.920 | .019 | .0210 | .0036 | 85.5 |
| 800. | 11756.800 | .019 | .0212 | .0034 | 86.3 |
| 830. | 12197.680 | .018 | .0214 | .0032 | 87.1 |
| 860. | 12638.560 | .017 | .0218 | .0028 | 88.7 |
| 900. | 13226.400 | .017 | .0226 | .0020 | 91.9 |
| 930. | 13667.280 | .016 | .0232 | .0014 | 94.4 |
| 960. | 13961.200 | .016 | .0232 | .0014 | 94.4 |
| 1000. | 14696.000 | .014 | .0246 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE V 7-6624.

SEQUENCE NUMBER 46
PORE VOLUME .039 CC/G

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 1. | 14.696 | 15.000 | .0000 | .0352 | .0 |
| 2. | 29.392 | 7.500 | .0012 | .0340 | 3.3 |
| 3. | 44.088 | 5.000 | .0014 | .0338 | 3.8 |
| 4. | 58.784 | 3.700 | .0014 | .0338 | 3.8 |
| 5. | 73.480 | 3.000 | .0015 | .0336 | 4.4 |
| 6. | 88.176 | 2.500 | .0015 | .0336 | 4.4 |
| 7. | 102.872 | 2.100 | .0017 | .0334 | 4.9 |
| 8. | 117.568 | 1.800 | .0017 | .0334 | 4.9 |
| 9. | 132.264 | 1.600 | .0025 | .0327 | 7.1 |
| 10. | 146.960 | 1.500 | .0035 | .0317 | 9.9 |
| 11. | 161.656 | 1.400 | .0039 | .0313 | 11.0 |
| 12. | 176.352 | 1.300 | .0052 | .0300 | 14.8 |
| 13. | 191.044 | 1.200 | .0060 | .0292 | 17.0 |
| 14. | 205.744 | 1.100 | .0072 | .0280 | 20.3 |
| 15. | 220.440 | 1.000 | .0079 | .0276 | 21.4 |
| 16. | 235.136 | .930 | .0079 | .0273 | 22.5 |
| 17. | 249.832 | .880 | .0091 | .0261 | 25.8 |
| 18. | 264.528 | .830 | .0093 | .0259 | 26.4 |
| 19. | 279.224 | .790 | .0101 | .0251 | 28.6 |
| 20. | 293.920 | .750 | .0106 | .0245 | 30.2 |
| 25. | 367.400 | .600 | .0106 | .0245 | 30.2 |
| 30. | 440.880 | .500 | .0106 | .0245 | 30.2 |
| 35. | 514.360 | .430 | .0106 | .0245 | 30.2 |
| 40. | 587.840 | .370 | .0128 | .0224 | 36.3 |
| 45. | 661.320 | .330 | .0143 | .0209 | 40.7 |
| 50. | 734.800 | .300 | .0155 | .0197 | 44.0 |
| 55. | 808.280 | .270 | .0162 | .0189 | 46.2 |
| 60. | 881.760 | .250 | .0174 | .0178 | 49.5 |
| 65. | 955.240 | .230 | .0178 | .0174 | 50.5 |
| 70. | 1028.720 | .210 | .0186 | .0172 | 51.1 |
| 75. | 1102.200 | .200 | .0186 | .0166 | 52.7 |
| 80. | 1175.680 | .180 | .0189 | .0162 | 53.8 |
| 85. | 1249.160 | .170 | .0193 | .0159 | 54.9 |

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POROSITY DATA FOR SAMPLE V 7-6623.

| PRESSURE ATMS | PRESSURE PSI | PORE DIAMETER MICRON | PORE VOLUME CC/G | CHANGE IN PORE VOLUME CC/G | PCT. PORES GREATER THAN DIA INDICATED |
|---|---|---|---|---|---|
| 90. | 1322.640 | .160 | .0199 | .0153 | 56.6 |
| 100. | 1469.600 | .150 | .0203 | .0149 | 57.7 |
| 110. | 1616.560 | .140 | .0211 | .0141 | 59.9 |
| 120. | 1763.520 | .130 | .0215 | .0137 | 61.0 |
| 130. | 1910.480 | .120 | .0216 | .0135 | 61.5 |
| 140. | 2057.440 | .110 | .0216 | .0135 | 61.5 |
| 150. | 2204.400 | .100 | .0226 | .0126 | 64.3 |
| 170. | 2498.320 | .088 | .0230 | .0122 | 65.4 |
| 180. | 2645.280 | .083 | .0232 | .0120 | 65.9 |
| 190. | 2792.240 | .079 | .0232 | .0120 | 65.9 |
| 200. | 2939.200 | .075 | .0236 | .0116 | 67.0 |
| 220. | 3233.120 | .068 | .0242 | .0110 | 68.7 |
| 240. | 3527.040 | .062 | .0245 | .0106 | 69.8 |
| 260. | 3820.960 | .057 | .0245 | .0106 | 69.8 |
| 280. | 4114.880 | .053 | .0255 | .0097 | 72.5 |
| 300. | 4408.800 | .050 | .0255 | .0097 | 72.5 |
| 330. | 4849.680 | .045 | .0261 | .0091 | 74.2 |
| 360. | 5290.560 | .041 | .0265 | .0087 | 75.3 |
| 390. | 5731.440 | .038 | .0271 | .0081 | 76.9 |
| 420. | 6172.320 | .035 | .0274 | .0077 | 78.0 |
| 450. | 6613.200 | .033 | .0278 | .0073 | 79.1 |
| 490. | 7201.040 | .030 | .0286 | .0066 | 81.3 |
| 510. | 7494.960 | .029 | .0286 | .0066 | 81.3 |
| 540. | 7935.840 | .027 | .0294 | .0058 | 83.5 |
| 580. | 8670.640 | .025 | .0302 | .0050 | 85.7 |
| 610. | 8964.560 | .024 | .0302 | .0050 | 85.7 |
| 640. | 9405.440 | .023 | .0303 | .0048 | 86.3 |
| 700. | 10287.200 | .021 | .0313 | .0039 | 89.0 |
| 740. | 10875.040 | .020 | .0321 | .0031 | 91.2 |
| 770. | 11315.920 | .019 | .0323 | .0029 | 91.8 |
| 800. | 11756.800 | .019 | .0325 | .0027 | 92.3 |
| 830. | 12197.680 | .018 | .0329 | .0023 | 93.4 |
| 860. | 12638.560 | .017 | .0334 | .0017 | 95.1 |
| 900. | 13226.400 | .017 | .0340 | .0012 | 96.7 |
| 930. | 13667.280 | .016 | .0340 | .0012 | 96.7 |
| 960. | 13961.200 | .016 | .0348 | .0004 | 99.9 |
| 1000. | 14696.000 | .014 | .0352 | .0000 | 100.0 |