UGR File #188
Battelle Columbus Labs.
June 20, 1979

INDIVIDUAL WELL REPORT
FROM THE PROGRAM ON

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

WELL R-109 WASHINGTON COUNTY, OHIO

by

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

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

## WELL R-109 WASHINGTON COUNTY, OHIO

by

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

## INTRODUCTION AND SUMMARY

Coring of Well R-109 (Washington County, Ohio) was accomplished in August 1976. A total of 25 samples were collected, all for Battelle.

Hydrocarbon gas analyses indicate that higher chain hydrocarbon gases ($C_2$-$C_5$) make up a significant portion of total hydrocarbons in the shales, but methane is still the dominant single gas.

Distinct relationships exist between the carbon and hydrocarbon gas contents, showing increase in hydrocarbon gas contents with increasing carbon. Similar relationships between hydrogen and hydrocarbon gas contents exist, though they are not as pronounced. Gas contents appear not to be related to the bulk densities in any quantitative manner, though organic contents (carbon and hydrogen) seem to be related to bulk density values much more clearly.

R-109 shales are virtually impermeable to gases and other fluids, as attempted helium gas permeability measurements indicated extremely small ($<10^{-12}$ Darcy) permeability values.

## OBJECTIVE AND SCOPE

The objective of this program is to determine the relationships between shale characteristic, 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.

A large number of 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, attempts will be made to establish the interrelationships between the shale characteristics, the hydrocarbon gas content, and well locations from which the samples were obtained, employing the Automatic Interaction Detection (AID) Analysis.

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 |
| 6 | Data Interpretation and Correlation |

## ANALYSIS AND DISCUSSION OF THE CHARACTERIZATION DATA

Detailed descriptions of the experimental procedures employed in the execution of the elemental tasks described were reported in the Appendix of the Fifth Quarterly Technical Progress Report (ORO-5205-5) submitted to U.S./DOE in January 1978.

### Task 1. Core Sampling

The coring of R-109 shales was performed in August 1976. A total of 25 samples was collected, all for Battelle. Total coring was accomplished in four barrels. Pertinent well and field sampling data are presented in Tables 1 and 2, respectively. Figure 1 depicts the on-surface time of R-109 shales.

### Task 2. Gas Content and Gas Release Kinetics

"Free" gas analysis results on Well R-109 are tabulated in Table 3. Higher chain hydrocarbons make up a significant portion of the total hydrocarbon gas in these shales, but methane is still the dominant single hydrocarbon gas in the system.

Statistical parameters for the hydrocarbon gas data are given in Table 4. Total hydrocarbon contents show a mean value of 60 percent with upper and lower limits of 70.5 and 49.6 percent, respectively. No discernable relationship is seen between the hydrocarbon gas values and sample depth, illustrated in Figure 2.

### Task 3. Chemical Characterization Data

Total carbon, hydorgen, and nitrogen values are reported in Table 5. Carbon values vary between 0.4 and 5.0 percent by weight of shale, whereas the hydrogen values show less scatter from 0.5 to 0.7 percent by weight of shale. In Figures 3 through 5, variation in chemical characterization data with sample depth are plotted. As seen in Figure 3,

carbon contents tend to increase with increasing sample depth. Similar relationships between the hydrogen and depth (Figure 4) is not as distinct. H/C atomic ratios almost remain constant with sample depth.

Figures 6 and 7 relate the carbon and hydrogen contents to natural gas contents, respectively. A general increase in natural gas contents with carbon is apparent, though the data are somewhat scattered in Figure 6. Such a relationship between the hydrogen and natural gas contents is less apparent (Figure 7).

## Task 4. Summary of Physical Characterization Data

Among the physical characteristics of R-109 shales, density, porosity (from the density data), and surface area values are tabulated in Table 6. These shales exhibit particularly high bulk densities as reflected in the low porosity values calculated. Surface area values are also somewhat higher than those shales from other locations. Higher density and surface area values would indicate low organic content and high clay mineral contents in these shales. Some of the statistical parameters on density, porosity, and surface area data are given in Table 7. These shales exhibit a mean bulk density value of 2.68 and true density of 2.71, which would translate into average porosity value of 2.3 percent.

Relationships between the bulk density and natural gas, carbon and hydrogen contents are illustrated in Figures 8 through 10. Natural gas contents appear to be independent of bulk density values, though, on an expanded density scale, a somewhat inverse relationship might be noticeable (Figure 8). Such inverse relationship is much more pronounced between the bulk density and carbon and hydrogen contents as evidenced in Figures 9 and 10.

Porosities on all R-109 samples were also determined with the mercury intrusion method. These values are depicted in Table 8.

Five R-109 shale samples were used in the determination of gas permeabilities. No measurable permeabilities were found in the direction perpendicular to the bedding planes in these shales.

## Task 5. Lithology of R-109 Shales

X-ray diffraction, SEM/EDAX and the petrographic microscope were employed in the study of the shale lithology. XRD patterns of about half the R-109 shales were obtained. As evidenced in the XRD patterns, these shales seem to be rich in illite. Kaolin minerals and chlorite are also detectable as other clay minerals. Quartz is still the major single mineral phase, but in somewhat lesser quantities than shales from other locations. Carbonate minerals, such as nahcolite, shortite, and calcite have been observed in moderate quantities. Albite is the representative feldspar mineral. Some pyrite is also present. XRD data are presented in Table 9.

Three R-109 shale samples were studied by SEM/EDAX and the petrographic microscope. Of the three samples examined, the high degree of opacity of one sample, due to staining, prevented microscopic identification and quantity estimation of its mineral constituents. All the minerals identified by X-rays were found to be present in the others. Figures 12 through 14 are SEM microphotographs of three R-109 samples.

## Task 6. Data Interpretation and Correlation

Effective use of the Automatic Interaction Detection (AID) program was hampered by both the paucity of wirelog data and the small number of samples. The data available were used to evaluate the usefulness of the wirelog information in explaining the observed variability in the laboratory data. The results of these analyses are summarized in Figure 15.

As Figure 15 shows, the twenty samples are sufficient to split twice (three final groups). Each split is shown and the effectiveness of each potential predictor is listed. The results show very good comparison between the wirelog porosity and the laboratory bulk and apparent densities. That this correlation does not hold true for the true density is somewhat surprising. The results also indicate a moderately good correlation between the electrical wirelog data and the hydrocarbon gas contents,

the bulk density/porosity and gas/volume of shale. It is also apparent from these results that the gamma ray is not a good predictor and that the classical correlation with depth is not strong in this well.

TABLE 1. WELL DATA FOR R-109

LOCATION: WASHINGTON COUNTY, OH

ALTITUDE: 816 FEET

COORDINATES: 39.23 (DEGREES.MINUTES) LATITUDE
81.33 (DEGREES.MINUTES) LONGITUDE

CORING BEGAN AT 3490 FEET AND STOPPED AT 3714 FEET. IT TOOK 4 BARRELS TO COMPLETE.

SAMPLES WERE RETURNED TO BATTELLE ON 8/ 1/76.

THERE WERE 25 SAMPLES COLLECTED FOR BATTELLE AND 0 SAMPLES COLLECTED FOR OTHERS.

RUN INFORMATION FROM WELL R-109

RUN NO. 1 CORING BEGAN AT 3490 FEET AND CORING STOPPED AT 3548 FEET. THE AVERAGE CORING RATE IS 7.09 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 2.05 HOURS

RUN NO. 2 CORING BEGAN AT 3548 FEET AND CORING STOPPED AT 3606 FEET. THE AVERAGE CORING RATE IS 6.86 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 2.00 HOURS

RUN NO. 3 CORING BEGAN AT 3606 FEET AND CORING STOPPED AT 3656 FEET. THE AVERAGE CORING RATE IS 8.20 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 2.30 HOURS

RUN NO. 4 CORING BEGAN AT 3656 FEET AND CORING STOPPED AT 3714 FEET. THE AVERAGE CORING RATE IS 6.29 MINUTES PER FOOT. THE SAMPLES WERE ON THE SURFACE IN 2.08 HOURS

TABLE 2. FIELD SAMPLING DATA FOR WELL R109

| SAMPLE ID. | COLOR | ON SURFACE TIME | BARREL NO | SEQ NO. |
|---|---|---|---|---|
| R109-3494. | | .50 | 0 | 1 |
| R109-3506. | | .75 | 0 | 2 |
| R109-3516. | | .92 | 0 | 3 |
| R109-3526. | | 1.08 | 0 | 4 |
| R109-3536. | | 1.17 | 0 | 5 |
| R109-3545. | | 1.33 | 0 | 6 |
| R109-3555. | | 1.00 | 0 | 7 |
| R109-3564. | | 1.17 | 0 | 8 |
| R109-3575. | | 1.33 | 0 | 9 |
| R109-3585. | | 1.50 | 0 | 10 |
| R109-3593. | | 1.58 | 0 | 11 |
| R109-3605. | | 1.75 | 0 | 12 |
| R109-3606. | | 1.50 | 0 | 13 |
| R109-3606. | | 1.50 | 0 | 14 |
| R109-3616. | | 1.75 | 0 | 15 |
| R109-3626. | | 1.91 | 0 | 16 |
| R109-3634. | | 2.08 | 0 | 17 |
| R109-3644. | | 2.14 | 0 | 18 |
| R109-3644. | | 2.15 | 0 | 19 |
| R109-3665. | | 1.00 | 0 | 20 |
| R109-3675. | | 1.08 | 0 | 21 |
| R109-3685. | | 1.17 | 0 | 22 |
| R109-3695. | | 1.30 | 0 | 23 |
| R109-3705. | | 1.45 | 0 | 24 |
| R109-3711. | | 1.60 | 0 | 25 |

MEAN EXPOSURE TIME 1.39
STANDARD DEVIATION OF EXPOSURE TIME .43

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TABLE 3. INITIAL GAS RELEASE DATA: WELL R-109

| SAMPLE ID | PRESSURE TORR | FREE VOLUME CC | CORE VOLUME CC | OPEN 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. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R109-3494. | 860. | 508. | 942. | 1.67 | 30.81 | 10.10 | 7.04 | 2.26 | .52 | 50.73 | 47.92 | .86 | .51 | .31 | 1 |
| R109-3506. | 925. | 339. | 1111. | .74 | 61.86 | 11.38 | 5.63 | 1.29 | .45 | 80.61 | 5.81 | .38 | .48 | .30 | 2 |
| R109-3516. | 775. | 444. | 1[illegible]6. | .89 | 61.81 | 12.82 | 7.48 | 2.05 | .46 | 84.62 | 14.49 | .71 | .53 | .38 | 3 |
| R109-3526. | 740. | 392. | 1058. | 2.52 | 68.73 | 12.52 | 6.59 | 2.12 | .45 | 90.41 | 8.56 | .54 | .48 | .33 | 4 |
| R109-3536. | 750. | 238. | 1212. | .78 | 32.81 | 6.56 | 2.79 | .68 | .29 | 43.13 | 50.30 | 5.72 | .84 | .08 | 5 |
| R109-3545. | 750. | 307. | 1143. | .66 | 37.65 | 7.03 | 3.05 | .91 | .32 | 48.96 | 42.63 | 3.64 | .72 | .13 | 6 |
| R109-3555. | 760. | 481. | 969. | 1.04 | 50.15 | 13.72 | 8.71 | 2.16 | .53 | 75.27 | 22.49 | 1.94 | .30 | .38 | 7 |
| R109-3564. | 740. | 260. | 1190. | .62 | 65.28 | 14.55 | 7.65 | 2.16 | .46 | 90.10 | 8.38 | 1.53 | 0.00 | .19 | 8 |
| R109-3575. | 875. | 321. | 1129. | .57 | 68.40 | 10.30 | 3.45 | 1.11 | .33 | 83.65 | 15.80 | .11 | .43 | .27 | 9 |
| R109-3585. | 745. | 702. | 748. | .65 | 35.54 | 8.40 | 3.60 | 1.70 | .47 | 49.71 | 45.93 | 4.11 | .71 | .46 | 10 |
| R109-3593. | 950. | 796. | 654. | .57 | 37.65 | 6.60 | 2.51 | .82 | .39 | 47.97 | 46.53 | 4.47 | 1.02 | .73 | 11 |
| R109-3605. | 750. | 543. | 907. | .52 | 62.31 | 13.54 | 7.57 | 2.13 | .55 | 86.10 | 12.75 | .77 | .38 | .51 | 12 |
| R109-3606.A | 745. | 594. | 856. | .61 | 49.47 | 12.97 | 7.05 | 2.52 | .50 | 72.51 | 24.04 | 2.85 | .62 | .49 | 13 |
| R109-3606.B | 930. | 1123. | 327. | .55 | 26.16 | 6.66 | 4.25 | 1.19 | .30 | 38.56 | 55.13 | 3.78 | 2.54 | 1.62 | 14 |
| R109-3616. | 1050. | 707. | 743. | .65 | 40.65 | 6.57 | 2.95 | .85 | .23 | 51.25 | 45.90 | .85 | 2.01 | .67 | 15 |
| R109-3626. | 775. | 609. | 841. | .94 | 48.14 | 8.18 | 3.08 | .86 | .20 | 60.36 | 38.00 | .57 | 1.07 | .45 | 16 |
| R109-3634. | 750. | 412. | 1038. | .53 | 53.84 | 7.37 | 2.43 | .70 | .19 | 64.53 | 32.97 | 1.44 | 1.07 | .25 | 17 |
| R109-3644.A | 1120. | 870. | 580. | 1.26 | 34.19 | 6.20 | 2.36 | .68 | .27 | 43.70 | 51.37 | 3.42 | 1.51 | .97 | 18 |
| R109-3644.B | 825. | 1303. | 147. | .42 | 14.27 | 3.57 | 1.98 | .50 | .16 | 20.48 | 69.69 | 7.57 | 2.25 | 1.97 | 19 |
| R109-3665. | 2105. | 312. | 1138. | .79 | 60.51 | 13.65 | 6.98 | 1.88 | .36 | 83.38 | 15.85 | .17 | .57 | .65 | 20 |
| R109-3675. | 760. | 470. | 980. | .88 | 66.65 | 14.98 | 6.55 | 1.90 | .74 | 90.82 | 8.83 | .11 | .25 | .44 | 21 |
| R109-3685. | 1300. | 236. | 1214. | 1.00 | 60.95 | 10.76 | 4.80 | 1.52 | .43 | 78.52 | 20.25 | .71 | .53 | .26 | 22 |
| R109-3695. | 1740. | 630. | 620. | .40 | 47.53 | 8.49 | 7.41 | 1.04 | .26 | 64.73 | 32.56 | 1.70 | 1.02 | 1.14 | 23 |
| R109-3705. | 730. | 490. | 960. | 1.28 | 18.11 | 3.66 | 1.99 | .49 | .18 | 24.37 | 50.63 | 7.61 | .56 | .12 | 24 |
| R109-3711. | 860. | 1026. | 424. | 1.46 | 19.02 | 4.66 | 2.02 | .65 | .17 | 26.46 | 68.06 | 4.29 | 1.19 | .73 | 25 |

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TABLE 4. STATISTICAL ANALYSES OF OFF GAS DATA

WELL R109

| | MEAN | STANDARD DEVIATION | VARIENCE | COEFFICIENT OF DEVIATION | 95 PCT. CONFIDENCE INTERVAL LOWER LIMIT | UPPER LIMIT | NO OF SAMPLES |
|---|---|---|---|---|---|---|---|
| METHANE, PERCENT | 46.098 | 16.89 | 285.24 | .37 | 39.126 | 53.070 | 25 |
| ETHANE, PERCENT | 9.485 | 1.52 | 12.42 | .37 | 7.958 | 10.960 | 25 |
| PROPANE, PERCENT | 4.799 | 2.28 | 5.18 | .47 | 3.860 | 5.739 | 25 |
| BUTANE, PERCENT | 1.367 | .66 | .43 | .44 | 1.096 | 1.638 | 25 |
| PENTANE, PERCENT | .368 | .15 | .02 | .40 | .308 | .429 | 25 |
| TOTAL HYDROCARBONS, PCT | 60.008 | 25.32 | 641.24 | .42 | 49.555 | 70.461 | 25 |
| NITROGEN, PERCENT | 33.403 | 19.47 | 378.99 | .58 | 25.367 | 41.439 | 25 |
| OXYGEN, PERCENT | 2.394 | 2.26 | 5.09 | .94 | 1.462 | 3.326 | 25 |
| CARBON DIOXIDE, PERCENT | .864 | .63 | .40 | .73 | .604 | 1.123 | 25 |
| GAS VOLUME/SHALE VOLUME | .553 | .46 | .21 | .83 | -9.900 | .742 | 25 |

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TABLE 5. CHEMICAL CHARACTERIZATION DATA, 3/78

| SAMPLE ID | TOTAL, PERCENT CARBON | HYDROGEN | NITROGEN | LOW TEMPERATURE ASH, % 200 C | 100 C | CARD CODE | SEQ NO. |
|---|---|---|---|---|---|---|---|
| R109-3494. | .4 | .5 | .1 | | | 5 | 1 |
| R109-3506. | 1.5 | .5 | .1 | | | 5 | 2 |
| R109-3516. | 1.6 | .6 | .1 | | | 5 | 3 |
| R109-3526. | 3.2 | .7 | .1 | | | 5 | 4 |
| R109-3536. | 2.2 | .6 | .1 | | | 5 | 5 |
| R109-3545. | 1.3 | .6 | .1 | | | 5 | 6 |
| R109-3555. | 1.3 | .6 | .1 | | | 5 | 7 |
| R109-3585. | 2.2 | .6 | .1 | | | 5 | 10 |
| R109-3593. | 2.8 | .6 | .1 | | | 5 | 11 |
| R109-3605. | 3.1 | .7 | .1 | | | 5 | 12 |
| R109-3606.A | 5.8 | .8 | .1 | 3.90 | | 5 | 13 |
| R109-3606.B | 3.9 | .7 | .1 | | | 5 | 14 |
| R109-3626. | .9 | .6 | .1 | | | 5 | 16 |
| R109-3634. | 2.3 | .6 | .1 | | | 5 | 17 |
| R109-3665. | 2.4 | .5 | .1 | | | 5 | 20 |
| R109-3675. | 1.8 | .6 | .1 | | | 5 | 21 |
| R109-3685. | 1.7 | .5 | .1 | | | 5 | 22 |
| R109-3695. | 3.5 | .7 | .2 | | | 5 | 23 |
| R109-3705. | .5 | .5 | .2 | | | 5 | 24 |
| R109-3711. | .5 | .5 | .1 | | | 5 | 25 |

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TABLE 6. SUMMARY OF PHYSICAL CHARACTERIZATION DATA FOR WELL R-109

| | BULK DENSTY G/CC | OPEN PORSTY PCT | CLOSED PORSTY PCT | TOTAL POROSTY PCT | SURFACE AREA M2/G | SEQ |
|---|---|---|---|---|---|---|
| R109-3494. | 2.747 | 1.669 | .374 | 2.043 | 3.800 | 1 |
| R109-3506. | 2.697 | .736 | 0.000 | .736 | 2.380 | 2 |
| R109-3516. | 2.692 | .894 | 1.082 | 1.976 | 3.870 | 3 |
| R109-3526. | 2.611 | 2.524 | 3.807 | 6.331 | 4.300 | 4 |
| R109-3536. | 2.750 | .775 | 2.094 | 2.869 | 3.050 | 5 |
| R109-3545. | 2.746 | .657 | 6.836 | 7.493 | 3.250 | 6 |
| R109-3555. | 2.698 | 1.035 | .627 | 1.662 | 3.150 | 7 |
| R109-3564. | 2.655 | .623 | 5.039 | 5.662 | 3.600 | 8 |
| R109-3575. | 2.705 | .570 | 0.000 | .570 | 3.320 | 9 |
| R109-3585. | 2.651 | .650 | 1.005 | 1.656 | 3.700 | 10 |
| R109-3593. | 2.638 | .567 | 3.121 | 3.686 | 4.310 | 11 |
| R109-3605. | 2.593 | .519 | .024 | .543 | 4.000 | 12 |
| R109-3606.A | 2.550 | .609 | 0.000 | .609 | 3.620 | 13 |
| R109-3606.B | 2.606 | .550 | 1.495 | 2.045 | 4.440 | 14 |
| R109-3616. | 2.634 | .649 | 1.254 | 1.903 | 4.140 | 15 |
| R109-3626. | 2.743 | .937 | 2.731 | 3.668 | 3.210 | 16 |
| R109-3634. | 2.699 | .527 | 0.000 | .527 | 3.390 | 17 |
| R109-3644.A | 2.654 | 1.260 | .371 | 1.631 | 3.920 | 18 |
| R109-3644.B | 2.671 | .423 | 1.025 | 1.448 | 3.480 | 19 |
| R109-3665. | 2.722 | .790 | .745 | 1.536 | 3.090 | 20 |
| R109-3675. | 2.694 | .876 | 0.000 | .876 | 4.760 | 21 |
| R109-3685. | 2.754 | 1.001 | 0.000 | 1.001 | 3.370 | 22 |
| R109-3695. | 2.583 | .403 | 4.807 | 4.409 | 3.450 | 23 |
| R109-3705. | 2.708 | 1.283 | 0.000 | 1.283 | 2.500 | 24 |
| R109-3711. | 2.747 | 1.456 | 0.000 | 1.456 | 4.540 | 25 |

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TABLE 7. STATISTISTICAL ANALYSES OF PHYSICAL CHARACTERIZATION DATA

WELL B-189

| | MEAN | STANDARD DEVIATION | VARIENCE | COEFFICIENT OF DEVIATION | 95 PCT. CONFIDENCE INTERVAL LOWER LIMIT | UPPER LIMIT | NO OF SAMPLES |
|---|---|---|---|---|---|---|---|
| BULK DENSITY, G/CC | 2.678 | .06 | .00 | .02 | 2.654 | 2.702 | 25 |
| APPARENT DENSITY, G/CC | 2.702 | .06 | .00 | .02 | 2.676 | 2.728 | 25 |
| TRUE DENSITY, G/CC | 2.711 | .09 | .01 | .03 | 2.674 | 2.748 | 25 |
| OPEN POROSITY, PCT | .879 | .47 | .22 | .54 | .685 | 1.074 | 25 |
| CLOSED POROSITY, PCT | 1.425 | 1.05 | 3.41 | 1.29 | .664 | 2.187 | 25 |
| TOTAL POROSITY, PCT | 2.305 | 1.09 | 3.59 | .82 | 1.523 | 3.086 | 25 |
| WEIGHT LOSS INITIAL, G/KG | 7.824 | 1.90 | 3.63 | .24 | 7.038 | 8.610 | 25 |
| WEIGHT LOSS FINAL, G/KG | .021 | 1.28 | 1.63 | 59.66 | 0.000 | .540 | 25 |
| TOTAL WEIGHT LOSS, G/KG | 7.845 | 1.37 | 1.86 | .17 | 7.202 | 8.489 | 25 |

TABLE 8. MERCURY INTRUSION POROSIMETRY RESULTS FOR WELL R-109

| SEQUENCE NO. | SAMPLE I.D. | POROSITY, Vol. % |
|---|---|---|
| 1 | R-109-3494 | 5.04 |
| 2 | R-109-3506 | 5.04 |
| 3 | R-109-3516 | 4.51 |
| 4 | R-109-3526 | 4.51 |
| 5 | R-109-3536 | 5.30 |
| 6 | R-109-3545 | 5.04 |
| 7 | R-109-3555 | 5.30 |
| 8 | R-109-3564 | 6.10 |
| 9 | R-109-3575 | 4.24 |
| 10 | R-109-3585 | 3.71 |
| 11 | R-109-3593 | 4.24 |
| 12 | R-109-3605 | 2.92 |
| 13 | R-109-3606A | 4.51 |
| 14 | R-109-3606B | 2.92 |
| 15 | R-109-3616 | 5.30 |
| 16 | R-109-3626 | 5.57 |
| 17 | R-109-3634 | 5.63 |
| 18 | R-109-3644A | 3.98 |
| 19 | R-109-3644 | 6.10 |
| 20 | R-109-3665 | 3.98 |
| 21 | R-109-3675 | 6.10 |
| 22 | R-109-3685 | 4.51 |
| 23 | R-109-3698 | 5.04 |
| 24 | R-109-3705 | 5.30 |
| 25 | R-109-3711 | 5.04 |

TABLE 9. XRD DATA ON WELL R-109

| Sample No. | Quartz | Illite | Kaolin | Pyrite | Nahcolite | Shortite | Siderite | Calcite | Mica | Others |
|---|---|---|---|---|---|---|---|---|---|---|
| R-109-3494 | M | M | m | - | m | M | m | m | - | Chlorite, Albite |
| R-109-3564 | M | m | m | d | d | m | m | m | - | - |
| R-109-3575 | M | m | d | m | m | m | d | m | - | - |
| R-109-3585 | M | m | d | m | m | m | d | m | - | - |
| R-109-3616 | M | m | m | m | m | m | d | m | - | - |
| R-109-3626 | M | m | m | m | m | m | d | m | - | - |
| R-109-3634 | M | - | m | m | m | m | d | m | - | - |
| R-109-3644A | M | M | M | M | M | M | d | d | - | - |
| R-109-3644B | M | - | m | m | m | M | m | m | - | - |
| R-109-3545 | M | m | m | d | d | m | - | m | - | - |
| R-109-3675 | M | - | m | m | m | m | m | - | d | Phlogopite |

LEGEND

M - Major
m - Minor
d - Detectable
D - Minor - Detectable

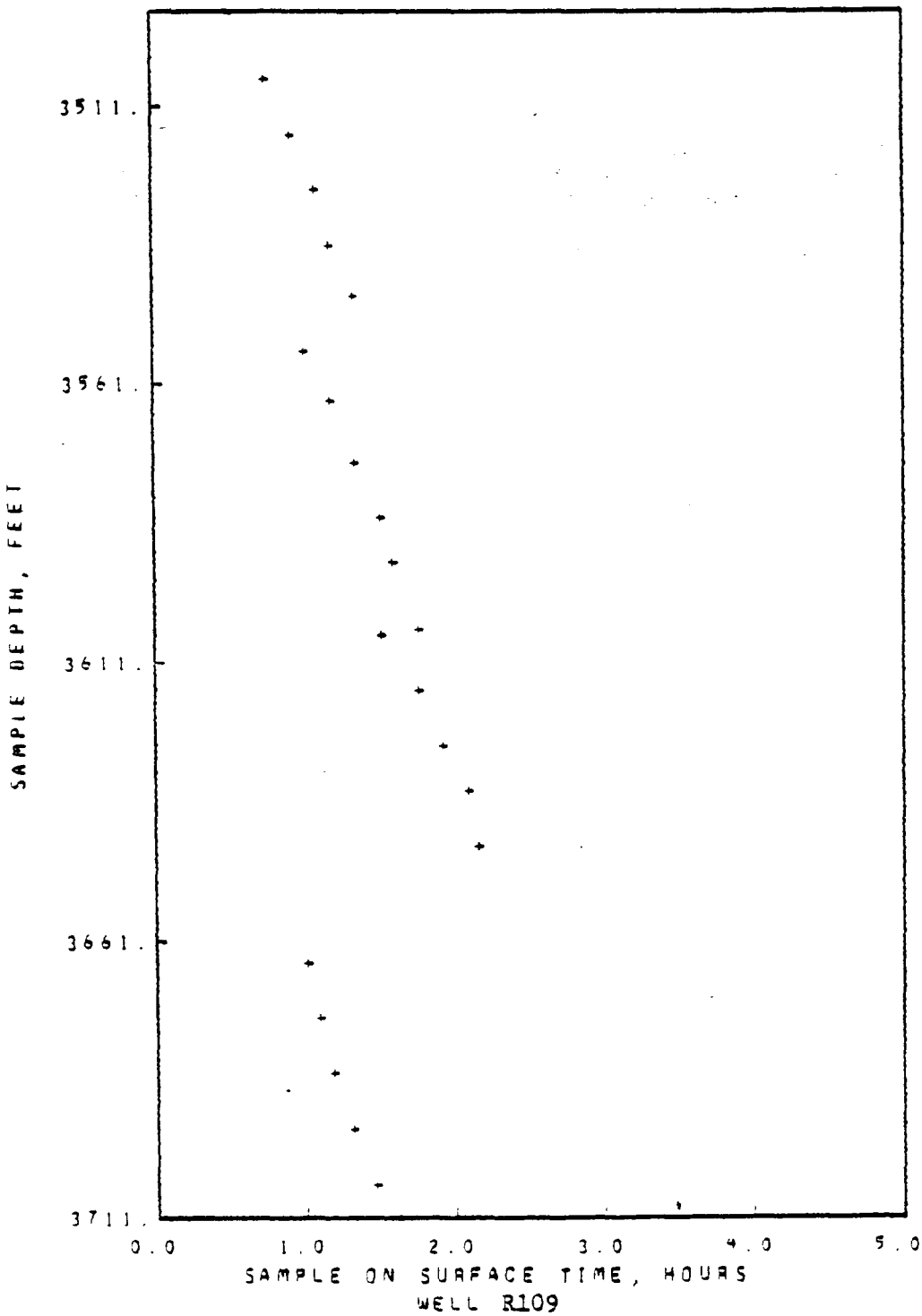



FIGURE 1. ON-SURFACE TIME VERSUS DEPTH FOR WELL R-109

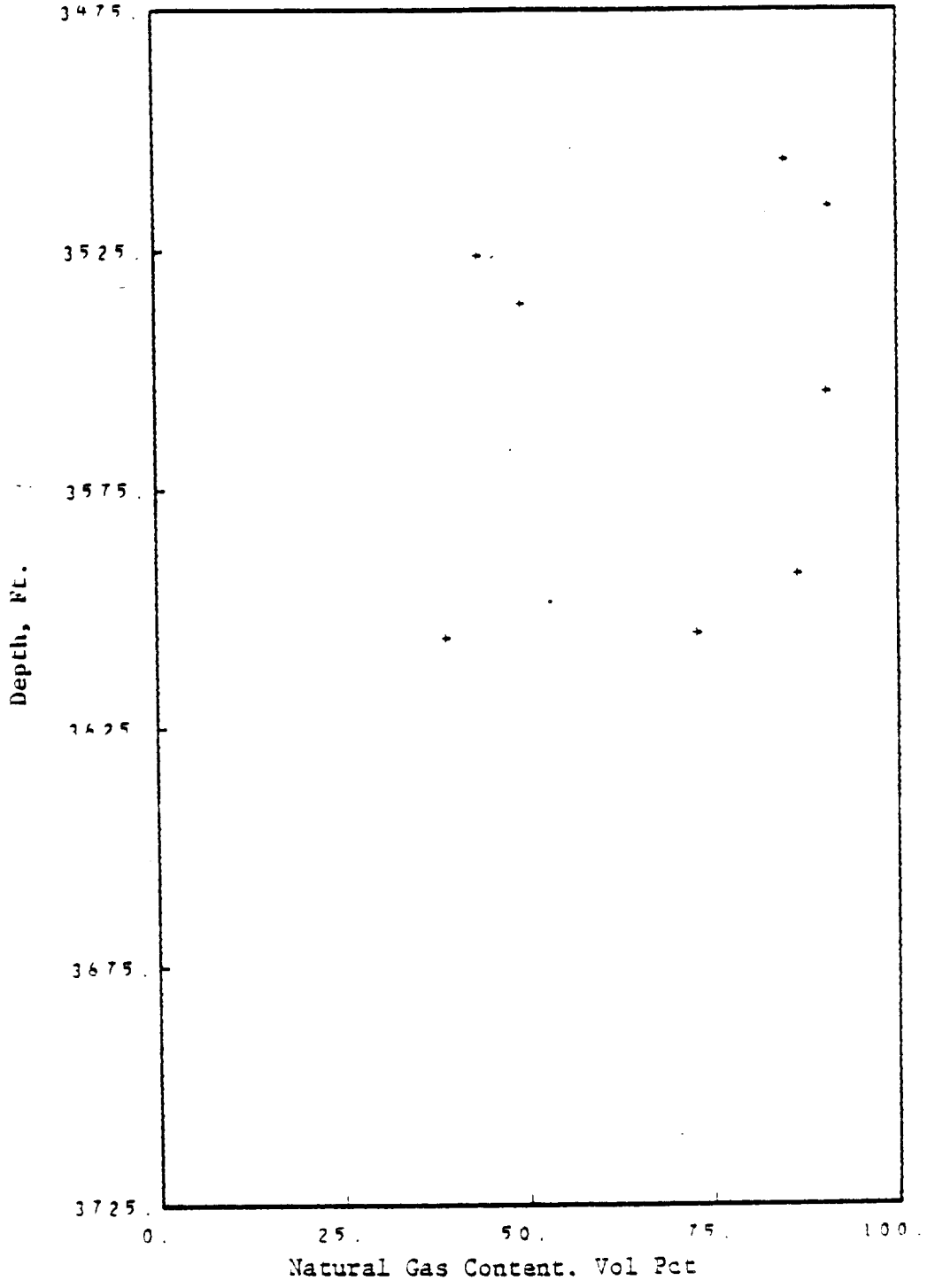



FIGURE 2. GAS CONTENT AS A FUNCTION OF SAMPLE DEPTH FOR WELL R-109

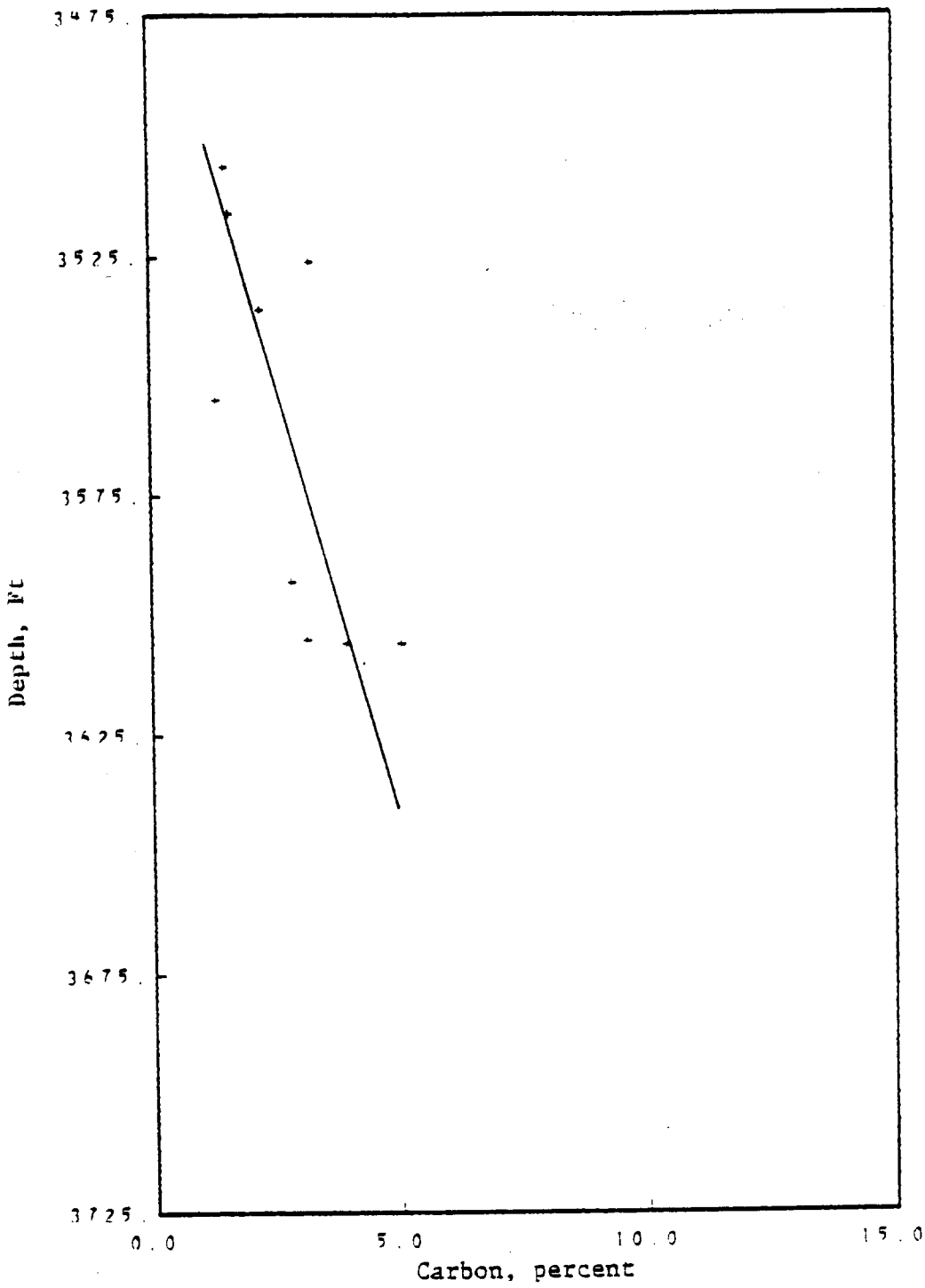



FIGURE 3. CARBON CONTENT AS A FUNCTION OF SAMPLE DEPTH FOR WELL R-109

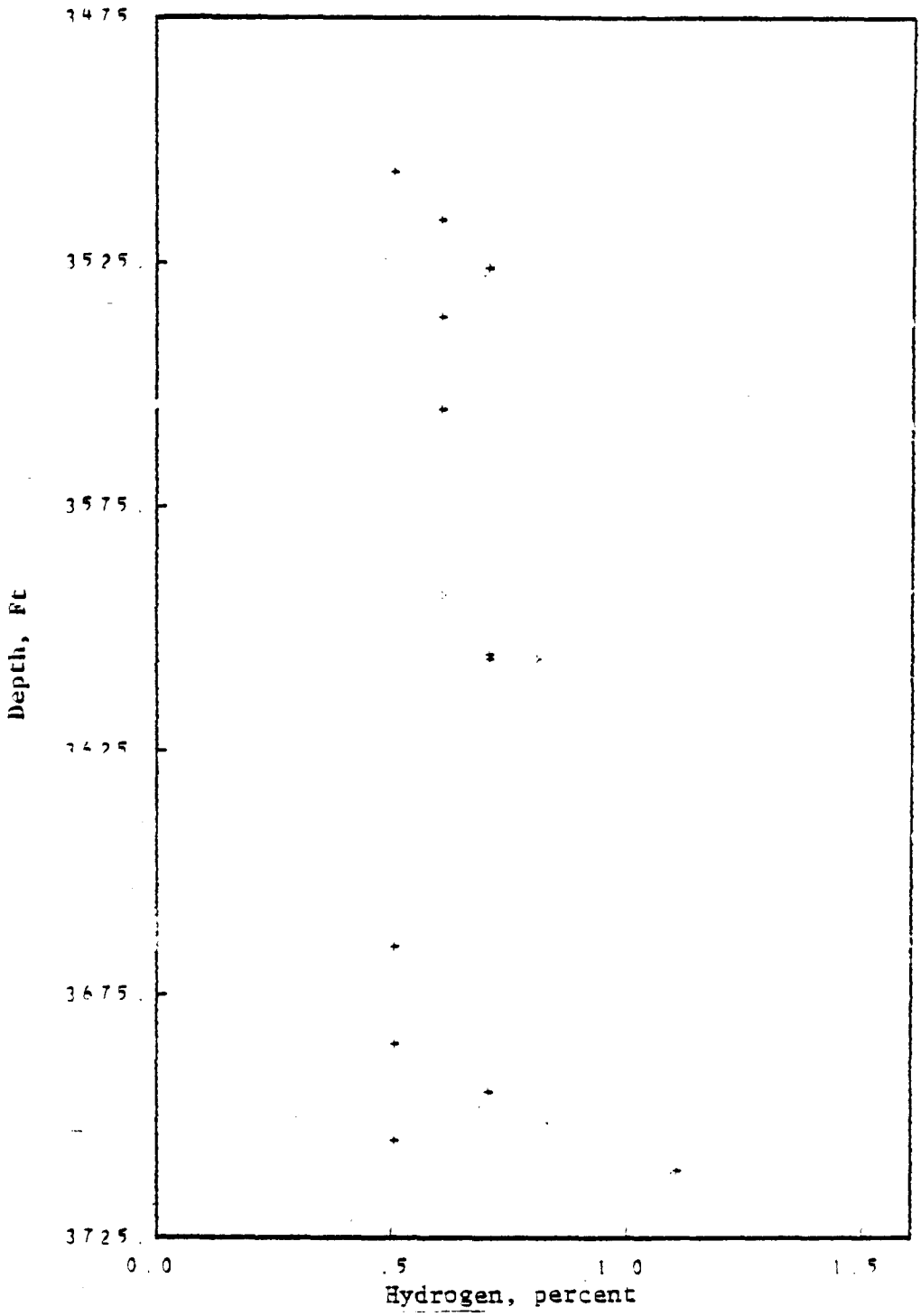



FIGURE 4. HYDROGEN CONTENT AS A FUNCTION OF SAMPLE DEPTH FOR WELL R-109

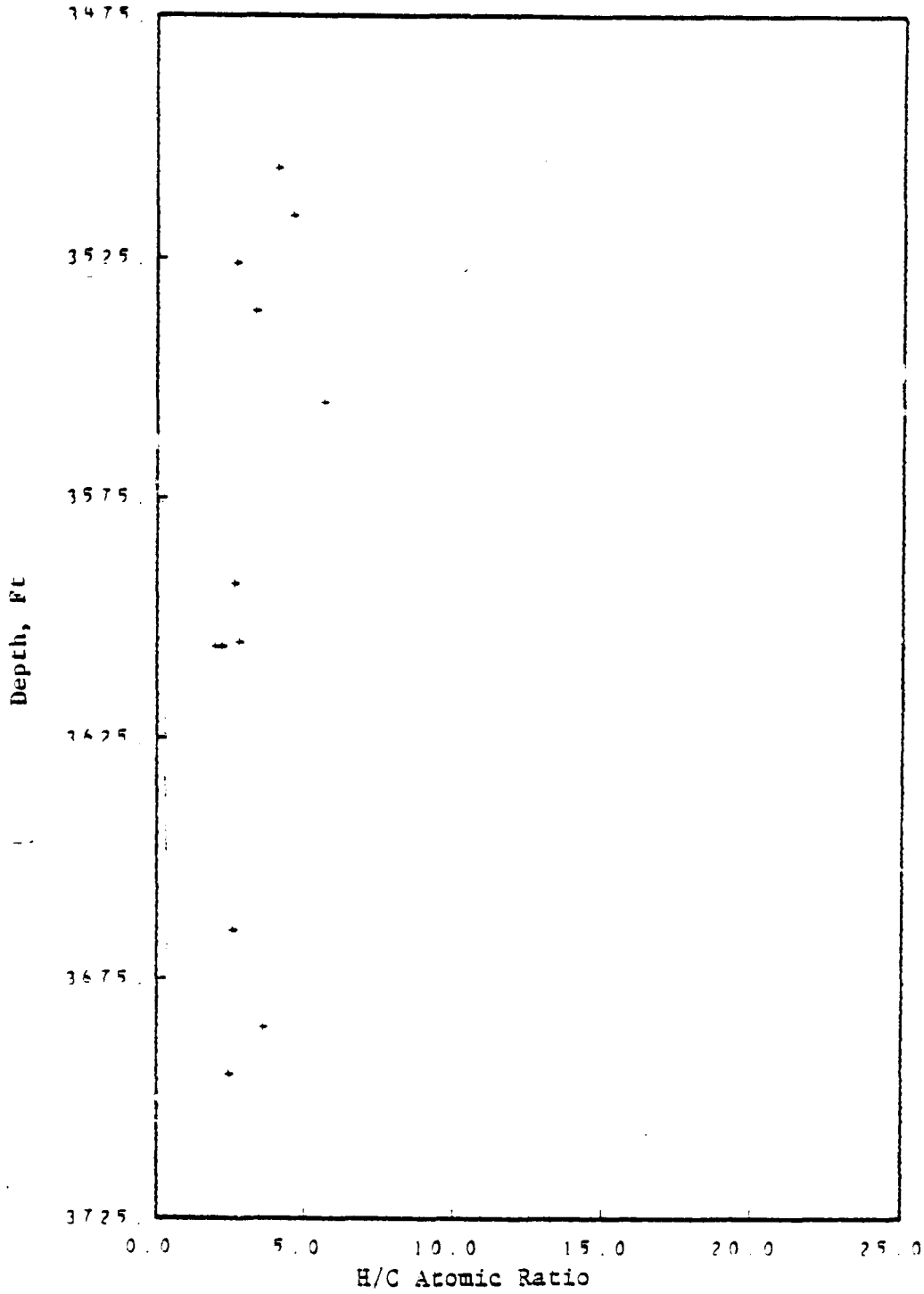



FIGURE 5. H/C ATOMIC RATIO AS A FUNCTION OF SAMPLE DEPTH FOR WELL R-109

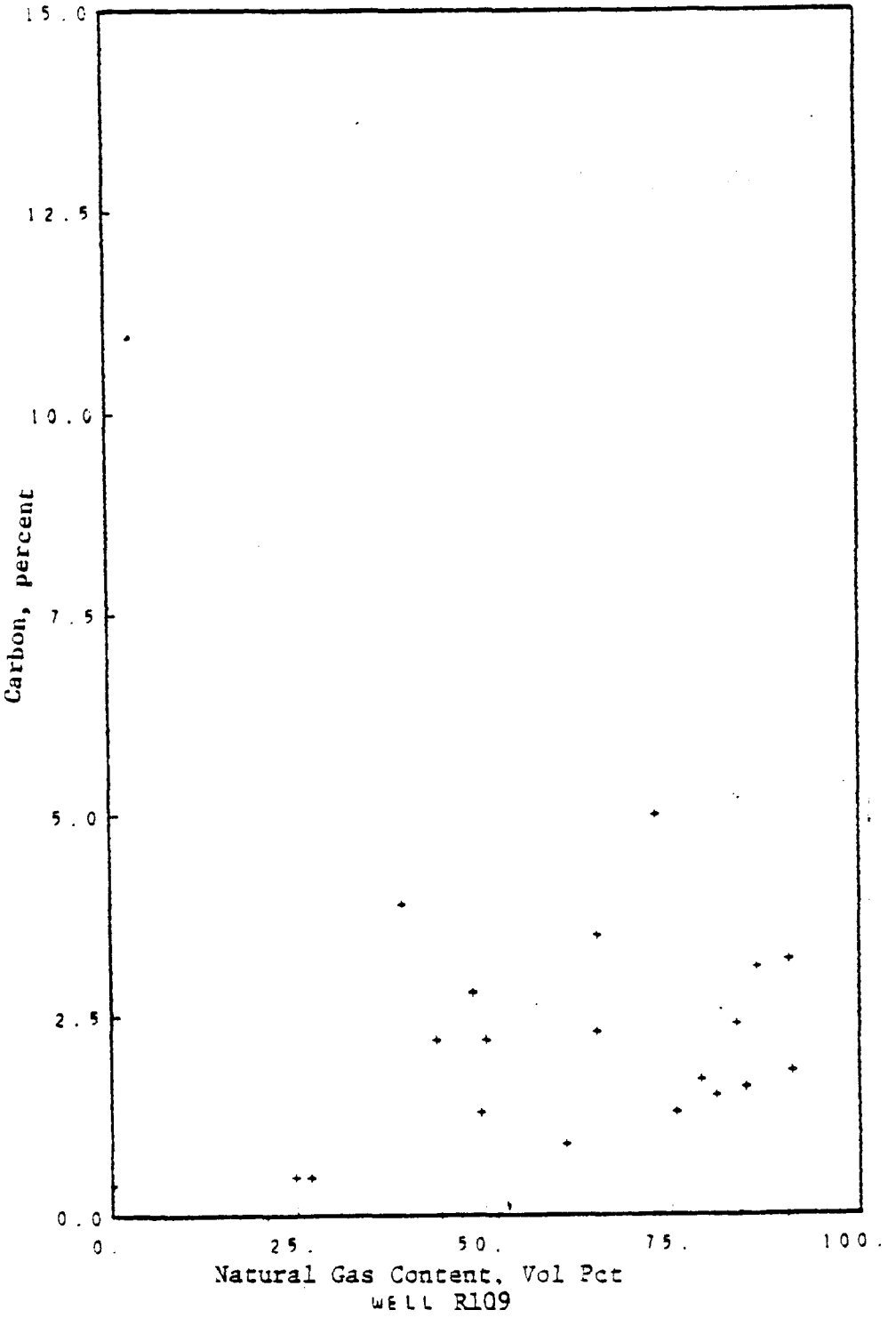



FIGURE 6. GAS CONTENT AS A FUNCTION OF CARBON CONTENT FOR WELL R-109

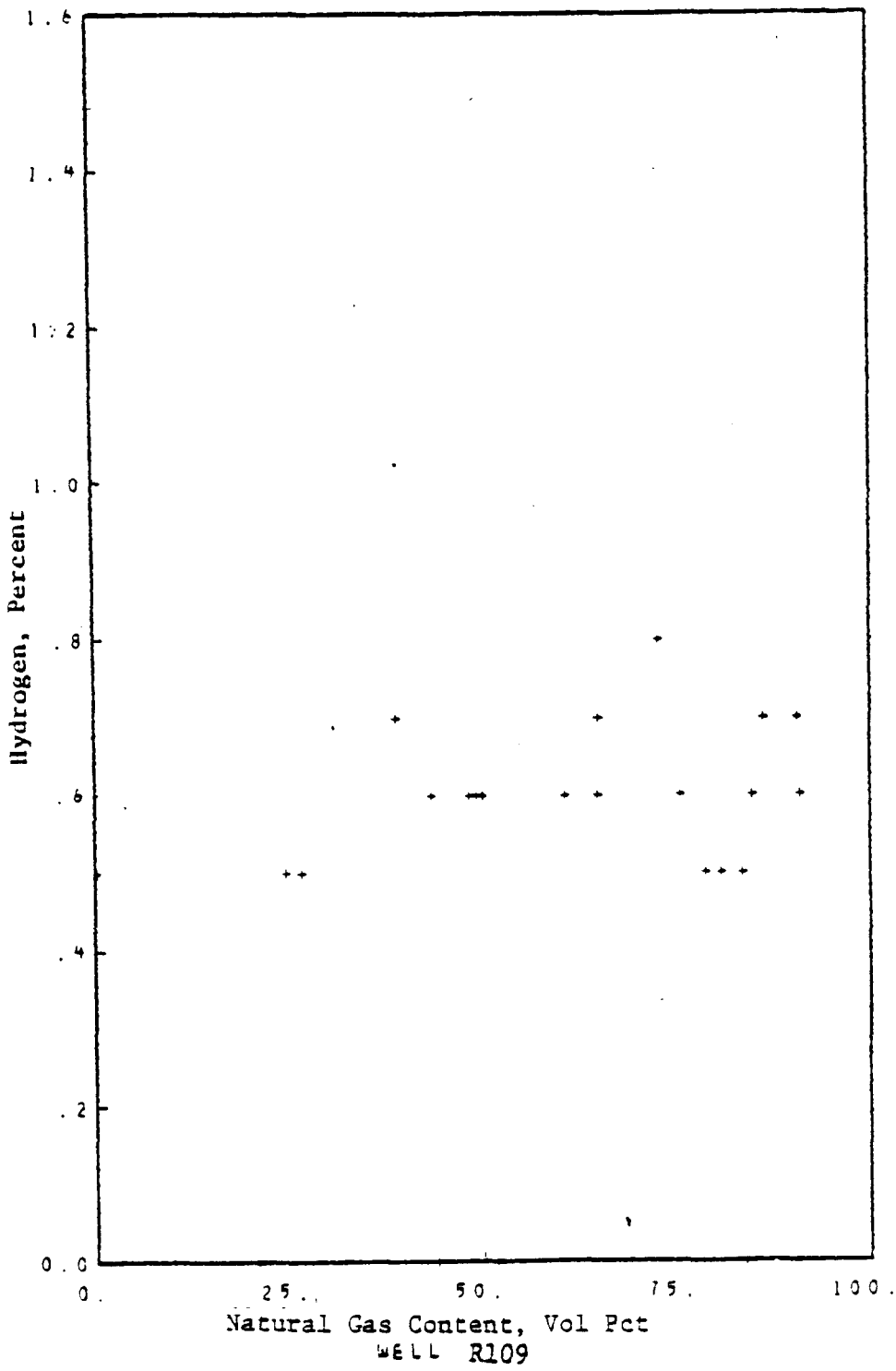



FIGURE 7. GAS CONTENT AS A FUNCTION OF HYDROGEN CONTENT FOR WELL R-109

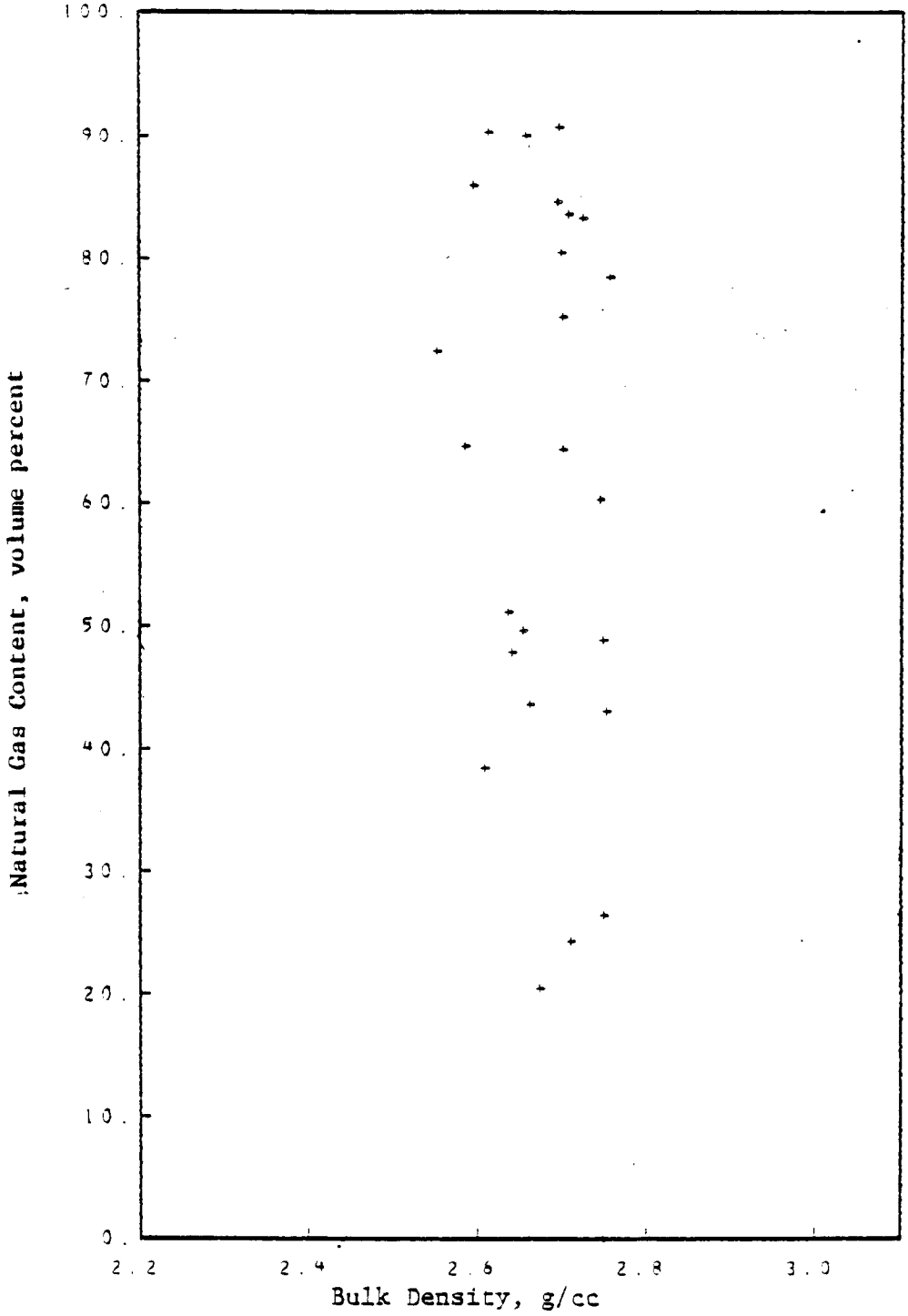



FIGURE 8. GAS CONTENT AS A FUNCTION OF BULK DENSITY FOR WELL R-109

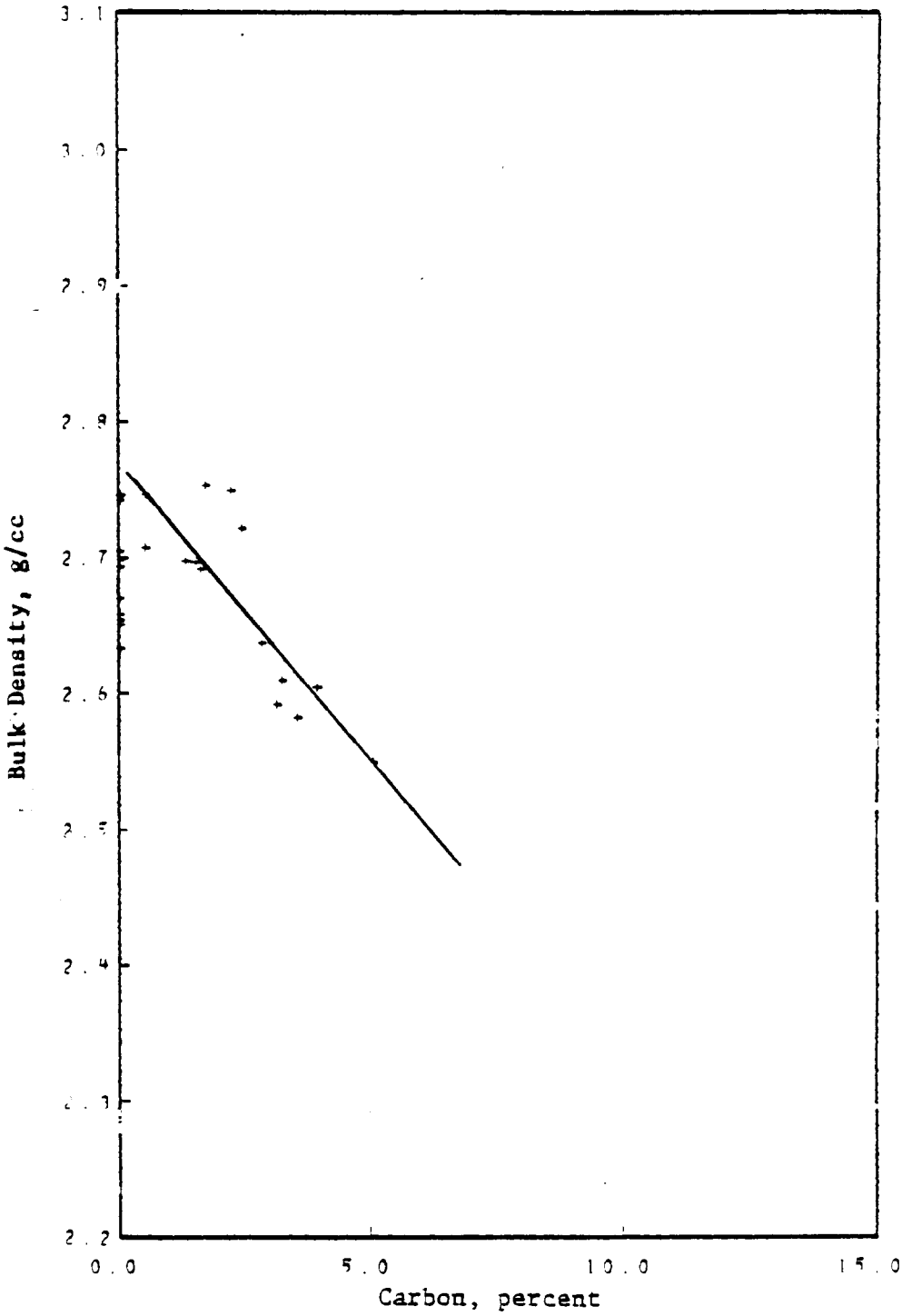



FIGURE 9. CARBON CONTENT AS A FUNCTION OF BULK DENSITY FOR WELL R-109

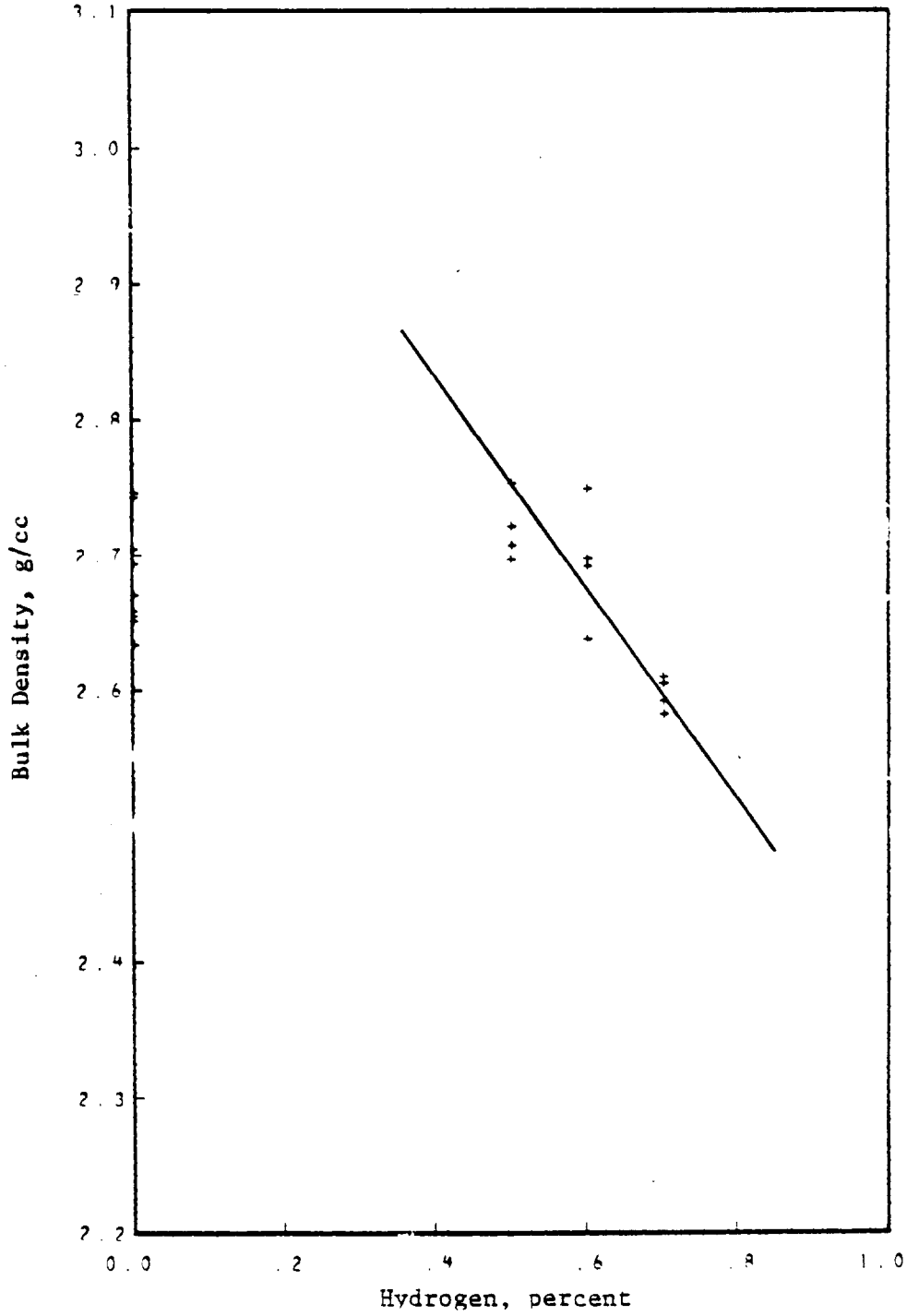



FIGURE 10. HYDROGEN CONTENT AS A FUNCTION OF BULK DENSITY FOR WELL R-109

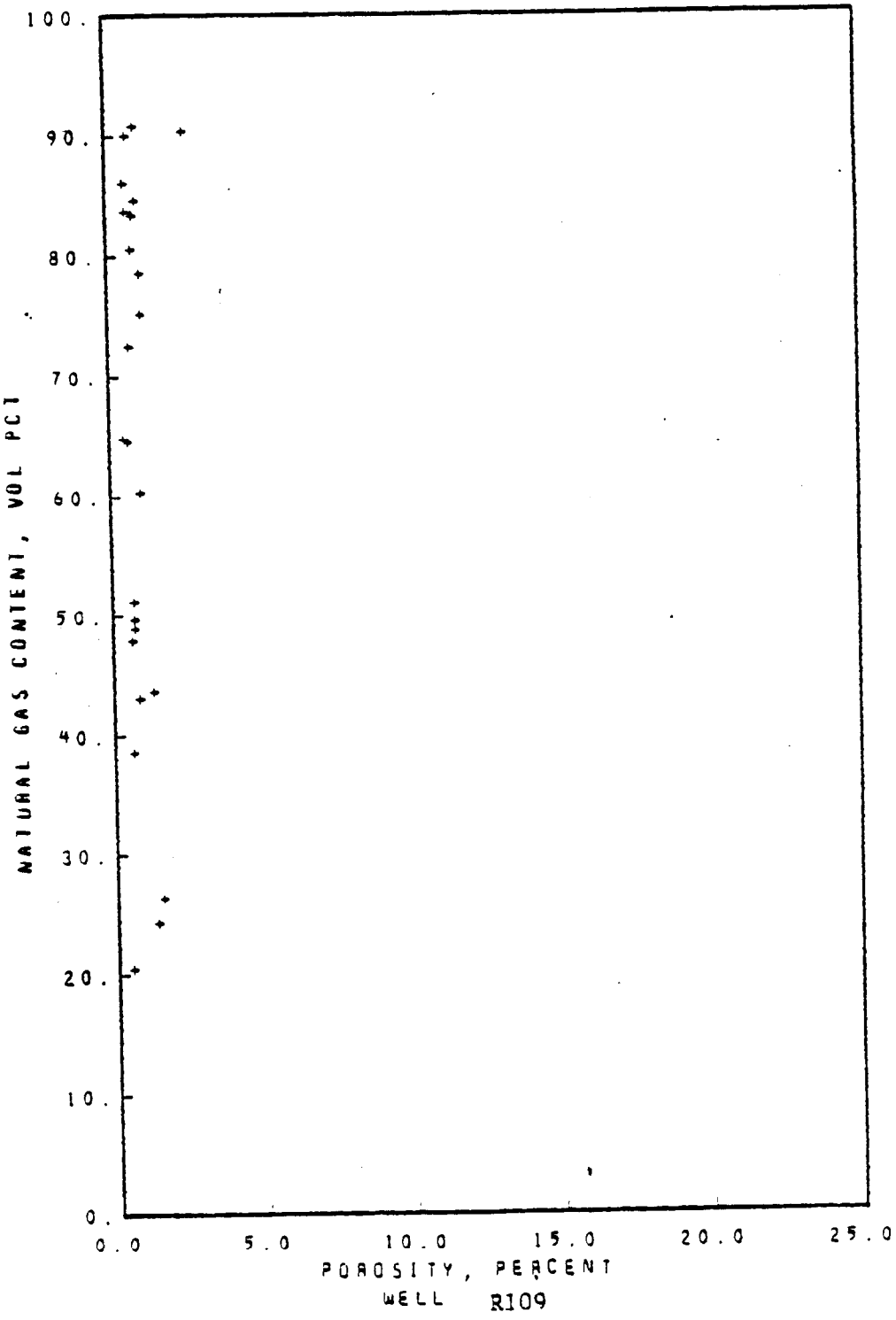
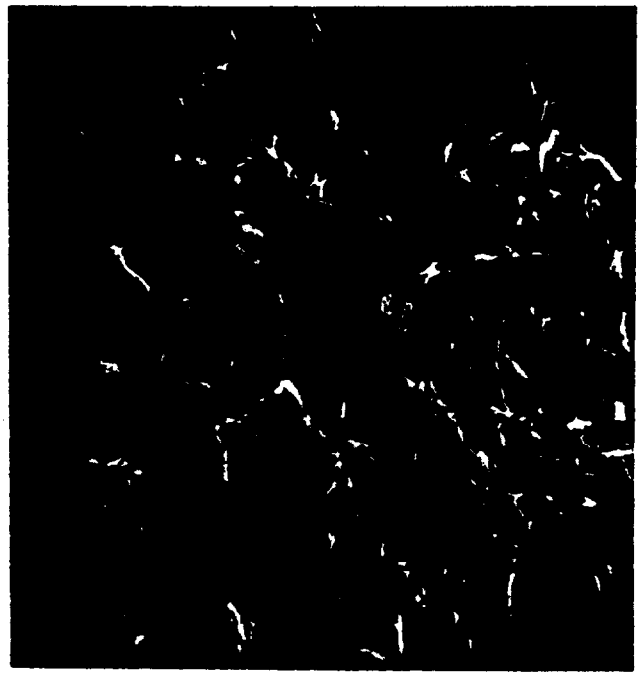



FIGURE 11. GAS CONTENT AS A FUNCTION OF POROSITY FOR WELL R-109

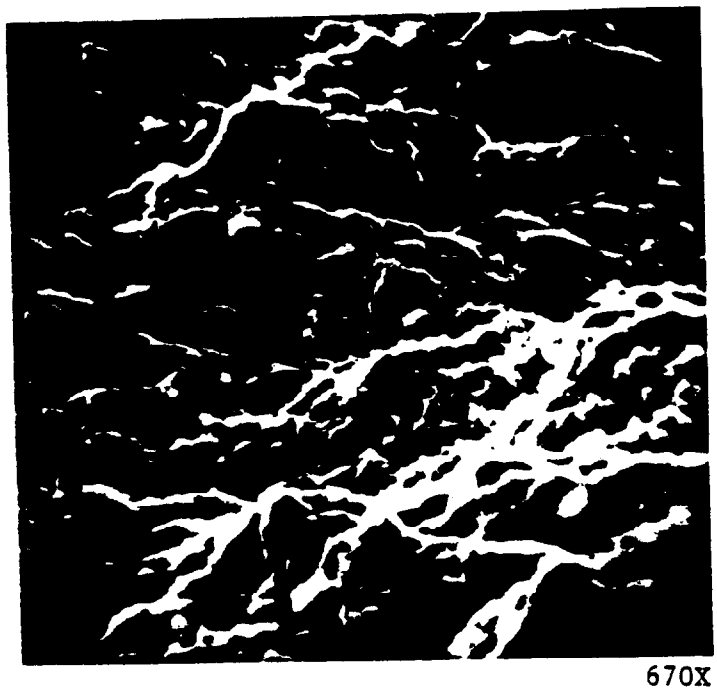
700X

FIGURE 12. SEM MICROGRAPH OF R-109-3536



700X

FIGURE 13. SEM MICROGRAPH OF R-109-3606



670X

FIGURE 14. SEM MICROGRAPH OF R-109-3665

| LABORATORY PHYSICAL DATA | WIRELOG DATA: DEPTH | BULK DENSITY | POROSITY | GAMMA RAY | RESISTIVITY | CONDUCTIVITY | | | WIRELOG DATA: DEPTH | BULK DENSITY | POROSITY | GAMMA RAY | RESISTIVITY | CONDUCTIVITY | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hydrocarbon Gas | 4 | 8 | 3 | 1 | 36 | 36 | N=15 | M=43.3 → | 6 | 24 | 24 | 11 | 22 | 15 | N=9 | M=49.8 |
| N=20 M=36.6 | | | | | | | N= 5 | M=16.6 | | | | | | | N=6 | M=33.7 |
| Gas/Vol Shale | 21 | 40 | 40 | 11 | 22 | 25 | N= 6 | M=30.7 | | | | | | | | |
| N=20 M=16.7 | | | | | | | N=14 | M=10.7 → | 19 | 31 | 1 | 11 | 11 | 11 | N=5 | M=16.2 |
| | | | | | | | | | | | | | | | N=9 | M= 7.7 |
| Av. Bulk Density | 10 | 67 | 67 | 32 | 47 | 39 | N=14 | M=51.0 → | 10 | 23 | 3 | 18 | 10 | 10 | N=6 | M=57.3 |
| N=20 M=40.6 | | | | | | | N= 6 | M=16.3 | | | | | | | N=8 | M=46.2 |
| Av. Apparent Density | 12 | 75 | 75 | 38 | 53 | 46 | N=14 | M=49.6 → | 5 | 21 | 7 | 13 | 13 | 16 | N=6 | M=54.3 |
| N=20 M=39.0 | | | | | | | N= 6 | M=14.3 | | | | | | | N=8 | M=46.0 |
| Av. True Density | 26 | 19 | 24 | 21 | 34 | 25 | N= 9 | M=34.7 | | | | | | | | |
| N=20 M=25.7 | | | | | | | N=11 | M=18.4 → | 5 | 6 | 20 | 0 | 16 | 4 | N=6 | M=22.2 |
| | | | | | | | | | | | | | | | N=5 | M=14.0 |
| Open Porosity | 23 | 29 | 26 | 33 | 26 | 33 | N= 7 | M=29.6 | | | | | | | | |
| N=20 M=15.4 | | | | | | | N=13 | M= 9.3 → | 12 | 68 | 68 | 9 | 34 | 35 | N=7 | M=13.7 |
| | | | | | | | | | | | | | | | N=6 | M= 4.2 |
| Total Porosity | 20 | 20 | 12 | 8 | 13 | 9 | N= 6 | M=27.5 | | | | | | | | |
| N=20 M=16.1 | | | | | | | N=14 | M=11.3 → | 3 | 15 | 25 | 2 | 3 | 3 | N=7 | M=16.7 |
| | | | | | | | | | | | | | | | N=7 | M= 5.9 |

FIGURE 15. COMPARISON OF VARIABILITY REDUCTION OF LAB DATA BY WIRELOG DATA UTILIZING A.I.D. (N=GROUP SIZE, M=GROUP MEAN)

UGR File #188
Battelle Columbus Labs.
June 20, 1979

# APPENDIX A

## MERCURY INTRUSION POROSITY DATA FOR WELL R-109

POROSITY DATA FOR SAMPLE R109-3494.

SEQUENCE NUMBER 1
PORE VOLUME .019 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 | .0187 | .0 |
| 2. | 29.392 | 7.500 | .0020 | .0167 | 10.8 |
| 3. | 44.088 | 5.000 | .0023 | .0164 | 12.5 |
| 4. | 58.784 | 3.700 | .0030 | .0157 | 15.9 |
| 5. | 73.480 | 3.000 | .0032 | .0155 | 17.0 |
| 6. | 88.176 | 2.500 | .0041 | .0146 | 22.2 |
| 7. | 102.872 | 2.100 | .0041 | .0146 | 22.2 |
| 8. | 117.568 | 1.800 | .0048 | .0139 | 25.6 |
| 9. | 132.264 | 1.600 | .0048 | .0139 | 25.6 |
| 10. | 146.960 | 1.500 | .0052 | .0135 | 27.8 |
| 11. | 161.656 | 1.400 | .0053 | .0134 | 28.4 |
| 12. | 176.352 | 1.300 | .0063 | .0124 | 33.5 |
| 13. | 191.048 | 1.200 | .0063 | .0124 | 33.5 |
| 14. | 205.744 | 1.100 | .0063 | .0124 | 33.5 |
| 15. | 220.440 | 1.000 | .0064 | .0123 | 34.1 |
| 16. | 235.136 | .930 | .0064 | .0123 | 34.1 |
| 17. | 249.832 | .880 | .0073 | .0114 | 39.2 |
| 18. | 264.528 | .830 | .0073 | .0114 | 39.2 |
| 19. | 279.224 | .790 | .0073 | .0114 | 39.2 |
| 20. | 293.920 | .750 | .0073 | .0114 | 39.2 |
| 25. | 367.400 | .600 | .0077 | .0111 | 40.9 |
| 30. | 440.880 | .500 | .0080 | .0107 | 42.6 |
| 35. | 514.360 | .430 | .0083 | .0104 | 44.3 |
| 40. | 587.840 | .370 | .0087 | .0100 | 46.6 |
| 45. | 661.320 | .330 | .0091 | .0096 | 48.9 |
| 50. | 734.800 | .300 | .0096 | .0091 | 51.1 |
| 55. | 808.280 | .270 | .0097 | .0090 | 51.7 |
| 60. | 881.760 | .250 | .0098 | .0089 | 52.3 |
| 65. | 955.240 | .230 | .0102 | .0085 | 54.5 |
| 70. | 1028.720 | .210 | .0106 | .0081 | 56.8 |
| 75. | 1102.200 | .200 | .0106 | .0081 | 56.8 |
| 80. | 1175.680 | .180 | .0107 | .0080 | 57.4 |
| 85. | 1249.160 | .170 | .0111 | .0077 | 59.1 |

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June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3494.

| 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 | .0113 | .0074 | 60.2 |
| 100. | 1469.600 | .150 | .0115 | .0072 | 61.4 |
| 110. | 1616.560 | .140 | .0118 | .0069 | 63.1 |
| 120. | 1763.520 | .130 | .0119 | .0068 | 63.6 |
| 130. | 1910.480 | .120 | .0124 | .0063 | 66.5 |
| 140. | 2057.440 | .110 | .0127 | .0061 | 67.6 |
| 150. | 2204.400 | .100 | .0128 | .0060 | 68.2 |
| 170. | 2498.320 | .088 | .0130 | .0057 | 69.3 |
| 180. | 2645.280 | .083 | .0133 | .0054 | 71.0 |
| 190. | 2792.240 | .079 | .0136 | .0051 | 72.7 |
| 200. | 2939.200 | .075 | .0136 | .0051 | 72.7 |
| 220. | 3233.120 | .068 | .0138 | .0049 | 73.9 |
| 240. | 3527.040 | .062 | .0140 | .0047 | 75.0 |
| 260. | 3820.960 | .057 | .0143 | .0045 | 76.1 |
| 280. | 4114.880 | .053 | .0147 | .0040 | 78.4 |
| 300. | 4408.800 | .050 | .0148 | .0039 | 79.0 |
| 330. | 4849.680 | .045 | .0150 | .0037 | 80.1 |
| 360. | 5290.560 | .041 | .0152 | .0035 | 81.3 |
| 390. | 5731.440 | .038 | .0156 | .0031 | 83.5 |
| 420. | 6172.320 | .035 | .0157 | .0030 | 84.1 |
| 450. | 6613.200 | .033 | .0160 | .0028 | 85.2 |
| 490. | 7201.040 | .030 | .0163 | .0024 | 86.9 |
| 510. | 7494.960 | .029 | .0163 | .0024 | 86.9 |
| 540. | 7935.840 | .027 | .0166 | .0021 | 88.6 |
| 590. | 8670.640 | .025 | .0169 | .0018 | 90.3 |
| 610. | 8964.560 | .024 | .0169 | .0018 | 90.3 |
| 640. | 9405.440 | .023 | .0173 | .0014 | 92.6 |
| 700. | 10287.200 | .021 | .0175 | .0012 | 93.7 |
| 740. | 10875.040 | .020 | .0177 | .0011 | 94.3 |
| 770. | 11315.920 | .019 | .0177 | .0011 | 94.3 |
| 800. | 11756.800 | .019 | .0178 | .0010 | 94.9 |
| 830. | 12197.680 | .018 | .0182 | .0005 | 97.2 |
| 860. | 12638.560 | .017 | .0182 | .0005 | 97.2 |
| 900. | 13226.400 | .017 | .0184 | .0003 | 98.3 |
| 930. | 13667.280 | .016 | .0184 | .0003 | 98.3 |
| 960. | 13961.200 | .016 | .0185 | .0002 | 98.9 |
| 1000. | 14696.000 | .014 | .0187 | .0000 | 100.0 |

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June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3506.

SEQUENCE NUMBER 2
PORE VOLUME .019 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 | .0189 | .0 |
| 2. | 29.392 | 7.500 | .0048 | .0141 | 25.3 |
| 3. | 44.088 | 5.000 | .0055 | .0134 | 28.9 |
| 4. | 58.784 | 3.700 | .0058 | .0131 | 30.7 |
| 5. | 73.480 | 3.000 | .0062 | .0126 | 33.1 |
| 6. | 88.176 | 2.500 | .0069 | .0119 | 36.7 |
| 7. | 102.872 | 2.100 | .0070 | .0118 | 37.3 |
| 8. | 117.568 | 1.800 | .0070 | .0118 | 37.3 |
| 9. | 132.264 | 1.600 | .0077 | .0111 | 41.0 |
| 10. | 146.960 | 1.500 | .0078 | .0110 | 41.6 |
| 11. | 161.656 | 1.400 | .0078 | .0110 | 41.6 |
| 12. | 176.352 | 1.300 | .0080 | .0109 | 42.2 |
| 13. | 191.048 | 1.200 | .0090 | .0099 | 47.6 |
| 14. | 205.744 | 1.100 | .0091 | .0098 | 48.2 |
| 15. | 220.440 | 1.000 | .0091 | .0098 | 48.2 |
| 16. | 235.136 | .930 | .0094 | .0094 | 50.0 |
| 17. | 249.832 | .880 | .0094 | .0094 | 50.0 |
| 18. | 264.528 | .830 | .0095 | .0093 | 50.6 |
| 19. | 279.224 | .790 | .0095 | .0093 | 50.6 |
| 20. | 293.920 | .750 | .0095 | .0093 | 50.6 |
| 25. | 367.400 | .600 | .0101 | .0087 | 53.6 |
| 30. | 440.880 | .500 | .0108 | .0081 | 57.2 |
| 35. | 514.360 | .430 | .0110 | .0078 | 58.4 |
| 40. | 587.840 | .370 | .0112 | .0076 | 59.6 |
| 45. | 661.320 | .330 | .0118 | .0070 | 62.7 |
| 50. | 734.800 | .300 | .0124 | .0065 | 65.7 |
| 55. | 808.280 | .270 | .0124 | .0065 | 65.7 |
| 60. | 881.760 | .250 | .0124 | .0065 | 65.7 |
| 65. | 955.240 | .230 | .0131 | .0058 | 69.3 |
| 70. | 1028.720 | .210 | .0134 | .0055 | 71.1 |
| 75. | 1102.200 | .200 | .0134 | .0055 | 71.1 |
| 80. | 1175.680 | .180 | .0134 | .0055 | 71.1 |
| 85. | 1249.160 | .170 | .0134 | .0055 | 71.1 |

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June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3506.

| 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 | .0134 | .0055 | 71.1 |
| 100. | 1469.600 | .150 | .0135 | .0053 | 71.7 |
| 110. | 1616.560 | .140 | .0135 | .0053 | 71.7 |
| 120. | 1763.520 | .130 | .0145 | .0043 | 77.1 |
| 130. | 1910.480 | .120 | .0145 | .0043 | 77.1 |
| 140. | 2057.440 | .110 | .0145 | .0043 | 77.1 |
| 150. | 2204.400 | .100 | .0145 | .0043 | 77.1 |
| 170. | 2498.320 | .090 | .0147 | .0042 | 77.7 |
| 180. | 2645.280 | .083 | .0147 | .0042 | 77.7 |
| 190. | 2792.240 | .079 | .0147 | .0042 | 77.7 |
| 200. | 2939.200 | .075 | .0152 | .0036 | 80.7 |
| 220. | 3233.120 | .068 | .0152 | .0036 | 80.7 |
| 240. | 3527.040 | .062 | .0152 | .0036 | 80.7 |
| 260. | 3820.960 | .057 | .0152 | .0036 | 80.7 |
| 280. | 4114.880 | .053 | .0152 | .0036 | 80.7 |
| 300. | 4408.800 | .050 | .0157 | .0032 | 83.1 |
| 330. | 4849.680 | .045 | .0157 | .0032 | 83.1 |
| 360. | 5290.560 | .041 | .0159 | .0030 | 84.3 |
| 390. | 5731.440 | .038 | .0161 | .0027 | 85.5 |
| 420. | 6172.320 | .035 | .0161 | .0027 | 85.5 |
| 450. | 6613.200 | .033 | .0161 | .0027 | 85.5 |
| 490. | 7201.040 | .030 | .0168 | .0020 | 89.2 |
| 510. | 7494.960 | .029 | .0168 | .0020 | 89.2 |
| 540. | 7935.840 | .027 | .0168 | .0020 | 89.2 |
| 590. | 8670.640 | .025 | .0168 | .0020 | 89.2 |
| 610. | 8964.560 | .024 | .0172 | .0017 | 91.0 |
| 640. | 9405.440 | .023 | .0172 | .0017 | 91.0 |
| 700. | 10287.200 | .021 | .0174 | .0015 | 92.2 |
| 740. | 10875.040 | .020 | .0179 | .0009 | 95.2 |
| 770. | 11315.920 | .019 | .0179 | .0009 | 95.2 |
| 800. | 11756.800 | .019 | .0179 | .0009 | 95.2 |
| 830. | 12197.680 | .018 | .0179 | .0009 | 95.2 |
| 860. | 12638.560 | .017 | .0185 | .0003 | 98.2 |
| 900. | 13226.400 | .017 | .0185 | .0003 | 98.2 |
| 930. | 13667.280 | .016 | .0186 | .0002 | 98.8 |
| 960. | 13961.200 | .016 | .0186 | .0002 | 98.8 |
| 1000. | 14696.000 | .014 | .0189 | .0000 | 100.0 |

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POROSITY DATA FOR.SAMPLE R109-3516.

SEQUENCE NUMBER 3
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 | .0168 | .0 |
| 2. | 29.392 | 7.500 | .0021 | .0147 | 12.3 |
| 3. | 44.088 | 5.000 | .0029 | .0139 | 17.3 |
| 4. | 58.784 | 3.700 | .0035 | .0133 | 21.0 |
| 5. | 73.480 | 3.000 | .0041 | .0128 | 24.1 |
| 6. | 88.176 | 2.500 | .0044 | .0125 | 25.9 |
| 7. | 102.872 | 2.100 | .0050 | .0118 | 29.6 |
| 8. | 117.568 | 1.800 | .0053 | .0115 | 31.5 |
| 9. | 132.264 | 1.600 | .0056 | .0112 | 33.3 |
| 10. | 146.960 | 1.500 | .0056 | .0112 | 33.3 |
| 11. | 161.656 | 1.400 | .0060 | .0108 | 35.8 |
| 12. | 176.352 | 1.300 | .0063 | .0105 | 37.7 |
| 13. | 191.048 | 1.200 | .0063 | .0105 | 37.7 |
| 14. | 205.744 | 1.100 | .0066 | .0102 | 39.5 |
| 15. | 220.440 | 1.000 | .0071 | .0098 | 42.0 |
| 16. | 235.136 | .930 | .0071 | .0098 | 42.0 |
| 17. | 249.832 | .880 | .0071 | .0098 | 42.0 |
| 18. | 264.528 | .830 | .0074 | .0095 | 43.8 |
| 19. | 279.224 | .790 | .0074 | .0095 | 43.8 |
| 20. | 293.920 | .750 | .0078 | .0090 | 46.3 |
| 25. | 367.400 | .600 | .0081 | .0087 | 48.1 |
| 30. | 440.880 | .500 | .0083 | .0085 | 49.4 |
| 35. | 514.360 | .430 | .0088 | .0080 | 52.5 |
| 40. | 587.840 | .370 | .0092 | .0076 | 54.9 |
| 45. | 661.320 | .330 | .0093 | .0075 | 55.6 |
| 50. | 734.800 | .300 | .0096 | .0073 | 56.8 |
| 55. | 808.280 | .270 | .0097 | .0072 | 57.4 |
| 60. | 881.760 | .250 | .0099 | .0070 | 58.6 |
| 65. | 955.240 | .230 | .0102 | .0066 | 60.5 |
| 70. | 1028.720 | .210 | .0104 | .0064 | 61.7 |
| 75. | 1102.200 | .200 | .0104 | .0064 | 61.7 |
| 80. | 1175.680 | .180 | .0105 | .0063 | 62.3 |
| 85. | 1249.160 | .170 | .0109 | .0059 | 64.8 |

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POROSITY DATA FOR SAMPLE R109-3516.

| 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 | .0056 | 66.7 |
| 100. | 1469.600 | .150 | .0112 | .0056 | 66.7 |
| 110. | 1616.560 | .140 | .0114 | .0054 | 67.9 |
| 120. | 1763.520 | .130 | .0114 | .0054 | 67.9 |
| 130. | 1910.480 | .120 | .0118 | .0050 | 70.4 |
| 140. | 2057.440 | .110 | .0118 | .0050 | 70.4 |
| 150. | 2204.400 | .100 | .0119 | .0049 | 71.0 |
| 170. | 2498.320 | .088 | .0120 | .0048 | 71.6 |
| 180. | 2645.280 | .083 | .0125 | .0044 | 74.1 |
| 190. | 2792.240 | .079 | .0125 | .0044 | 74.1 |
| 200. | 2939.200 | .075 | .0125 | .0044 | 74.1 |
| 220. | 3233.120 | .068 | .0128 | .0041 | 75.9 |
| 240. | 3527.040 | .062 | .0130 | .0038 | 77.2 |
| 260. | 3820.960 | .057 | .0133 | .0035 | 79.0 |
| 280. | 4114.880 | .053 | .0133 | .0035 | 79.0 |
| 300. | 4408.800 | .050 | .0133 | .0035 | 79.0 |
| 330. | 4849.680 | .045 | .0137 | .0031 | 81.5 |
| 360. | 5290.560 | .041 | .0141 | .0027 | 84.0 |
| 390. | 5731.440 | .038 | .0141 | .0027 | 84.0 |
| 420. | 6172.320 | .035 | .0143 | .0025 | 85.2 |
| 450. | 6613.200 | .033 | .0145 | .0023 | 86.4 |
| 490. | 7201.040 | .030 | .0145 | .0023 | 86.4 |
| 510. | 7494.960 | .029 | .0145 | .0023 | 86.4 |
| 540. | 7935.840 | .027 | .0152 | .0017 | 90.1 |
| 590. | 8670.640 | .025 | .0154 | .0015 | 91.4 |
| 610. | 8964.560 | .024 | .0154 | .0015 | 91.4 |
| 640. | 9405.440 | .023 | .0155 | .0014 | 92.0 |
| 700. | 10287.200 | .021 | .0157 | .0011 | 93.2 |
| 740. | 10875.040 | .020 | .0158 | .0010 | 93.8 |
| 770. | 11315.920 | .019 | .0159 | .0009 | 94.4 |
| 800. | 11756.800 | .019 | .0162 | .0006 | 96.3 |
| 830. | 12197.680 | .018 | .0162 | .0006 | 96.3 |
| 860. | 12638.560 | .017 | .0164 | .0004 | 97.5 |
| 900. | 13226.400 | .017 | .0164 | .0004 | 97.5 |
| 930. | 13667.280 | .016 | .0165 | .0003 | 98.1 |
| 960. | 13961.200 | .016 | .0168 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0168 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3526.

SEQUENCE NUMBER 4
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 | .0165 | .0 |
| 2. | 29.392 | 7.500 | .0024 | .0141 | 14.5 |
| 3. | 44.088 | 5.000 | .0030 | .0135 | 18.1 |
| 4. | 58.784 | 3.700 | .0032 | .0133 | 19.3 |
| 5. | 73.480 | 3.000 | .0036 | .0129 | 21.7 |
| 6. | 88.176 | 2.500 | .0036 | .0129 | 21.7 |
| 7. | 102.872 | 2.100 | .0042 | .0123 | 25.3 |
| 8. | 117.568 | 1.800 | .0042 | .0123 | 25.3 |
| 9. | 132.264 | 1.600 | .0052 | .0113 | 31.3 |
| 10. | 146.960 | 1.500 | .0052 | .0113 | 31.3 |
| 11. | 161.656 | 1.400 | .0052 | .0113 | 31.3 |
| 12. | 176.352 | 1.300 | .0052 | .0113 | 31.3 |
| 13. | 191.048 | 1.200 | .0060 | .0105 | 36.1 |
| 14. | 205.744 | 1.100 | .0060 | .0105 | 36.1 |
| 15. | 220.440 | 1.000 | .0060 | .0105 | 36.1 |
| 16. | 235.136 | .930 | .0064 | .0101 | 38.6 |
| 17. | 249.832 | .880 | .0064 | .0101 | 38.6 |
| 18. | 264.528 | .830 | .0064 | .0101 | 38.6 |
| 19. | 279.224 | .790 | .0072 | .0094 | 43.4 |
| 20. | 293.920 | .750 | .0072 | .0094 | 43.4 |
| 25. | 367.400 | .600 | .0074 | .0092 | 44.6 |
| 30. | 440.880 | .500 | .0076 | .0090 | 45.8 |
| 35. | 514.360 | .430 | .0080 | .0086 | 48.2 |
| 40. | 587.840 | .370 | .0084 | .0082 | 50.6 |
| 45. | 661.320 | .330 | .0084 | .0082 | 50.6 |
| 50. | 734.800 | .300 | .0084 | .0082 | 50.6 |
| 55. | 808.280 | .270 | .0086 | .0080 | 51.8 |
| 60. | 881.760 | .250 | .0088 | .0078 | 53.0 |
| 65. | 955.240 | .230 | .0089 | .0077 | 53.6 |
| 70. | 1028.720 | .210 | .0090 | .0076 | 54.2 |
| 75. | 1102.200 | .200 | .0093 | .0073 | 56.0 |
| 80. | 1175.680 | .190 | .0096 | .0070 | 57.8 |
| 85. | 1249.160 | .170 | .0098 | .0068 | 59.0 |

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POROSITY DATA FOR SAMPLE R109-3526.

| 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 | .0066 | 60.2 |
| 100. | 1469.600 | .150 | .0099 | .0066 | 60.2 |
| 110. | 1616.560 | .140 | .0100 | .0065 | 60.8 |
| 120. | 1763.520 | .130 | .0102 | .0063 | 62.0 |
| 130. | 1910.480 | .120 | .0102 | .0063 | 62.0 |
| 140. | 2057.440 | .110 | .0105 | .0060 | 63.9 |
| 150. | 2204.400 | .100 | .0109 | .0056 | 66.3 |
| 170. | 2498.320 | .088 | .0110 | .0055 | 66.9 |
| 180. | 2645.280 | .083 | .0114 | .0051 | 69.3 |
| 190. | 2792.240 | .079 | .0114 | .0051 | 69.3 |
| 200. | 2939.200 | .075 | .0114 | .0051 | 69.3 |
| 220. | 3233.120 | .068 | .0118 | .0047 | 71.7 |
| 240. | 3527.040 | .062 | .0120 | .0045 | 72.9 |
| 260. | 3820.960 | .057 | .0120 | .0045 | 72.9 |
| 280. | 4114.880 | .053 | .0122 | .0043 | 74.1 |
| 300. | 4408.800 | .050 | .0125 | .0040 | 75.9 |
| 330. | 4849.680 | .045 | .0125 | .0040 | 75.9 |
| 360. | 5290.560 | .041 | .0129 | .0036 | 78.3 |
| 390. | 5731.440 | .038 | .0131 | .0034 | 79.5 |
| 420. | 6172.320 | .035 | .0133 | .0032 | 80.7 |
| 450. | 6613.200 | .033 | .0133 | .0032 | 80.7 |
| 490. | 7201.040 | .030 | .0136 | .0029 | 82.5 |
| 510. | 7494.960 | .029 | .0138 | .0027 | 83.7 |
| 540. | 7935.840 | .027 | .0140 | .0025 | 84.9 |
| 590. | 8670.640 | .025 | .0144 | .0021 | 87.3 |
| 610. | 8964.560 | .024 | .0144 | .0021 | 87.3 |
| 640. | 9405.440 | .023 | .0147 | .0018 | 89.2 |
| 700. | 10287.200 | .021 | .0151 | .0014 | 91.6 |
| 740. | 10875.040 | .020 | .0153 | .0012 | 92.8 |
| 770. | 11315.920 | .019 | .0153 | .0012 | 92.8 |
| 800. | 11756.800 | .019 | .0155 | .0010 | 94.0 |
| 830. | 12197.680 | .018 | .0157 | .0008 | 95.2 |
| 860. | 12638.560 | .017 | .0159 | .0006 | 96.4 |
| 900. | 13226.400 | .017 | .0159 | .0006 | 96.4 |
| 930. | 13667.280 | .016 | .0161 | .0004 | 97.6 |
| 960. | 13961.200 | .016 | .0163 | .0002 | 98.8 |
| 1000. | 14696.000 | .014 | .0165 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3536.

SEQUENCE NUMBER 5
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 | .0080 | .0203 | .0 |
| 2. | 29.392 | 7.500 | .0012 | .0191 | 5.8 |
| 3. | 44.088 | 5.000 | .0021 | .0181 | 10.6 |
| 4. | 58.784 | 3.700 | .0032 | .0171 | 15.9 |
| 5. | 73.480 | 3.000 | .0032 | .0171 | 15.9 |
| 6. | 88.176 | 2.500 | .0043 | .0160 | 21.2 |
| 7. | 102.872 | 2.100 | .0046 | .0157 | 22.8 |
| 8. | 117.568 | 1.800 | .0046 | .0157 | 22.8 |
| 9. | 132.264 | 1.600 | .0046 | .0157 | 22.8 |
| 10. | 146.960 | 1.500 | .0059 | .0144 | 29.1 |
| 11. | 161.656 | 1.400 | .0059 | .0144 | 29.1 |
| 12. | 176.352 | 1.300 | .0062 | .0141 | 30.7 |
| 13. | 191.048 | 1.200 | .0062 | .0141 | 30.7 |
| 14. | 205.744 | 1.100 | .0062 | .0141 | 30.7 |
| 15. | 220.440 | 1.000 | .0070 | .0133 | 34.4 |
| 16. | 235.136 | .930 | .0070 | .0133 | 34.4 |
| 17. | 249.832 | .880 | .0070 | .0133 | 34.4 |
| 18. | 264.528 | .830 | .0076 | .0127 | 37.6 |
| 19. | 279.224 | .790 | .0076 | .0127 | 37.6 |
| 20. | 293.920 | .750 | .0076 | .0127 | 37.6 |
| 25. | 367.400 | .600 | .0085 | .0118 | 41.8 |
| 30. | 440.880 | .500 | .0097 | .0106 | 47.6 |
| 35. | 514.360 | .430 | .0102 | .0101 | 50.3 |
| 40. | 587.840 | .370 | .0105 | .0098 | 51.9 |
| 45. | 661.320 | .330 | .0108 | .0094 | 53.4 |
| 50. | 734.800 | .300 | .0113 | .0090 | 55.6 |
| 55. | 808.280 | .270 | .0116 | .0087 | 57.1 |
| 60. | 881.760 | .250 | .0116 | .0087 | 57.1 |
| 65. | 955.240 | .230 | .0120 | .0083 | 59.3 |
| 70. | 1028.720 | .210 | .0123 | .0079 | 60.8 |
| 75. | 1102.200 | .200 | .0125 | .0077 | 61.9 |
| 80. | 1175.680 | .180 | .0128 | .0075 | 63.0 |
| 85. | 1249.160 | .170 | .0129 | .0074 | 63.5 |

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POROSITY DATA FOR SAMPLE R109-3536.

| 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 | .0131 | .0072 | 64.6 |
| 100. | 1469.600 | .150 | .0132 | .0071 | 65.1 |
| 110. | 1616.560 | .140 | .0132 | .0071 | 65.1 |
| 120. | 1763.520 | .130 | .0139 | .0063 | 68.8 |
| 130. | 1910.480 | .120 | .0142 | .0061 | 69.8 |
| 140. | 2057.440 | .110 | .0142 | .0061 | 69.8 |
| 150. | 2204.400 | .100 | .0145 | .0058 | 71.4 |
| 170. | 2498.320 | .088 | .0150 | .0053 | 74.1 |
| 180. | 2645.280 | .083 | .0150 | .0053 | 74.1 |
| 190. | 2792.240 | .079 | .0153 | .0049 | 75.7 |
| 200. | 2939.200 | .075 | .0153 | .0049 | 75.7 |
| 220. | 3233.120 | .068 | .0157 | .0046 | 77.2 |
| 240. | 3527.040 | .062 | .0160 | .0043 | 78.8 |
| 260. | 3820.960 | .057 | .0160 | .0043 | 78.8 |
| 280. | 4114.880 | .053 | .0162 | .0041 | 79.9 |
| 300. | 4408.800 | .050 | .0163 | .0040 | 80.4 |
| 330. | 4849.680 | .045 | .0166 | .0036 | 82.0 |
| 360. | 5290.560 | .041 | .0169 | .0033 | 83.6 |
| 390. | 5731.440 | .038 | .0172 | .0031 | 84.7 |
| 420. | 6172.320 | .035 | .0174 | .0029 | 85.7 |
| 450. | 6613.200 | .033 | .0176 | .0027 | 86.8 |
| 490. | 7201.040 | .030 | .0179 | .0024 | 88.4 |
| 510. | 7494.960 | .029 | .0180 | .0023 | 88.9 |
| 540. | 7935.840 | .027 | .0180 | .0023 | 88.9 |
| 590. | 8670.640 | .025 | .0186 | .0017 | 91.5 |
| 610. | 8964.560 | .024 | .0186 | .0017 | 91.5 |
| 640. | 9405.440 | .023 | .0188 | .0015 | 92.6 |
| 700. | 10287.200 | .021 | .0190 | .0013 | 93.7 |
| 740. | 10875.040 | .020 | .0191 | .0012 | 94.2 |
| 770. | 11315.920 | .019 | .0193 | .0010 | 95.2 |
| 800. | 11756.800 | .019 | .0195 | .0008 | 96.3 |
| 830. | 12197.680 | .018 | .0196 | .0006 | 96.8 |
| 860. | 12638.560 | .017 | .0196 | .0006 | 96.8 |
| 900. | 13226.400 | .017 | .0198 | .0004 | 97.9 |
| 930. | 13667.280 | .016 | .0201 | .0002 | 98.9 |
| 960. | 13961.200 | .016 | .0201 | .0002 | 98.9 |
| 1000. | 14696.000 | .014 | .0203 | .0000 | 100.0 |

Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3545.

SEQUENCE NUMBER 6
PORE VOLUME .019 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 | .0192 | .0 |
| 2. | 29.392 | 7.500 | .0022 | .0169 | 11.7 |
| 3. | 44.088 | 5.000 | .0034 | .0158 | 17.5 |
| 4. | 58.784 | 3.700 | .0039 | .0153 | 20.5 |
| 5. | 73.480 | 3.000 | .0046 | .0146 | 24.0 |
| 6. | 88.176 | 2.500 | .0053 | .0139 | 27.5 |
| 7. | 102.872 | 2.100 | .0056 | .0136 | 29.2 |
| 8. | 117.568 | 1.800 | .0059 | .0132 | 31.0 |
| 9. | 132.264 | 1.600 | .0065 | .0127 | 33.9 |
| 10. | 146.960 | 1.500 | .0068 | .0123 | 35.7 |
| 11. | 161.656 | 1.400 | .0070 | .0122 | 36.3 |
| 12. | 176.352 | 1.300 | .0072 | .0120 | 37.4 |
| 13. | 191.048 | 1.200 | .0075 | .0117 | 39.2 |
| 14. | 205.744 | 1.100 | .0080 | .0112 | 41.5 |
| 15. | 220.440 | 1.000 | .0081 | .0111 | 42.1 |
| 16. | 235.136 | .930 | .0083 | .0109 | 43.3 |
| 17. | 249.832 | .880 | .0084 | .0108 | 43.9 |
| 18. | 264.528 | .830 | .0084 | .0108 | 43.9 |
| 19. | 279.224 | .790 | .0090 | .0102 | 46.8 |
| 20. | 293.920 | .750 | .0090 | .0102 | 46.8 |
| 25. | 367.400 | .600 | .0095 | .0096 | 49.7 |
| 30. | 440.880 | .500 | .0101 | .0091 | 52.6 |
| 35. | 514.360 | .430 | .0104 | .0087 | 54.4 |
| 40. | 587.840 | .370 | .0108 | .0084 | 56.1 |
| 45. | 661.320 | .330 | .0110 | .0082 | 57.3 |
| 50. | 734.800 | .300 | .0112 | .0080 | 58.5 |
| 55. | 808.280 | .270 | .0113 | .0079 | 59.1 |
| 60. | 881.760 | .250 | .0114 | .0077 | 59.6 |
| 65. | 955.240 | .230 | .0119 | .0073 | 62.0 |
| 70. | 1028.720 | .210 | .0123 | .0068 | 64.3 |
| 75. | 1102.200 | .200 | .0124 | .0067 | 64.9 |
| 80. | 1175.680 | .180 | .0126 | .0066 | 65.5 |
| 85. | 1249.160 | .170 | .0127 | .0065 | 66.1 |

Battelle Columbus Labs.
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POROSITY DATA FOR SAMPLE R109-3545.

| 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 | .0129 | .0063 | 67.3 |
| 100. | 1469.600 | .150 | .0129 | .0063 | 67.3 |
| 110. | 1616.560 | .140 | .0132 | .0059 | 69.0 |
| 120. | 1763.520 | .130 | .0136 | .0056 | 70.8 |
| 130. | 1910.480 | .120 | .0137 | .0055 | 71.3 |
| 140. | 2057.440 | .110 | .0139 | .0053 | 72.5 |
| 150. | 2204.400 | .100 | .0141 | .0050 | 73.7 |
| 170. | 2498.320 | .088 | .0145 | .0047 | 75.4 |
| 180. | 2645.280 | .083 | .0148 | .0044 | 77.2 |
| 190. | 2792.240 | .079 | .0148 | .0044 | 77.2 |
| 200. | 2939.200 | .075 | .0150 | .0041 | 78.4 |
| 220. | 3233.120 | .068 | .0150 | .0041 | 78.4 |
| 240. | 3527.040 | .062 | .0154 | .0038 | 80.1 |
| 260. | 3820.960 | .057 | .0154 | .0038 | 80.1 |
| 280. | 4114.880 | .053 | .0157 | .0035 | 81.9 |
| 300. | 4408.800 | .050 | .0157 | .0035 | 81.9 |
| 330. | 4849.680 | .045 | .0160 | .0031 | 83.6 |
| 360. | 5290.560 | .041 | .0162 | .0038 | 84.2 |
| 390. | 5731.440 | .038 | .0166 | .0026 | 86.5 |
| 420. | 6172.320 | .035 | .0168 | .0024 | 87.7 |
| 450. | 6613.200 | .033 | .0168 | .0024 | 87.7 |
| 490. | 7201.040 | .030 | .0169 | .0022 | 88.3 |
| 510. | 7494.960 | .029 | .0169 | .0022 | 88.3 |
| 540. | 7935.840 | .027 | .0169 | .0022 | 88.3 |
| 590. | 8670.640 | .025 | .0174 | .0018 | 90.6 |
| 610. | 8964.560 | .024 | .0176 | .0016 | 91.8 |
| 640. | 9405.440 | .023 | .0176 | .0016 | 91.8 |
| 700. | 10287.200 | .021 | .0181 | .0011 | 94.2 |
| 740. | 10875.040 | .020 | .0181 | .0011 | 94.2 |
| 770. | 11315.920 | .019 | .0182 | .0010 | 94.7 |
| 800. | 11756.800 | .019 | .0184 | .0008 | 95.9 |
| 830. | 12197.680 | .018 | .0184 | .0008 | 95.9 |
| 860. | 12638.560 | .017 | .0186 | .0006 | 97.1 |
| 900. | 13226.400 | .017 | .0186 | .0006 | 97.1 |
| 930. | 13667.280 | .016 | .0187 | .0004 | 97.7 |
| 960. | 13961.200 | .016 | .0187 | .0004 | 97.7 |
| 1000. | 14696.000 | .014 | .0192 | .0000 | 100.0 |

Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3555.

SEQUENCE NUMBER 7
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 | .0007 | .0195 | 3.4 |
| 2. | 29.392 | 7.500 | .0024 | .0178 | 11.9 |
| 3. | 44.088 | 5.000 | .0035 | .0167 | 17.5 |
| 4. | 58.784 | 3.700 | .0047 | .0155 | 23.2 |
| 5. | 73.480 | 3.000 | .0050 | .0152 | 24.9 |
| 6. | 88.176 | 2.500 | .0058 | .0144 | 28.8 |
| 7. | 102.872 | 2.100 | .0064 | .0138 | 31.6 |
| 8. | 117.568 | 1.800 | .0068 | .0134 | 33.9 |
| 9. | 132.264 | 1.600 | .0072 | .0130 | 35.6 |
| 10. | 146.960 | 1.500 | .0075 | .0127 | 37.3 |
| 11. | 161.656 | 1.400 | .0075 | .0127 | 37.3 |
| 12. | 176.352 | 1.300 | .0080 | .0122 | 39.5 |
| 13. | 191.048 | 1.200 | .0083 | .0119 | 41.2 |
| 14. | 205.744 | 1.100 | .0086 | .0116 | 42.4 |
| 15. | 220.440 | 1.000 | .0089 | .0113 | 44.1 |
| 16. | 235.136 | .930 | .0089 | .0113 | 44.1 |
| 17. | 249.832 | .880 | .0092 | .0110 | 45.8 |
| 18. | 264.528 | .830 | .0095 | .0107 | 46.9 |
| 19. | 279.224 | .790 | .0096 | .0106 | 47.5 |
| 20. | 293.920 | .750 | .0097 | .0105 | 48.0 |
| 25. | 367.400 | .600 | .0104 | .0098 | 51.4 |
| 30. | 440.880 | .500 | .0114 | .0088 | 56.5 |
| 35. | 514.360 | .430 | .0121 | .0081 | 59.9 |
| 40. | 587.840 | .370 | .0126 | .0076 | 62.1 |
| 45. | 661.320 | .330 | .0129 | .0073 | 63.8 |
| 50. | 734.800 | .300 | .0132 | .0070 | 65.5 |
| 55. | 808.280 | .270 | .0134 | .0068 | 66.1 |
| 60. | 881.760 | .250 | .0135 | .0067 | 66.7 |
| 65. | 955.240 | .230 | .0136 | .0066 | 67.2 |
| 70. | 1028.720 | .210 | .0137 | .0065 | 67.8 |
| 75. | 1102.200 | .200 | .0139 | .0063 | 68.9 |
| 80. | 1175.680 | .180 | .0142 | .0060 | 70.1 |
| 85. | 1249.160 | .170 | .0144 | .0058 | 71.2 |

Battelle-Columbus Labs.
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POROSITY DATA FOR SAMPLE R109-3555.

| 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 | .0146 | .0056 | 72.3 |
| 100. | 1469.600 | .150 | .0147 | .0055 | 72.9 |
| 110. | 1616.560 | .140 | .0149 | .0052 | 74.0 |
| 120. | 1763.520 | .130 | .0149 | .0052 | 74.0 |
| 130. | 1910.480 | .120 | .0153 | .0049 | 75.7 |
| 140. | 2057.440 | .110 | .0153 | .0049 | 75.7 |
| 150. | 2204.400 | .100 | .0155 | .0047 | 76.8 |
| 170. | 2498.320 | .088 | .0160 | .0042 | 79.1 |
| 180. | 2645.280 | .083 | .0160 | .0042 | 79.1 |
| 190. | 2792.240 | .079 | .0161 | .0041 | 79.7 |
| 200. | 2939.200 | .075 | .0161 | .0041 | 79.7 |
| 220. | 3233.120 | .068 | .0163 | .0039 | 80.8 |
| 240. | 3527.040 | .062 | .0165 | .0037 | 81.9 |
| 260. | 3820.960 | .057 | .0167 | .0035 | 82.5 |
| 280. | 4114.880 | .053 | .0170 | .0032 | 84.2 |
| 300. | 4408.800 | .050 | .0170 | .0032 | 84.2 |
| 330. | 4849.680 | .045 | .0172 | .0030 | 85.3 |
| 360. | 5290.560 | .041 | .0177 | .0025 | 87.6 |
| 390. | 5731.440 | .038 | .0177 | .0025 | 87.6 |
| 420. | 6172.320 | .035 | .0178 | .0024 | 88.1 |
| 450. | 6613.200 | .033 | .0179 | .0023 | 88.7 |
| 490. | 7201.040 | .030 | .0183 | .0019 | 90.4 |
| 510. | 7494.960 | .029 | .0185 | .0017 | 91.5 |
| 540. | 7935.840 | .027 | .0185 | .0017 | 91.5 |
| 590. | 8670.640 | .025 | .0186 | .0016 | 92.1 |
| 610. | 8964.560 | .024 | .0186 | .0016 | 92.1 |
| 640. | 9405.440 | .023 | .0189 | .0013 | 93.8 |
| 700. | 10287.200 | .021 | .0192 | .0010 | 94.9 |
| 740. | 10875.040 | .020 | .0194 | .0008 | 96.0 |
| 770. | 11315.920 | .019 | .0196 | .0006 | 97.2 |
| 800. | 11756.800 | .019 | .0196 | .0006 | 97.2 |
| 830. | 12197.680 | .018 | .0197 | .0005 | 97.7 |
| 860. | 12638.560 | .017 | .0197 | .0005 | 97.7 |
| 900. | 13226.400 | .017 | .0200 | .0002 | 98.9 |
| 930. | 13667.280 | .016 | .0200 | .0002 | 98.9 |
| 960. | 13961.200 | .016 | .0202 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0202 | .0000 | 100.0 |

Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3564.

SEQUENCE NUMBER 8
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 | .0227 | .0 |
| 2. | 29.392 | 7.500 | .0041 | .0186 | 10.0 |
| 3. | 44.088 | 5.000 | .0053 | .0174 | 23.2 |
| 4. | 58.784 | 3.700 | .0064 | .0162 | 28.4 |
| 5. | 73.480 | 3.000 | .0067 | .0160 | 29.4 |
| 6. | 88.176 | 2.500 | .0071 | .0155 | 31.4 |
| 7. | 102.872 | 2.100 | .0079 | .0147 | 35.1 |
| 8. | 117.568 | 1.800 | .0083 | .0144 | 36.6 |
| 9. | 132.264 | 1.600 | .0088 | .0139 | 38.7 |
| 10. | 146.960 | 1.500 | .0092 | .0134 | 40.7 |
| 11. | 161.656 | 1.400 | .0096 | .0131 | 42.3 |
| 12. | 176.352 | 1.300 | .0097 | .0130 | 42.8 |
| 13. | 191.048 | 1.200 | .0100 | .0126 | 44.3 |
| 14. | 205.744 | 1.100 | .0104 | .0123 | 45.9 |
| 15. | 220.440 | 1.000 | .0105 | .0121 | 46.4 |
| 16. | 235.136 | .930 | .0107 | .0119 | 47.4 |
| 17. | 249.832 | .880 | .0111 | .0116 | 49.0 |
| 18. | 264.528 | .830 | .0112 | .0114 | 49.5 |
| 19. | 279.224 | .790 | .0114 | .0112 | 50.5 |
| 20. | 293.920 | .750 | .0117 | .0110 | 51.5 |
| 25. | 367.400 | .600 | .0124 | .0103 | 54.6 |
| 30. | 440.880 | .500 | .0131 | .0096 | 57.7 |
| 35. | 514.360 | .430 | .0135 | .0091 | 59.8 |
| 40. | 587.840 | .370 | .0140 | .0086 | 61.9 |
| 45. | 661.320 | .330 | .0140 | .0086 | 61.9 |
| 50. | 734.800 | .300 | .0141 | .0085 | 62.4 |
| 55. | 808.280 | .270 | .0141 | .0085 | 62.4 |
| 60. | 881.760 | .250 | .0142 | .0084 | 62.9 |
| 65. | 955.240 | .230 | .0146 | .0081 | 64.4 |
| 70. | 1028.720 | .210 | .0151 | .0076 | 66.5 |
| 75. | 1102.200 | .200 | .0152 | .0075 | 67.0 |
| 80. | 1175.680 | .180 | .0154 | .0072 | 68.0 |
| 85. | 1249.160 | .170 | .0155 | .0071 | 68.6 |

Battelle Columbus Labs.
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POROSITY DATA FOR SAMPLE R109-3564.

| 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 | .0158 | .0069 | 69.6 |
| 100. | 1469.600 | .150 | .0161 | .0065 | 71.1 |
| 110. | 1616.560 | .140 | .0165 | .0062 | 72.7 |
| 120. | 1763.520 | .130 | .0165 | .0062 | 72.7 |
| 130. | 1910.480 | .120 | .0167 | .0060 | 73.7 |
| 140. | 2057.440 | .110 | .0169 | .0057 | 74.7 |
| 150. | 2204.400 | .100 | .0173 | .0054 | 76.3 |
| 170. | 2490.320 | .090 | .0178 | .0049 | 78.4 |
| 180. | 2645.280 | .083 | .0178 | .0049 | 78.4 |
| 190. | 2792.240 | .079 | .0178 | .0049 | 78.4 |
| 200. | 2939.200 | .075 | .0180 | .0047 | 79.4 |
| 220. | 3233.120 | .068 | .0182 | .0044 | 80.4 |
| 240. | 3527.040 | .062 | .0185 | .0042 | 81.4 |
| 260. | 3820.960 | .057 | .0188 | .0039 | 83.0 |
| 280. | 4114.880 | .053 | .0188 | .0039 | 83.0 |
| 300. | 4408.800 | .050 | .0190 | .0036 | 84.0 |
| 330. | 4849.680 | .045 | .0193 | .0034 | 85.1 |
| 360. | 5290.560 | .041 | .0196 | .0030 | 86.6 |
| 390. | 5731.440 | .038 | .0196 | .0030 | 86.6 |
| 420. | 6172.320 | .035 | .0201 | .0026 | 88.7 |
| 450. | 6613.200 | .033 | .0202 | .0025 | 89.2 |
| 490. | 7201.040 | .030 | .0203 | .0023 | 89.7 |
| 510. | 7494.960 | .029 | .0206 | .0021 | 90.7 |
| 540. | 7935.840 | .027 | .0206 | .0021 | 90.7 |
| 590. | 8670.640 | .025 | .0211 | .0015 | 93.3 |
| 610. | 8964.560 | .024 | .0211 | .0015 | 93.3 |
| 640. | 9405.440 | .023 | .0214 | .0013 | 94.3 |
| 700. | 10287.200 | .021 | .0214 | .0013 | 94.3 |
| 740. | 10875.040 | .020 | .0217 | .0009 | 95.9 |
| 770. | 11315.920 | .019 | .0220 | .0007 | 96.9 |
| 800. | 11756.800 | .019 | .0220 | .0007 | 96.9 |
| 830. | 12197.680 | .018 | .0222 | .0005 | 97.9 |
| 860. | 12638.560 | .017 | .0222 | .0005 | 97.9 |
| 900. | 13226.400 | .017 | .0224 | .0002 | 99.0 |
| 930. | 13667.280 | .016 | .0224 | .0002 | 99.0 |
| 960. | 13961.200 | .016 | .0227 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0227 | .0000 | 100.0 |

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Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3575.

SEQUENCE NUMBER 9
POPE VOLUME .016 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 | .0156 | .0 |
| 2. | 29.392 | 7.500 | .0058 | .0098 | 37.0 |
| 3. | 44.088 | 5.000 | .0069 | .0087 | 44.4 |
| 4. | 58.784 | 3.700 | .0095 | .0061 | 60.7 |
| 5. | 73.480 | 3.000 | .0095 | .0061 | 60.7 |
| 6. | 88.176 | 2.500 | .0095 | .0061 | 60.7 |
| 7. | 102.872 | 2.100 | .0095 | .0061 | 60.7 |
| 8. | 117.568 | 1.800 | .0095 | .0061 | 60.7 |
| 9. | 132.264 | 1.600 | .0095 | .0061 | 60.7 |
| 10. | 146.960 | 1.500 | .0095 | .0061 | 60.7 |
| 11. | 161.656 | 1.400 | .0095 | .0061 | 60.7 |
| 12. | 176.352 | 1.300 | .0095 | .0061 | 60.7 |
| 13. | 191.048 | 1.200 | .0095 | .0061 | 60.7 |
| 14. | 205.744 | 1.100 | .0095 | .0061 | 60.7 |
| 15. | 220.440 | 1.000 | .0095 | .0061 | 60.7 |
| 16. | 235.136 | .930 | .0095 | .0061 | 60.7 |
| 17. | 249.832 | .880 | .0095 | .0061 | 60.7 |
| 18. | 264.528 | .830 | .0095 | .0061 | 60.7 |
| 19. | 279.224 | .790 | .0095 | .0061 | 60.7 |
| 20. | 293.920 | .750 | .0095 | .0061 | 60.7 |
| 25. | 367.400 | .600 | .0096 | .0060 | 61.5 |
| 30. | 440.880 | .500 | .0097 | .0059 | 62.2 |
| 35. | 514.360 | .430 | .0097 | .0059 | 62.2 |
| 40. | 587.840 | .370 | .0097 | .0059 | 62.2 |
| 45. | 661.320 | .330 | .0097 | .0059 | 62.2 |
| 50. | 734.800 | .300 | .0097 | .0059 | 62.2 |
| 55. | 808.280 | .270 | .0097 | .0059 | 62.2 |
| 60. | 881.760 | .250 | .0097 | .0059 | 62.2 |
| 65. | 955.240 | .230 | .0097 | .0059 | 62.2 |
| 70. | 1028.720 | .210 | .0097 | .0059 | 62.2 |
| 75. | 1102.200 | .200 | .0097 | .0059 | 62.2 |
| 80. | 1175.680 | .180 | .0097 | .0059 | 62.2 |
| 85. | 1249.160 | .170 | .0097 | .0059 | 62.2 |

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POROSITY DATA FOR SAMPLE R109-3575.

| 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 | .0097 | .0059 | 62.2 |
| 100. | 1469.600 | .150 | .0104 | .0052 | 66.7 |
| 110. | 1616.560 | .140 | .0104 | .0052 | 66.7 |
| 120. | 1763.520 | .130 | .0104 | .0052 | 66.7 |
| 130. | 1910.480 | .120 | .0104 | .0052 | 66.7 |
| 140. | 2057.440 | .110 | .0104 | .0052 | 66.7 |
| 150. | 2204.400 | .100 | .0109 | .0047 | 69.6 |
| 170. | 2498.320 | .088 | .0109 | .0047 | 69.6 |
| 180. | 2645.280 | .083 | .0111 | .0045 | 71.1 |
| 190. | 2792.240 | .079 | .0113 | .0043 | 72.6 |
| 200. | 2939.200 | .075 | .0115 | .0042 | 73.3 |
| 220. | 3233.120 | .068 | .0115 | .0042 | 73.3 |
| 240. | 3527.040 | .062 | .0118 | .0038 | 75.6 |
| 260. | 3820.960 | .057 | .0120 | .0036 | 77.0 |
| 280. | 4114.880 | .053 | .0123 | .0034 | 78.5 |
| 300. | 4408.800 | .050 | .0123 | .0034 | 78.5 |
| 330. | 4849.680 | .045 | .0126 | .0030 | 80.7 |
| 360. | 5290.560 | .041 | .0128 | .0028 | 82.2 |
| 390. | 5731.440 | .038 | .0128 | .0028 | 82.2 |
| 420. | 6172.320 | .035 | .0133 | .0023 | 85.2 |
| 450. | 6613.200 | .033 | .0134 | .0022 | 85.9 |
| 490. | 7201.840 | .030 | .0138 | .0019 | 88.1 |
| 510. | 7494.960 | .029 | .0138 | .0019 | 88.1 |
| 540. | 7935.840 | .027 | .0139 | .0017 | 88.9 |
| 590. | 8670.640 | .025 | .0141 | .0015 | 90.4 |
| 610. | 8964.560 | .024 | .0141 | .0015 | 90.4 |
| 640. | 9405.440 | .023 | .0141 | .0015 | 90.4 |
| 700. | 10287.200 | .021 | .0143 | .0013 | 91.9 |
| 740. | 10875.040 | .020 | .0147 | .0009 | 94.1 |
| 770. | 11315.920 | .019 | .0149 | .0007 | 95.6 |
| 800. | 11756.800 | .019 | .0150 | .0006 | 96.3 |
| 830. | 12197.680 | .018 | .0154 | .0002 | 98.5 |
| 860. | 12638.560 | .017 | .0154 | .0002 | 98.5 |
| 900. | 13226.400 | .017 | .0154 | .0002 | 98.5 |
| 930. | 13667.280 | .016 | .0154 | .0002 | 98.5 |
| 960. | 13961.200 | .016 | .0154 | .0002 | 98.5 |
| 1000. | 14696.000 | .014 | .0156 | .0000 | 100.0 |

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Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3505.

SEQUENCE NUMBER 10
PORE VOLUME .014 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 | .0130 | .0 |
| 2. | 29.392 | 7.500 | .0013 | .0124 | 9.7 |
| 3. | 44.088 | 5.000 | .0020 | .0118 | 14.5 |
| 4. | 58.784 | 3.700 | .0023 | .0114 | 16.9 |
| 5. | 73.480 | 3.000 | .0026 | .0110 | 20.2 |
| 6. | 88.176 | 2.500 | .0030 | .0108 | 21.8 |
| 7. | 102.872 | 2.100 | .0032 | .0105 | 23.4 |
| 8. | 117.568 | 1.800 | .0033 | .0104 | 24.2 |
| 9. | 132.264 | 1.600 | .0040 | .0098 | 29.0 |
| 10. | 146.960 | 1.500 | .0040 | .0098 | 29.0 |
| 11. | 161.656 | 1.400 | .0040 | .0098 | 29.0 |
| 12. | 176.352 | 1.300 | .0043 | .0094 | 31.5 |
| 13. | 191.048 | 1.200 | .0045 | .0092 | 33.1 |
| 14. | 205.744 | 1.100 | .0045 | .0092 | 33.1 |
| 15. | 220.440 | 1.000 | .0049 | .0089 | 35.5 |
| 16. | 235.136 | .930 | .0049 | .0089 | 35.5 |
| 17. | 249.832 | .880 | .0049 | .0089 | 35.5 |
| 18. | 264.528 | .830 | .0053 | .0084 | 38.7 |
| 19. | 279.224 | .790 | .0053 | .0084 | 38.7 |
| 20. | 293.920 | .750 | .0055 | .0082 | 40.3 |
| 25. | 367.400 | .600 | .0058 | .0080 | 41.9 |
| 30. | 440.880 | .500 | .0060 | .0078 | 43.5 |
| 35. | 514.360 | .430 | .0064 | .0073 | 46.8 |
| 40. | 587.840 | .370 | .0069 | .0069 | 50.0 |
| 45. | 661.320 | .330 | .0071 | .0067 | 51.6 |
| 50. | 734.800 | .300 | .0072 | .0065 | 52.4 |
| 55. | 808.280 | .270 | .0073 | .0064 | 53.2 |
| 60. | 881.760 | .250 | .0075 | .0062 | 54.8 |
| 65. | 955.240 | .230 | .0075 | .0062 | 54.8 |
| 70. | 1028.720 | .210 | .0075 | .0062 | 54.8 |
| 75. | 1102.200 | .200 | .0075 | .0062 | 54.8 |
| 80. | 1175.680 | .180 | .0075 | .0062 | 54.8 |
| 85. | 1249.160 | .170 | .0080 | .0058 | 58.1 |

Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3585.

| 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 | .0080 | .0058 | 58.1 |
| 100. | 1469.600 | .150 | .0083 | .0054 | 60.5 |
| 110. | 1616.560 | .140 | .0088 | .0050 | 63.7 |
| 120. | 1763.520 | .130 | .0088 | .0050 | 63.7 |
| 130. | 1910.480 | .120 | .0090 | .0048 | 65.3 |
| 140. | 2057.440 | .110 | .0090 | .0048 | 65.3 |
| 150. | 2204.400 | .100 | .0093 | .0044 | 67.7 |
| 170. | 2498.320 | .088 | .0093 | .0044 | 67.7 |
| 180. | 2645.280 | .083 | .0093 | .0044 | 67.7 |
| 190. | 2792.240 | .079 | .0098 | .0040 | 71.0 |
| 200. | 2939.200 | .075 | .0098 | .0040 | 71.0 |
| 220. | 3233.120 | .068 | .0098 | .0040 | 71.0 |
| 240. | 3527.040 | .062 | .0100 | .0038 | 72.6 |
| 260. | 3820.960 | .057 | .0103 | .0034 | 75.0 |
| 280. | 4114.880 | .053 | .0104 | .0033 | 75.8 |
| 300. | 4408.800 | .050 | .0108 | .0030 | 78.2 |
| 330. | 4849.680 | .045 | .0108 | .0030 | 78.2 |
| 360. | 5290.560 | .041 | .0110 | .0028 | 79.8 |
| 390. | 5731.440 | .038 | .0110 | .0028 | 79.8 |
| 420. | 6172.320 | .035 | .0112 | .0026 | 81.5 |
| 450. | 6613.200 | .033 | .0112 | .0026 | 81.5 |
| 490. | 7201.040 | .030 | .0115 | .0022 | 83.9 |
| 510. | 7494.960 | .029 | .0116 | .0021 | 84.7 |
| 540. | 7935.840 | .027 | .0119 | .0019 | 86.3 |
| 590. | 8670.640 | .025 | .0123 | .0014 | 89.5 |
| 610. | 8964.560 | .024 | .0123 | .0014 | 89.5 |
| 640. | 9405.440 | .023 | .0124 | .0013 | 90.3 |
| 700. | 10287.200 | .021 | .0124 | .0013 | 90.3 |
| 740. | 10875.040 | .020 | .0129 | .0009 | 93.5 |
| 770. | 11315.920 | .019 | .0129 | .0009 | 93.5 |
| 800. | 11756.800 | .019 | .0131 | .0007 | 95.2 |
| 830. | 12197.680 | .018 | .0131 | .0007 | 95.2 |
| 860. | 12638.560 | .017 | .0133 | .0004 | 96.8 |
| 900. | 13226.400 | .017 | .0133 | .0004 | 96.8 |
| 930. | 13667.280 | .016 | .0135 | .0002 | 98.4 |
| 960. | 13961.200 | .016 | .0135 | .0002 | 98.4 |
| 1000. | 14696.000 | .014 | .0138 | .0000 | 100.0 |

Battelle Columbus Labs.
June 20, 1979

DEC 21 1977

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POROSITY DATA FOR SAMPLE R109-3593.

SEQUENCE NUMBER 11
PORE VOLUME .016 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 | .0160 | .0 |
| 2. | 29.392 | 7.500 | .0009 | .0152 | 5.3 |
| 3. | 44.088 | 5.000 | .0035 | .0125 | 22.0 |
| 4. | 58.784 | 3.700 | .0043 | .0117 | 26.7 |
| 5. | 73.480 | 3.000 | .0044 | .0116 | 27.3 |
| 6. | 88.176 | 2.500 | .0045 | .0115 | 28.0 |
| 7. | 102.872 | 2.100 | .0057 | .0104 | 35.3 |
| 8. | 117.568 | 1.800 | .0060 | .0100 | 37.3 |
| 9. | 132.264 | 1.600 | .0062 | .0098 | 38.7 |
| 10. | 146.960 | 1.500 | .0062 | .0098 | 38.7 |
| 11. | 161.656 | 1.400 | .0063 | .0097 | 39.3 |
| 12. | 176.352 | 1.300 | .0063 | .0097 | 39.3 |
| 13. | 191.048 | 1.200 | .0063 | .0097 | 39.3 |
| 14. | 205.744 | 1.100 | .0063 | .0097 | 39.3 |
| 15. | 220.440 | 1.000 | .0063 | .0097 | 39.3 |
| 16. | 235.136 | .930 | .0063 | .0097 | 39.3 |
| 17. | 249.832 | .880 | .0063 | .0097 | 39.3 |
| 18. | 264.528 | .830 | .0063 | .0097 | 39.3 |
| 19. | 279.224 | .790 | .0075 | .0085 | 46.7 |
| 20. | 293.920 | .750 | .0075 | .0085 | 46.7 |
| 25. | 367.400 | .600 | .0078 | .0082 | 48.7 |
| 30. | 440.880 | .500 | .0081 | .0079 | 50.7 |
| 35. | 514.360 | .430 | .0082 | .0078 | 51.3 |
| 40. | 587.840 | .370 | .0083 | .0077 | 52.0 |
| 45. | 661.320 | .330 | .0083 | .0077 | 52.0 |
| 50. | 734.800 | .300 | .0084 | .0076 | 52.7 |
| 55. | 808.280 | .270 | .0090 | .0070 | 56.0 |
| 60. | 881.760 | .250 | .0096 | .0064 | 60.0 |
| 65. | 955.240 | .230 | .0096 | .0064 | 60.0 |
| 70. | 1028.720 | .210 | .0096 | .0064 | 60.0 |
| 75. | 1102.200 | .200 | .0096 | .0064 | 60.0 |
| 80. | 1175.680 | .180 | .0096 | .0064 | 60.0 |
| 85. | 1249.160 | .170 | .0101 | .0059 | 63.3 |

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POROSITY DATA FOR SAMPLE R109-3593.

| 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 | .0106 | .0054 | 66.0 |
| 100. | 1469.600 | .150 | .0106 | .0054 | 66.0 |
| 110. | 1616.560 | .140 | .0106 | .0054 | 66.0 |
| 120. | 1763.520 | .130 | .0106 | .0054 | 66.0 |
| 130. | 1910.480 | .120 | .0106 | .0054 | 66.0 |
| 140. | 2057.440 | .110 | .0106 | .0054 | 66.0 |
| 150. | 2204.400 | .100 | .0113 | .0047 | 70.7 |
| 170. | 2490.320 | .088 | .0115 | .0045 | 72.0 |
| 180. | 2645.280 | .083 | .0115 | .0045 | 72.0 |
| 190. | 2792.240 | .079 | .0115 | .0045 | 72.0 |
| 200. | 2939.200 | .075 | .0115 | .0045 | 72.0 |
| 220. | 3233.120 | .068 | .0115 | .0045 | 72.0 |
| 240. | 3527.040 | .062 | .0115 | .0045 | 72.0 |
| 260. | 3820.960 | .057 | .0125 | .0035 | 78.0 |
| 280. | 4114.880 | .053 | .0125 | .0035 | 78.0 |
| 300. | 4408.800 | .050 | .0125 | .0035 | 78.0 |
| 330. | 4849.680 | .045 | .0125 | .0035 | 78.0 |
| 360. | 5290.560 | .041 | .0126 | .0034 | 78.7 |
| 390. | 5731.440 | .038 | .0126 | .0034 | 78.7 |
| 420. | 6172.320 | .035 | .0136 | .0025 | 84.7 |
| 450. | 6613.200 | .033 | .0136 | .0025 | 84.7 |
| 490. | 7201.040 | .030 | .0136 | .0025 | 84.7 |
| 510. | 7494.960 | .029 | .0138 | .0022 | 86.0 |
| 540. | 7935.840 | .027 | .0138 | .0022 | 86.0 |
| 590. | 8670.640 | .025 | .0138 | .0022 | 86.0 |
| 610. | 8964.560 | .024 | .0145 | .0015 | 90.7 |
| 640. | 9405.440 | .023 | .0145 | .0015 | 90.7 |
| 700. | 10287.200 | .021 | .0145 | .0015 | 90.7 |
| 740. | 10875.040 | .020 | .0145 | .0015 | 90.7 |
| 770. | 11315.920 | .019 | .0145 | .0015 | 90.7 |
| 800. | 11756.800 | .019 | .0152 | .0009 | 94.7 |
| 830. | 12197.680 | .018 | .0152 | .0009 | 94.7 |
| 860. | 12638.560 | .017 | .0152 | .0009 | 94.7 |
| 900. | 13226.400 | .017 | .0152 | .0009 | 94.7 |
| 930. | 13667.280 | .016 | .0152 | .0009 | 94.7 |
| 960. | 13961.280 | .016 | .0160 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0160 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3605.

SEQUENCE NUMBER 12
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 | .0000 | .0111 | .0 |
| 3. | 44.088 | 5.000 | .0000 | .0111 | .0 |
| 4. | 58.784 | 3.700 | .0000 | .0111 | .0 |
| 5. | 73.480 | 3.000 | .0000 | .0111 | .0 |
| 6. | 88.176 | 2.500 | .0000 | .0111 | .0 |
| 7. | 102.872 | 2.100 | .0000 | .0111 | .0 |
| 8. | 117.568 | 1.800 | .0000 | .0111 | .0 |
| 9. | 132.264 | 1.600 | .0000 | .0111 | .0 |
| 10. | 146.960 | 1.500 | .0000 | .0111 | .0 |
| 11. | 161.656 | 1.400 | .0000 | .0111 | .0 |
| 12. | 176.352 | 1.300 | .0000 | .0111 | .0 |
| 13. | 191.048 | 1.200 | .0000 | .0111 | .0 |
| 14. | 205.744 | 1.100 | .0000 | .0111 | .0 |
| 15. | 220.440 | 1.000 | .0000 | .0111 | .0 |
| 16. | 235.136 | .930 | .0000 | .0111 | .0 |
| 17. | 249.832 | .880 | .0000 | .0111 | .0 |
| 18. | 264.528 | .830 | .0000 | .0111 | .0 |
| 19. | 279.224 | .790 | .0000 | .0111 | .0 |
| 20. | 293.920 | .750 | .0000 | .0111 | .0 |
| 25. | 367.400 | .600 | .0000 | .0111 | .0 |
| 30. | 440.880 | .500 | .0000 | .0111 | .0 |
| 35. | 514.360 | .430 | .0000 | .0111 | .0 |
| 40. | 587.840 | .370 | .0011 | .0100 | 9.9 |
| 45. | 661.320 | .330 | .0012 | .0099 | 10.9 |
| 50. | 734.800 | .300 | .0013 | .0098 | 11.9 |
| 55. | 808.280 | .270 | .0020 | .0091 | 17.8 |
| 60. | 881.760 | .250 | .0024 | .0087 | 21.8 |
| 65. | 955.240 | .230 | .0024 | .0087 | 21.8 |
| 70. | 1028.720 | .210 | .0024 | .0087 | 21.8 |
| 75. | 1102.200 | .200 | .0029 | .0083 | 25.7 |
| 80. | 1175.680 | .180 | .0032 | .0079 | 28.7 |
| 85. | 1249.160 | .170 | .0037 | .0074 | 33.7 |

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POROSITY DATA FOR SAMPLE R109-3605.

| 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 | .0041 | .0070 | 36.6 |
| 100. | 1469.600 | .150 | .0042 | .0069 | 37.6 |
| 110. | 1616.560 | .140 | .0044 | .0067 | 39.6 |
| 120. | 1763.520 | .130 | .0045 | .0066 | 40.6 |
| 130. | 1910.480 | .120 | .0047 | .0064 | 42.6 |
| 140. | 2057.440 | .110 | .0048 | .0063 | 43.6 |
| 150. | 2204.400 | .100 | .0050 | .0062 | 44.6 |
| 170. | 2498.320 | .088 | .0055 | .0056 | 49.5 |
| 180. | 2645.280 | .083 | .0055 | .0056 | 49.5 |
| 190. | 2792.240 | .079 | .0055 | .0056 | 49.5 |
| 200. | 2939.200 | .075 | .0055 | .0056 | 49.5 |
| 220. | 3233.120 | .068 | .0064 | .0047 | 57.4 |
| 240. | 3527.040 | .062 | .0064 | .0047 | 57.4 |
| 260. | 3820.960 | .057 | .0067 | .0044 | 60.4 |
| 280. | 4114.880 | .053 | .0067 | .0044 | 60.4 |
| 300. | 4408.800 | .050 | .0067 | .0044 | 60.4 |
| 330. | 4849.680 | .045 | .0079 | .0032 | 71.3 |
| 360. | 5290.560 | .041 | .0079 | .0032 | 71.3 |
| 390. | 5731.440 | .038 | .0079 | .0032 | 71.3 |
| 420. | 6172.320 | .035 | .0091 | .0020 | 82.2 |
| 450. | 6613.200 | .033 | .0091 | .0020 | 82.2 |
| 490. | 7201.040 | .030 | .0091 | .0020 | 82.2 |
| 510. | 7494.960 | .029 | .0091 | .0020 | 82.2 |
| 540. | 7935.840 | .027 | .0091 | .0020 | 82.2 |
| 590. | 8670.640 | .025 | .0091 | .0020 | 82.2 |
| 610. | 8964.560 | .024 | .0091 | .0020 | 82.2 |
| 640. | 9405.440 | .023 | .0106 | .0006 | 95.0 |
| 700. | 10287.200 | .021 | .0106 | .0006 | 95.0 |
| 740. | 10875.040 | .020 | .0106 | .0006 | 95.0 |
| 770. | 11315.920 | .019 | .0106 | .0006 | 95.0 |
| 800. | 11756.800 | .019 | .0106 | .0006 | 95.0 |
| 830. | 12197.680 | .018 | .0106 | .0006 | 95.0 |
| 860. | 12638.560 | .017 | .0106 | .0006 | 95.0 |
| 900. | 13226.400 | .017 | .0111 | .0000 | 100.0 |
| 930. | 13667.280 | .016 | .0111 | .0000 | 100.0 |
| 960. | 13961.200 | .016 | .0111 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0111 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3606.A

SEQUENCE NUMBER 13
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 | .0168 | .0 |
| 2. | 29.392 | 7.500 | .0017 | .0151 | 10.3 |
| 3. | 44.088 | 5.000 | .0029 | .0139 | 17.1 |
| 4. | 58.784 | 3.700 | .0037 | .0131 | 21.9 |
| 5. | 73.480 | 3.000 | .0044 | .0124 | 26.0 |
| 6. | 88.176 | 2.500 | .0047 | .0121 | 28.1 |
| 7. | 102.872 | 2.100 | .0055 | .0113 | 32.9 |
| 8. | 117.568 | 1.800 | .0058 | .0111 | 34.2 |
| 9. | 132.264 | 1.600 | .0059 | .0109 | 34.9 |
| 10. | 146.960 | 1.500 | .0059 | .0109 | 34.9 |
| 11. | 161.656 | 1.400 | .0067 | .0101 | 39.7 |
| 12. | 176.352 | 1.300 | .0067 | .0101 | 39.7 |
| 13. | 191.048 | 1.200 | .0070 | .0098 | 41.8 |
| 14. | 205.744 | 1.100 | .0070 | .0098 | 41.8 |
| 15. | 220.440 | 1.000 | .0078 | .0090 | 46.6 |
| 16. | 235.136 | .930 | .0078 | .0090 | 46.6 |
| 17. | 249.832 | .880 | .0078 | .0090 | 46.6 |
| 18. | 264.528 | .830 | .0081 | .0088 | 47.9 |
| 19. | 279.224 | .790 | .0081 | .0088 | 47.9 |
| 20. | 293.920 | .750 | .0081 | .0088 | 47.9 |
| 25. | 367.400 | .600 | .0084 | .0084 | 50.0 |
| 30. | 440.880 | .500 | .0086 | .0082 | 51.4 |
| 35. | 514.360 | .430 | .0090 | .0078 | 53.4 |
| 40. | 587.840 | .370 | .0093 | .0075 | 55.5 |
| 45. | 661.320 | .330 | .0096 | .0073 | 56.8 |
| 50. | 734.800 | .300 | .0097 | .0071 | 57.5 |
| 55. | 808.280 | .270 | .0097 | .0071 | 57.5 |
| 60. | 881.760 | .250 | .0098 | .0070 | 58.2 |
| 65. | 955.240 | .230 | .0101 | .0067 | 60.3 |
| 70. | 1028.720 | .210 | .0105 | .0063 | 62.3 |
| 75. | 1102.200 | .200 | .0107 | .0061 | 63.7 |
| 80. | 1175.680 | .180 | .0109 | .0059 | 65.1 |
| 85. | 1249.160 | .170 | .0109 | .0059 | 65.1 |

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June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3606.A

| 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 | .0109 | .0059 | 65.1 |
| 100. | 1469.600 | .150 | .0113 | .0055 | 67.1 |
| 110. | 1616.560 | .140 | .0114 | .0054 | 67.8 |
| 120. | 1763.520 | .130 | .0116 | .0052 | 69.2 |
| 130. | 1910.480 | .120 | .0116 | .0052 | 69.2 |
| 140. | 2057.440 | .110 | .0119 | .0050 | 70.5 |
| 150. | 2204.400 | .100 | .0119 | .0050 | 70.5 |
| 170. | 2498.320 | .088 | .0121 | .0047 | 71.9 |
| 180. | 2645.280 | .083 | .0121 | .0047 | 71.9 |
| 190. | 2792.240 | .079 | .0126 | .0043 | 74.7 |
| 200. | 2939.200 | .075 | .0126 | .0043 | 74.7 |
| 220. | 3233.120 | .068 | .0129 | .0039 | 76.7 |
| 240. | 3527.040 | .062 | .0129 | .0039 | 76.7 |
| 260. | 3820.960 | .057 | .0131 | .0037 | 78.1 |
| 280. | 4114.880 | .053 | .0131 | .0037 | 78.1 |
| 300. | 4408.800 | .050 | .0134 | .0035 | 79.5 |
| 330. | 4849.680 | .045 | .0136 | .0032 | 80.8 |
| 360. | 5290.560 | .041 | .0141 | .0028 | 83.6 |
| 390. | 5731.440 | .038 | .0141 | .0028 | 83.6 |
| 420. | 6172.320 | .035 | .0143 | .0025 | 84.9 |
| 450. | 6613.200 | .033 | .0144 | .0024 | 85.6 |
| 490. | 7201.040 | .030 | .0146 | .0022 | 87.0 |
| 510. | 7494.960 | .029 | .0149 | .0020 | 88.4 |
| 540. | 7935.840 | .027 | .0149 | .0020 | 88.4 |
| 590. | 8670.640 | .025 | .0152 | .0016 | 90.4 |
| 610. | 8964.560 | .024 | .0152 | .0016 | 90.4 |
| 640. | 9405.440 | .023 | .0154 | .0014 | 91.8 |
| 700. | 10287.200 | .021 | .0154 | .0014 | 91.8 |
| 740. | 10875.040 | .020 | .0157 | .0012 | 93.2 |
| 770. | 11315.920 | .019 | .0157 | .0012 | 93.2 |
| 800. | 11756.800 | .019 | .0157 | .0012 | 93.2 |
| 830. | 12197.680 | .018 | .0162 | .0006 | 96.6 |
| 860. | 12638.560 | .017 | .0162 | .0006 | 96.6 |
| 900. | 13226.400 | .017 | .0162 | .0006 | 96.6 |
| 930. | 13667.280 | .016 | .0162 | .0006 | 96.6 |
| 960. | 13961.200 | .016 | .0162 | .0006 | 96.6 |
| 1000. | 14696.000 | .014 | .0168 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3606.8

SEQUENCE NUMBER 14
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 | .0113 | .0 |
| 2. | 29.392 | 7.500 | .0012 | .0102 | 10.4 |
| 3. | 44.088 | 5.000 | .0012 | .0102 | 10.4 |
| 4. | 58.784 | 3.700 | .0012 | .0102 | 10.4 |
| 5. | 73.480 | 3.000 | .0012 | .0102 | 10.4 |
| 6. | 88.176 | 2.500 | .0014 | .0099 | 12.5 |
| 7. | 102.872 | 2.100 | .0019 | .0094 | 16.7 |
| 8. | 117.568 | 1.800 | .0019 | .0094 | 16.7 |
| 9. | 132.264 | 1.600 | .0026 | .0087 | 22.9 |
| 10. | 146.960 | 1.500 | .0026 | .0087 | 22.9 |
| 11. | 161.656 | 1.400 | .0026 | .0087 | 22.9 |
| 12. | 176.352 | 1.300 | .0033 | .0080 | 29.2 |
| 13. | 191.048 | 1.200 | .0033 | .0080 | 29.2 |
| 14. | 205.744 | 1.100 | .0033 | .0080 | 29.2 |
| 15. | 220.440 | 1.000 | .0034 | .0079 | 30.2 |
| 16. | 235.136 | .930 | .0039 | .0074 | 34.4 |
| 17. | 249.832 | .880 | .0039 | .0074 | 34.4 |
| 18. | 264.528 | .830 | .0039 | .0074 | 34.4 |
| 19. | 279.224 | .790 | .0039 | .0074 | 34.4 |
| 20. | 293.920 | .750 | .0046 | .0067 | 40.6 |
| 25. | 367.400 | .600 | .0047 | .0066 | 41.7 |
| 30. | 440.880 | .500 | .0050 | .0064 | 43.8 |
| 35. | 514.360 | .430 | .0052 | .0061 | 45.8 |
| 40. | 587.840 | .370 | .0054 | .0059 | 47.9 |
| 45. | 661.320 | .330 | .0060 | .0053 | 53.1 |
| 50. | 734.800 | .300 | .0066 | .0047 | 58.3 |
| 55. | 808.280 | .270 | .0067 | .0046 | 59.4 |
| 60. | 881.760 | .250 | .0068 | .0045 | 60.4 |
| 65. | 955.240 | .230 | .0068 | .0045 | 60.4 |
| 70. | 1028.720 | .210 | .0068 | .0045 | 60.4 |
| 75. | 1102.200 | .200 | .0068 | .0045 | 60.4 |
| 80. | 1175.680 | .180 | .0068 | .0045 | 60.4 |
| 85. | 1249.160 | .170 | .0068 | .0045 | 60.4 |

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POROSITY DATA FOR SAMPLE R109-3606.B

| 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 | .0068 | .0045 | 60.4 |
| 100. | 1469.600 | .150 | .0068 | .0045 | 60.4 |
| 110. | 1616.560 | .140 | .0068 | .0045 | 60.4 |
| 120. | 1763.520 | .130 | .0068 | .0045 | 60.4 |
| 130. | 1910.480 | .120 | .0068 | .0045 | 60.4 |
| 140. | 2057.440 | .110 | .0068 | .0045 | 60.4 |
| 150. | 2204.400 | .100 | .0068 | .0045 | 60.4 |
| 170. | 2498.320 | .088 | .0068 | .0045 | 60.4 |
| 180. | 2645.280 | .083 | .0068 | .0045 | 60.4 |
| 190. | 2792.240 | .079 | .0068 | .0045 | 60.4 |
| 200. | 2939.200 | .075 | .0068 | .0045 | 60.4 |
| 220. | 3233.120 | .068 | .0068 | .0045 | 60.4 |
| 240. | 3527.040 | .062 | .0068 | .0045 | 60.4 |
| 260. | 3820.960 | .057 | .0068 | .0045 | 60.4 |
| 280. | 4114.880 | .053 | .0068 | .0045 | 60.4 |
| 300. | 4408.800 | .050 | .0070 | .0044 | 61.5 |
| 330. | 4849.680 | .045 | .0076 | .0038 | 66.7 |
| 360. | 5290.560 | .041 | .0076 | .0038 | 66.7 |
| 390. | 5731.440 | .038 | .0076 | .0038 | 66.7 |
| 420. | 6172.320 | .035 | .0081 | .0032 | 71.9 |
| 450. | 6613.200 | .033 | .0081 | .0032 | 71.9 |
| 490. | 7201.040 | .030 | .0084 | .0030 | 74.0 |
| 510. | 7494.960 | .029 | .0084 | .0030 | 74.0 |
| 540. | 7935.840 | .027 | .0085 | .0028 | 75.0 |
| 590. | 8670.640 | .025 | .0091 | .0022 | 80.2 |
| 610. | 8964.560 | .024 | .0091 | .0022 | 80.2 |
| 640. | 9405.440 | .023 | .0094 | .0019 | 83.3 |
| 700. | 10287.200 | .021 | .0097 | .0017 | 85.4 |
| 740. | 10875.040 | .020 | .0098 | .0015 | 86.5 |
| 770. | 11315.920 | .019 | .0102 | .0012 | 89.6 |
| 800. | 11756.800 | .019 | .0102 | .0012 | 89.6 |
| 830. | 12197.680 | .018 | .0105 | .0008 | 92.7 |
| 860. | 12638.560 | .017 | .0105 | .0008 | 92.7 |
| 900. | 13226.400 | .017 | .0110 | .0004 | 96.9 |
| 930. | 13667.280 | .016 | .0111 | .0002 | 97.9 |
| 960. | 13961.200 | .016 | .0111 | .0002 | 97.9 |
| 1000. | 14696.000 | .014 | .0113 | .0000 | 100.0 |

Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3616.

SEQUENCE NUMBER 15
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 | .0011 | .0190 | 5.6 |
| 2. | 29.392 | 7.500 | .0023 | .0179 | 11.2 |
| 3. | 44.088 | 5.000 | .0026 | .0175 | 12.9 |
| 4. | 58.784 | 3.700 | .0034 | .0168 | 16.9 |
| 5. | 73.480 | 3.000 | .0045 | .0156 | 22.5 |
| 6. | 88.176 | 2.500 | .0048 | .0154 | 23.6 |
| 7. | 102.872 | 2.100 | .0051 | .0151 | 25.3 |
| 8. | 117.568 | 1.800 | .0052 | .0149 | 25.8 |
| 9. | 132.264 | 1.600 | .0052 | .0149 | 25.8 |
| 10. | 146.960 | 1.500 | .0059 | .0143 | 29.2 |
| 11. | 161.656 | 1.400 | .0059 | .0143 | 29.2 |
| 12. | 176.352 | 1.300 | .0059 | .0143 | 29.2 |
| 13. | 191.048 | 1.200 | .0062 | .0139 | 30.9 |
| 14. | 205.744 | 1.100 | .0068 | .0134 | 33.7 |
| 15. | 220.440 | 1.000 | .0068 | .0134 | 33.7 |
| 16. | 235.136 | .930 | .0068 | .0134 | 33.7 |
| 17. | 249.832 | .880 | .0071 | .0130 | 35.4 |
| 18. | 264.528 | .830 | .0074 | .0128 | 36.5 |
| 19. | 279.224 | .790 | .0075 | .0127 | 37.1 |
| 20. | 293.920 | .750 | .0078 | .0123 | 38.8 |
| 25. | 367.400 | .600 | .0080 | .0121 | 39.9 |
| 30. | 440.880 | .500 | .0085 | .0116 | 41.6 |
| 35. | 514.360 | .430 | .0084 | .0118 | 41.6 |
| 40. | 587.840 | .370 | .0091 | .0111 | 44.9 |
| 45. | 661.320 | .330 | .0091 | .0111 | 44.9 |
| 50. | 734.800 | .300 | .0094 | .0108 | 46.6 |
| 55. | 808.280 | .270 | .0096 | .0105 | 47.8 |
| 60. | 881.760 | .250 | .0102 | .0098 | 50.6 |
| 65. | 955.240 | .230 | .0104 | .0097 | 51.7 |
| 70. | 1028.720 | .210 | .0108 | .0094 | 53.4 |
| 75. | 1102.200 | .200 | .0110 | .0092 | 54.5 |
| 80. | 1175.680 | .180 | .0112 | .0089 | 55.6 |
| 85. | 1249.160 | .170 | .0113 | .0088 | 56.2 |

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POROSITY DATA FOR SAMPLE R109-3616.

| 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 | .0114 | .0047 | 56.7 |
| 100. | 1469.600 | .150 | .0119 | .0083 | 59.0 |
| 110. | 1616.560 | .140 | .0122 | .0079 | 60.7 |
| 120. | 1763.520 | .130 | .0125 | .0077 | 61.8 |
| 130. | 1910.480 | .120 | .0130 | .0071 | 64.6 |
| 140. | 2057.440 | .110 | .0134 | .0068 | 66.3 |
| 150. | 2204.400 | .100 | .0135 | .0067 | 66.9 |
| 170. | 2498.320 | .086 | .0138 | .0063 | 68.5 |
| 180. | 2645.280 | .083 | .0139 | .0062 | 69.1 |
| 190. | 2792.240 | .079 | .0142 | .0060 | 70.2 |
| 200. | 2939.200 | .075 | .0143 | .0059 | 70.8 |
| 220. | 3233.120 | .068 | .0147 | .0054 | 73.0 |
| 240. | 3527.040 | .062 | .0148 | .0053 | 73.6 |
| 260. | 3820.960 | .057 | .0151 | .0051 | 74.7 |
| 280. | 4114.880 | .053 | .0154 | .0048 | 76.4 |
| 300. | 4408.800 | .050 | .0156 | .0045 | 77.5 |
| 330. | 4849.680 | .045 | .0158 | .0043 | 78.7 |
| 360. | 5290.560 | .041 | .0158 | .0043 | 78.7 |
| 390. | 5731.440 | .038 | .0163 | .0038 | 80.9 |
| 420. | 6172.320 | .035 | .0166 | .0035 | 82.6 |
| 450. | 6613.200 | .033 | .0168 | .0034 | 83.1 |
| 490. | 7201.040 | .030 | .0171 | .0031 | 84.8 |
| 510. | 7494.960 | .029 | .0171 | .0031 | 84.8 |
| 540. | 7935.840 | .027 | .0173 | .0028 | 86.0 |
| 590. | 8678.640 | .025 | .0178 | .0024 | 88.2 |
| 610. | 8964.560 | .024 | .0180 | .0022 | 89.3 |
| 640. | 9405.440 | .023 | .0182 | .0019 | 90.4 |
| 700. | 10287.200 | .021 | .0186 | .0016 | 92.1 |
| 740. | 10875.040 | .020 | .0188 | .0014 | 93.3 |
| 770. | 11315.920 | .019 | .0188 | .0014 | 93.3 |
| 800. | 11756.800 | .019 | .0190 | .0011 | 94.4 |
| 830. | 12197.680 | .018 | .0192 | .0009 | 95.5 |
| 860. | 12638.560 | .017 | .0195 | .0007 | 96.6 |
| 900. | 13226.400 | .017 | .0196 | .0006 | 97.2 |
| 930. | 13667.280 | .016 | .0196 | .0006 | 97.2 |
| 960. | 13961.200 | .016 | .0202 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0202 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3626.

SEQUENCE NUMBER 16
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 | .0212 | .0 |
| 2. | 29.392 | 7.500 | .0011 | .0201 | 5.1 |
| 3. | 44.088 | 5.000 | .0018 | .0193 | 8.7 |
| 4. | 58.784 | 3.700 | .0029 | .0182 | 13.8 |
| 5. | 73.480 | 3.000 | .0038 | .0174 | 17.9 |
| 6. | 88.176 | 2.500 | .0038 | .0174 | 17.9 |
| 7. | 102.872 | 2.100 | .0045 | .0166 | 21.4 |
| 8. | 117.568 | 1.800 | .0050 | .0162 | 23.5 |
| 9. | 132.264 | 1.600 | .0054 | .0158 | 25.5 |
| 10. | 146.960 | 1.500 | .0056 | .0155 | 26.5 |
| 11. | 161.656 | 1.400 | .0059 | .0152 | 28.1 |
| 12. | 176.352 | 1.300 | .0064 | .0148 | 30.1 |
| 13. | 191.048 | 1.200 | .0065 | .0147 | 30.6 |
| 14. | 205.744 | 1.100 | .0066 | .0146 | 31.1 |
| 15. | 220.440 | 1.000 | .0070 | .0141 | 33.2 |
| 16. | 235.136 | .930 | .0070 | .0141 | 33.2 |
| 17. | 249.832 | .880 | .0073 | .0138 | 34.7 |
| 18. | 264.528 | .830 | .0078 | .0134 | 36.7 |
| 19. | 279.224 | .790 | .0078 | .0134 | 36.7 |
| 20. | 293.920 | .750 | .0081 | .0131 | 38.3 |
| 25. | 367.400 | .600 | .0094 | .0118 | 44.4 |
| 30. | 440.880 | .500 | .0100 | .0111 | 47.4 |
| 35. | 514.360 | .430 | .0105 | .0107 | 49.5 |
| 40. | 587.840 | .370 | .0108 | .0104 | 51.0 |
| 45. | 661.320 | .330 | .0113 | .0098 | 53.6 |
| 50. | 734.800 | .300 | .0118 | .0094 | 55.6 |
| 55. | 808.280 | .270 | .0120 | .0092 | 56.6 |
| 60. | 881.760 | .250 | .0123 | .0089 | 58.2 |
| 65. | 955.240 | .230 | .0124 | .0087 | 58.7 |
| 70. | 1028.720 | .210 | .0125 | .0086 | 59.2 |
| 75. | 1102.200 | .200 | .0127 | .0084 | 60.2 |
| 80. | 1175.680 | .180 | .0130 | .0082 | 61.2 |
| 85. | 1249.160 | .170 | .0132 | .0080 | 62.2 |

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POROSITY DATA FOR SAMPLE R109-3626.

| 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 | .0135 | .0077 | 63.8 |
| 100. | 1469.600 | .150 | .0138 | .0073 | 65.3 |
| 110. | 1616.560 | .140 | .0140 | .0071 | 66.3 |
| 120. | 1763.520 | .130 | .0146 | .0066 | 68.9 |
| 130. | 1910.480 | .120 | .0146 | .0066 | 68.9 |
| 140. | 2057.440 | .110 | .0150 | .0062 | 70.9 |
| 150. | 2204.400 | .100 | .0151 | .0060 | 71.4 |
| 170. | 2498.320 | .088 | .0154 | .0057 | 73.0 |
| 180. | 2645.280 | .083 | .0158 | .0054 | 74.5 |
| 190. | 2792.240 | .079 | .0158 | .0054 | 74.5 |
| 200. | 2939.200 | .075 | .0158 | .0054 | 74.5 |
| 220. | 3233.120 | .068 | .0162 | .0050 | 76.5 |
| 240. | 3527.040 | .062 | .0164 | .0047 | 77.6 |
| 260. | 3820.960 | .057 | .0164 | .0047 | 77.6 |
| 280. | 4114.880 | .053 | .0168 | .0043 | 79.6 |
| 300. | 4408.800 | .050 | .0171 | .0041 | 80.6 |
| 330. | 4849.680 | .045 | .0174 | .0038 | 82.1 |
| 360. | 5290.560 | .041 | .0176 | .0036 | 83.2 |
| 390. | 5731.440 | .038 | .0177 | .0035 | 83.7 |
| 420. | 6172.320 | .035 | .0180 | .0031 | 85.2 |
| 450. | 6613.200 | .033 | .0182 | .0029 | 86.2 |
| 490. | 7201.040 | .030 | .0186 | .0026 | 87.8 |
| 510. | 7494.960 | .029 | .0186 | .0026 | 87.8 |
| 540. | 7935.840 | .027 | .0187 | .0025 | 88.3 |
| 590. | 8670.640 | .025 | .0189 | .0023 | 89.3 |
| 610. | 8964.560 | .024 | .0192 | .0019 | 90.8 |
| 640. | 9405.440 | .023 | .0194 | .0017 | 91.8 |
| 700. | 10287.200 | .021 | .0196 | .0015 | 92.9 |
| 740. | 10875.040 | .020 | .0199 | .0013 | 93.9 |
| 770. | 11315.920 | .019 | .0199 | .0013 | 93.9 |
| 800. | 11756.800 | .019 | .0201 | .0011 | 94.9 |
| 830. | 12197.680 | .018 | .0202 | .0010 | 95.4 |
| 860. | 12638.560 | .017 | .0204 | .0008 | 96.4 |
| 900. | 13226.400 | .017 | .0205 | .0006 | 96.9 |
| 930. | 13667.280 | .016 | .0207 | .0004 | 98.0 |
| 960. | 13961.200 | .016 | .0212 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0212 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3634.

SEQUENCE NUMBER 17
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 | .0007 | .0211 | 3.3 |
| 2. | 29.392 | 7.500 | .0019 | .0199 | 8.9 |
| 3. | 44.088 | 5.000 | .0026 | .0193 | 11.7 |
| 4. | 58.784 | 3.700 | .0030 | .0181 | 17.2 |
| 5. | 73.480 | 3.000 | .0043 | .0176 | 19.4 |
| 6. | 88.176 | 2.500 | .0050 | .0169 | 22.8 |
| 7. | 102.872 | 2.100 | .0061 | .0158 | 27.8 |
| 8. | 117.568 | 1.800 | .0063 | .0156 | 28.9 |
| 9. | 132.264 | 1.600 | .0067 | .0152 | 30.6 |
| 10. | 146.960 | 1.500 | .0068 | .0151 | 31.1 |
| 11. | 161.656 | 1.400 | .0075 | .0143 | 34.4 |
| 12. | 176.352 | 1.300 | .0075 | .0143 | 34.4 |
| 13. | 191.048 | 1.200 | .0083 | .0136 | 37.8 |
| 14. | 205.744 | 1.100 | .0088 | .0131 | 40.0 |
| 15. | 220.440 | 1.000 | .0088 | .0131 | 40.0 |
| 16. | 235.136 | .930 | .0090 | .0129 | 41.1 |
| 17. | 249.832 | .880 | .0095 | .0124 | 43.3 |
| 18. | 264.528 | .830 | .0095 | .0124 | 43.3 |
| 19. | 279.224 | .790 | .0095 | .0124 | 43.3 |
| 20. | 293.920 | .750 | .0101 | .0118 | 46.1 |
| 25. | 367.400 | .600 | .0109 | .0109 | 50.0 |
| 30. | 440.880 | .500 | .0122 | .0097 | 55.6 |
| 35. | 514.360 | .430 | .0122 | .0097 | 55.6 |
| 40. | 587.840 | .370 | .0134 | .0085 | 61.1 |
| 45. | 661.320 | .330 | .0135 | .0084 | 61.7 |
| 50. | 734.800 | .300 | .0136 | .0083 | 62.2 |
| 55. | 808.280 | .270 | .0137 | .0081 | 62.8 |
| 60. | 881.760 | .250 | .0140 | .0079 | 63.9 |
| 65. | 955.240 | .230 | .0143 | .0075 | 65.6 |
| 70. | 1028.720 | .210 | .0147 | .0072 | 67.2 |
| 75. | 1102.200 | .200 | .0151 | .0068 | 68.9 |
| 80. | 1175.680 | .180 | .0154 | .0064 | 70.6 |
| 85. | 1249.160 | .170 | .0157 | .0062 | 71.7 |

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POROSITY DATA FOR SAMPLE R109-3634.

| 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 | .0150 | .0061 | 72.2 |
| 100. | 1469.600 | .150 | .0150 | .0061 | 72.2 |
| 110. | 1616.560 | .140 | .0163 | .0056 | 74.4 |
| 120. | 1763.520 | .130 | .0163 | .0056 | 74.4 |
| 130. | 1910.480 | .120 | .0163 | .0056 | 74.4 |
| 140. | 2057.440 | .110 | .0168 | .0051 | 76.7 |
| 150. | 2204.400 | .100 | .0168 | .0051 | 76.7 |
| 170. | 2498.320 | .088 | .0171 | .0047 | 78.3 |
| 180. | 2645.280 | .083 | .0171 | .0047 | 78.3 |
| 190. | 2792.240 | .079 | .0180 | .0039 | 82.2 |
| 200. | 2939.200 | .075 | .0180 | .0039 | 82.2 |
| 220. | 3233.120 | .068 | .0180 | .0039 | 82.2 |
| 240. | 3527.040 | .062 | .0181 | .0038 | 82.8 |
| 260. | 3820.960 | .057 | .0182 | .0036 | 83.3 |
| 280. | 4114.880 | .053 | .0184 | .0035 | 83.9 |
| 300. | 4408.800 | .050 | .0187 | .0032 | 85.6 |
| 330. | 4849.680 | .045 | .0187 | .0032 | 85.6 |
| 360. | 5290.560 | .041 | .0192 | .0027 | 87.8 |
| 390. | 5731.440 | .038 | .0192 | .0027 | 87.8 |
| 420. | 6172.320 | .035 | .0194 | .0024 | 88.9 |
| 450. | 6613.200 | .033 | .0194 | .0024 | 88.9 |
| 490. | 7201.040 | .030 | .0198 | .0021 | 90.6 |
| 510. | 7494.960 | .029 | .0198 | .0021 | 90.6 |
| 540. | 7935.840 | .027 | .0199 | .0019 | 91.1 |
| 590. | 8670.640 | .025 | .0203 | .0016 | 92.8 |
| 610. | 8964.560 | .024 | .0203 | .0016 | 92.8 |
| 640. | 9405.440 | .023 | .0205 | .0013 | 93.9 |
| 700. | 10287.200 | .021 | .0208 | .0011 | 95.0 |
| 740. | 10875.040 | .020 | .0209 | .0010 | 95.6 |
| 770. | 11315.920 | .019 | .0210 | .0009 | 96.1 |
| 800. | 11756.800 | .019 | .0210 | .0009 | 96.1 |
| 830. | 12197.680 | .018 | .0210 | .0009 | 96.1 |
| 860. | 12638.560 | .017 | .0216 | .0002 | 98.9 |
| 900. | 13226.400 | .017 | .0216 | .0002 | 98.9 |
| 930. | 13667.280 | .016 | .0219 | .0000 | 100.0 |
| 960. | 13961.200 | .016 | .0219 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0219 | .0000 | 100.0 |

Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3644.A

SEQUENCE NUMBER 19
PORE VOLUME .015 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 | .0154 | .0 |
| 2. | 29.392 | 7.500 | .0012 | .0143 | 7.6 |
| 3. | 44.088 | 5.000 | .0019 | .0136 | 12.1 |
| 4. | 58.784 | 3.700 | .0019 | .0136 | 12.1 |
| 5. | 73.480 | 3.000 | .0019 | .0136 | 12.1 |
| 6. | 88.176 | 2.500 | .0023 | .0131 | 15.2 |
| 7. | 102.872 | 2.100 | .0042 | .0112 | 27.3 |
| 8. | 117.568 | 1.800 | .0042 | .0112 | 27.3 |
| 9. | 132.264 | 1.600 | .0042 | .0112 | 27.3 |
| 10. | 146.960 | 1.500 | .0042 | .0112 | 27.3 |
| 11. | 161.656 | 1.400 | .0042 | .0112 | 27.3 |
| 12. | 176.352 | 1.300 | .0042 | .0112 | 27.3 |
| 13. | 191.048 | 1.200 | .0042 | .0112 | 27.3 |
| 14. | 205.744 | 1.100 | .0042 | .0112 | 27.3 |
| 15. | 220.440 | 1.000 | .0054 | .0101 | 34.8 |
| 16. | 235.136 | .930 | .0054 | .0101 | 34.8 |
| 17. | 249.832 | .880 | .0054 | .0101 | 34.8 |
| 18. | 264.528 | .830 | .0054 | .0101 | 34.8 |
| 19. | 279.224 | .790 | .0054 | .0101 | 34.8 |
| 20. | 293.920 | .750 | .0054 | .0101 | 34.8 |
| 25. | 367.400 | .600 | .0057 | .0097 | 37.1 |
| 30. | 440.880 | .500 | .0061 | .0093 | 39.4 |
| 35. | 514.360 | .430 | .0061 | .0093 | 39.4 |
| 40. | 587.840 | .370 | .0061 | .0093 | 39.4 |
| 45. | 661.320 | .330 | .0067 | .0088 | 43.2 |
| 50. | 734.800 | .300 | .0072 | .0082 | 47.0 |
| 55. | 808.280 | .270 | .0072 | .0082 | 47.0 |
| 60. | 881.760 | .250 | .0072 | .0082 | 47.0 |
| 65. | 955.240 | .230 | .0077 | .0077 | 50.0 |
| 70. | 1028.720 | .210 | .0082 | .0072 | 53.0 |
| 75. | 1102.200 | .200 | .0082 | .0072 | 53.0 |
| 80. | 1175.680 | .180 | .0082 | .0072 | 53.0 |
| 85. | 1249.160 | .170 | .0083 | .0071 | 53.8 |

Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3644.A

| 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 | .0084 | .0070 | 54.5 |
| 100. | 1469.600 | .150 | .0093 | .0061 | 60.6 |
| 110. | 1616.560 | .140 | .0093 | .0061 | 60.6 |
| 120. | 1763.520 | .130 | .0093 | .0061 | 60.6 |
| 130. | 1910.480 | .120 | .0093 | .0061 | 60.6 |
| 140. | 2057.440 | .110 | .0096 | .0058 | 62.1 |
| 150. | 2204.400 | .100 | .0096 | .0058 | 62.1 |
| 170. | 2498.320 | .088 | .0106 | .0048 | 68.9 |
| 190. | 2645.280 | .083 | .0106 | .0048 | 68.9 |
| 190. | 2792.240 | .079 | .0106 | .0048 | 68.9 |
| 200. | 2939.200 | .075 | .0109 | .0046 | 70.5 |
| 220. | 3233.120 | .068 | .0111 | .0043 | 72.0 |
| 240. | 3527.040 | .062 | .0111 | .0043 | 72.0 |
| 260. | 3820.960 | .057 | .0117 | .0037 | 75.8 |
| 280. | 4114.880 | .053 | .0117 | .0037 | 75.8 |
| 300. | 4408.800 | .050 | .0117 | .0037 | 75.8 |
| 330. | 4849.680 | .045 | .0120 | .0034 | 78.0 |
| 360. | 5290.560 | .041 | .0120 | .0034 | 78.0 |
| 390. | 5731.440 | .038 | .0124 | .0030 | 80.3 |
| 420. | 6172.320 | .035 | .0124 | .0030 | 80.3 |
| 450. | 6613.200 | .033 | .0131 | .0023 | 84.8 |
| 490. | 7201.040 | .030 | .0131 | .0023 | 84.8 |
| 510. | 7494.960 | .029 | .0131 | .0023 | 84.8 |
| 540. | 7935.840 | .027 | .0131 | .0023 | 84.8 |
| 590. | 8670.640 | .025 | .0139 | .0015 | 90.2 |
| 610. | 8964.560 | .024 | .0139 | .0015 | 90.2 |
| 640. | 9405.440 | .023 | .0139 | .0015 | 90.2 |
| 700. | 10287.200 | .021 | .0139 | .0015 | 90.2 |
| 740. | 10875.040 | .020 | .0140 | .0014 | 90.9 |
| 770. | 11315.920 | .019 | .0140 | .0014 | 90.9 |
| 800. | 11756.800 | .019 | .0143 | .0012 | 92.4 |
| 830. | 12197.680 | .018 | .0143 | .0012 | 92.4 |
| 860. | 12638.560 | .017 | .0148 | .0006 | 96.2 |
| 900. | 13226.400 | .017 | .0148 | .0006 | 96.2 |
| 930. | 13667.280 | .016 | .0148 | .0006 | 96.2 |
| 960. | 13961.200 | .016 | .0154 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0154 | .0000 | 100.0 |

UGR File #188
Battelle Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3644.

SEQUENCE NUMBER 19
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 | .0023 | .0209 | 9.9 |
| 3. | 44.088 | 5.000 | .0032 | .0199 | 13.9 |
| 4. | 58.784 | 3.700 | .0036 | .0196 | 15.3 |
| 5. | 73.480 | 3.000 | .0046 | .0186 | 19.8 |
| 6. | 88.176 | 2.500 | .0048 | .0183 | 20.8 |
| 7. | 102.872 | 2.100 | .0057 | .0174 | 24.8 |
| 8. | 117.568 | 1.800 | .0058 | .0173 | 25.2 |
| 9. | 132.264 | 1.600 | .0066 | .0165 | 28.7 |
| 10. | 146.960 | 1.500 | .0069 | .0163 | 29.7 |
| 11. | 161.656 | 1.400 | .0072 | .0159 | 31.2 |
| 12. | 176.352 | 1.300 | .0078 | .0154 | 33.7 |
| 13. | 191.048 | 1.200 | .0078 | .0154 | 33.7 |
| 14. | 205.744 | 1.100 | .0080 | .0151 | 34.7 |
| 15. | 220.440 | 1.000 | .0083 | .0149 | 35.6 |
| 16. | 235.136 | .930 | .0086 | .0146 | 37.1 |
| 17. | 249.832 | .880 | .0091 | .0141 | 39.1 |
| 18. | 264.528 | .830 | .0091 | .0141 | 39.1 |
| 19. | 279.224 | .790 | .0092 | .0140 | 39.6 |
| 20. | 293.920 | .750 | .0092 | .0140 | 39.6 |
| 25. | 367.400 | .600 | .0099 | .0133 | 42.6 |
| 30. | 440.880 | .500 | .0104 | .0127 | 45.0 |
| 35. | 514.360 | .430 | .0110 | .0122 | 47.5 |
| 40. | 587.840 | .370 | .0115 | .0117 | 49.5 |
| 45. | 661.320 | .330 | .0119 | .0112 | 51.5 |
| 50. | 734.800 | .300 | .0124 | .0108 | 53.5 |
| 55. | 808.280 | .270 | .0126 | .0105 | 54.5 |
| 60. | 881.760 | .250 | .0128 | .0103 | 55.4 |
| 65. | 955.240 | .230 | .0133 | .0099 | 57.4 |
| 70. | 1028.720 | .210 | .0138 | .0094 | 59.4 |
| 75. | 1102.200 | .200 | .0140 | .0092 | 60.4 |
| 80. | 1175.680 | .180 | .0141 | .0091 | 60.9 |
| 85. | 1249.160 | .170 | .0143 | .0088 | 61.9 |

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POROSITY DATA FOR SAMPLE R109-3644.

| 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 | .0147 | .0085 | 63.4 |
| 100. | 1469.600 | .150 | .0148 | .0084 | 63.9 |
| 110. | 1616.560 | .140 | .0151 | .0080 | 65.3 |
| 120. | 1763.520 | .130 | .0155 | .0077 | 66.8 |
| 130. | 1910.480 | .120 | .0159 | .0072 | 68.8 |
| 140. | 2057.440 | .110 | .0160 | .0071 | 69.3 |
| 150. | 2204.400 | .100 | .0162 | .0070 | 69.8 |
| 170. | 2498.320 | .088 | .0170 | .0062 | 73.3 |
| 180. | 2645.280 | .083 | .0171 | .0061 | 73.8 |
| 190. | 2792.240 | .079 | .0171 | .0061 | 73.8 |
| 200. | 2939.200 | .075 | .0172 | .0060 | 74.3 |
| 220. | 3233.120 | .068 | .0174 | .0057 | 75.2 |
| 240. | 3527.040 | .062 | .0175 | .0056 | 75.7 |
| 260. | 3820.960 | .057 | .0181 | .0050 | 78.2 |
| 280. | 4114.880 | .053 | .0182 | .0049 | 78.7 |
| 300. | 4408.800 | .050 | .0185 | .0047 | 79.7 |
| 330. | 4849.680 | .045 | .0187 | .0045 | 80.7 |
| 360. | 5290.560 | .041 | .0193 | .0039 | 83.2 |
| 390. | 5731.440 | .038 | .0194 | .0038 | 83.7 |
| 420. | 6172.320 | .035 | .0194 | .0038 | 83.7 |
| 450. | 6613.200 | .033 | .0197 | .0034 | 85.1 |
| 490. | 7201.040 | .030 | .0201 | .0031 | 86.6 |
| 510. | 7494.960 | .029 | .0202 | .0030 | 87.1 |
| 540. | 7935.840 | .027 | .0204 | .0028 | 88.1 |
| 590. | 8670.640 | .025 | .0206 | .0025 | 89.1 |
| 610. | 8964.560 | .024 | .0209 | .0023 | 90.1 |
| 640. | 9405.440 | .023 | .0209 | .0023 | 90.1 |
| 700. | 10287.200 | .021 | .0213 | .0018 | 92.1 |
| 740. | 10875.040 | .020 | .0213 | .0018 | 92.1 |
| 770. | 11315.920 | .019 | .0216 | .0016 | 93.1 |
| 800. | 11756.800 | .019 | .0220 | .0011 | 95.0 |
| 830. | 12197.680 | .018 | .0220 | .0011 | 95.0 |
| 860. | 12638.560 | .017 | .0222 | .0009 | 96.0 |
| 900. | 13226.400 | .017 | .0224 | .0008 | 96.5 |
| 930. | 13667.280 | .016 | .0225 | .0007 | 97.0 |
| 960. | 13961.200 | .016 | .0226 | .0006 | 97.5 |
| 1000. | 14696.000 | .014 | .0232 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3665.

SEQUENCE NUMBER 20
PORE VOLUME .015 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 | .0151 | .0 |
| 2. | 29.392 | 7.500 | .0009 | .0141 | 6.3 |
| 3. | 44.088 | 5.000 | .0018 | .0133 | 11.7 |
| 4. | 58.784 | 3.700 | .0031 | .0120 | 20.3 |
| 5. | 73.480 | 3.000 | .0035 | .0115 | 23.4 |
| 6. | 88.176 | 2.500 | .0041 | .0109 | 27.3 |
| 7. | 102.872 | 2.100 | .0046 | .0105 | 30.5 |
| 8. | 117.568 | 1.800 | .0046 | .0105 | 30.5 |
| 9. | 132.264 | 1.600 | .0049 | .0101 | 32.8 |
| 10. | 146.960 | 1.500 | .0054 | .0097 | 35.9 |
| 11. | 161.656 | 1.400 | .0058 | .0093 | 38.3 |
| 12. | 176.352 | 1.300 | .0059 | .0092 | 39.1 |
| 13. | 191.048 | 1.200 | .0061 | .0089 | 40.6 |
| 14. | 205.744 | 1.100 | .0064 | .0087 | 42.2 |
| 15. | 220.440 | 1.000 | .0064 | .0087 | 42.2 |
| 16. | 235.136 | .930 | .0066 | .0085 | 43.8 |
| 17. | 249.832 | .880 | .0066 | .0085 | 43.8 |
| 18. | 264.528 | .830 | .0068 | .0082 | 45.3 |
| 19. | 279.224 | .790 | .0068 | .0082 | 45.3 |
| 20. | 293.920 | .750 | .0072 | .0079 | 47.7 |
| 25. | 367.400 | .600 | .0074 | .0077 | 49.2 |
| 30. | 440.880 | .500 | .0077 | .0074 | 50.8 |
| 35. | 514.360 | .430 | .0080 | .0071 | 53.1 |
| 40. | 587.840 | .370 | .0085 | .0066 | 56.3 |
| 45. | 661.320 | .330 | .0086 | .0065 | 57.0 |
| 50. | 734.800 | .300 | .0088 | .0062 | 58.6 |
| 55. | 808.280 | .270 | .0089 | .0061 | 59.4 |
| 60. | 881.760 | .250 | .0089 | .0061 | 59.4 |
| 65. | 955.240 | .230 | .0091 | .0060 | 60.2 |
| 70. | 1028.720 | .210 | .0093 | .0058 | 61.7 |
| 75. | 1102.200 | .200 | .0094 | .0057 | 62.5 |
| 80. | 1175.680 | .180 | .0097 | .0054 | 64.1 |
| 85. | 1249.160 | .170 | .0098 | .0053 | 64.8 |

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POROSITY DATA FOR SAMPLE R109-3665.

| 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 | .0052 | 65.6 |
| 100. | 1469.600 | .150 | .0104 | .0047 | 68.8 |
| 110. | 1616.560 | .140 | .0104 | .0047 | 68.8 |
| 120. | 1763.520 | .130 | .0104 | .0047 | 68.8 |
| 130. | 1910.480 | .120 | .0107 | .0044 | 71.1 |
| 140. | 2057.440 | .110 | .0107 | .0044 | 71.1 |
| 150. | 2204.400 | .100 | .0108 | .0042 | 71.9 |
| 170. | 2498.320 | .088 | .0108 | .0042 | 71.9 |
| 180. | 2645.280 | .083 | .0108 | .0042 | 71.9 |
| 190. | 2792.240 | .079 | .0111 | .0040 | 73.4 |
| 200. | 2939.200 | .075 | .0115 | .0035 | 76.6 |
| 220. | 3233.120 | .068 | .0115 | .0035 | 76.6 |
| 240. | 3527.040 | .062 | .0118 | .0033 | 78.1 |
| 260. | 3820.960 | .057 | .0118 | .0033 | 78.1 |
| 280. | 4114.880 | .053 | .0120 | .0031 | 79.7 |
| 300. | 4408.800 | .050 | .0120 | .0031 | 79.7 |
| 330. | 4849.680 | .045 | .0124 | .0027 | 82.0 |
| 360. | 5290.560 | .041 | .0124 | .0027 | 82.0 |
| 390. | 5731.440 | .038 | .0126 | .0025 | 83.6 |
| 420. | 6172.320 | .035 | .0128 | .0022 | 85.2 |
| 450. | 6613.200 | .033 | .0128 | .0022 | 85.2 |
| 490. | 7201.040 | .030 | .0131 | .0020 | 86.7 |
| 510. | 7494.960 | .029 | .0134 | .0016 | 89.1 |
| 540. | 7935.840 | .027 | .0134 | .0016 | 89.1 |
| 590. | 8670.640 | .025 | .0139 | .0012 | 92.2 |
| 610. | 8964.560 | .024 | .0139 | .0012 | 92.2 |
| 640. | 9405.440 | .023 | .0139 | .0012 | 92.2 |
| 700. | 10287.200 | .021 | .0144 | .0007 | 95.3 |
| 740. | 10875.040 | .020 | .0144 | .0007 | 95.3 |
| 770. | 11315.920 | .019 | .0145 | .0006 | 96.1 |
| 800. | 11756.800 | .019 | .0145 | .0006 | 96.1 |
| 830. | 12197.680 | .018 | .0145 | .0006 | 96.1 |
| 860. | 12638.560 | .017 | .0146 | .0005 | 96.9 |
| 900. | 13226.400 | .017 | .0146 | .0005 | 96.9 |
| 930. | 13667.280 | .016 | .0149 | .0001 | 99.2 |
| 960. | 13961.200 | .016 | .0149 | .0001 | 99.2 |
| 1000. | 14696.000 | .014 | .0151 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3675.

SEQUENCE NUMBER 21
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 | .0226 | .0 |
| 2. | 29.392 | 7.500 | .0023 | .0203 | 10.2 |
| 3. | 44.088 | 5.000 | .0033 | .0193 | 14.6 |
| 4. | 58.784 | 3.700 | .0044 | .0182 | 19.4 |
| 5. | 73.480 | 3.000 | .0049 | .0177 | 21.8 |
| 6. | 88.176 | 2.500 | .0055 | .0171 | 24.3 |
| 7. | 102.872 | 2.100 | .0057 | .0169 | 25.2 |
| 8. | 117.568 | 1.800 | .0064 | .0163 | 28.2 |
| 9. | 132.264 | 1.600 | .0068 | .0158 | 30.1 |
| 10. | 146.960 | 1.500 | .0070 | .0156 | 31.1 |
| 11. | 161.656 | 1.400 | .0070 | .0156 | 31.1 |
| 12. | 176.352 | 1.300 | .0077 | .0149 | 34.0 |
| 13. | 191.048 | 1.200 | .0080 | .0146 | 35.4 |
| 14. | 205.744 | 1.100 | .0082 | .0144 | 36.4 |
| 15. | 220.440 | 1.000 | .0088 | .0138 | 38.8 |
| 16. | 235.136 | .930 | .0088 | .0138 | 38.8 |
| 17. | 249.832 | .880 | .0090 | .0136 | 39.8 |
| 18. | 264.528 | .830 | .0090 | .0136 | 39.8 |
| 19. | 279.224 | .790 | .0093 | .0133 | 41.3 |
| 20. | 293.920 | .750 | .0093 | .0133 | 41.3 |
| 25. | 367.400 | .600 | .0099 | .0127 | 43.7 |
| 30. | 440.880 | .500 | .0104 | .0122 | 46.1 |
| 35. | 514.360 | .430 | .0108 | .0119 | 47.6 |
| 40. | 587.840 | .370 | .0112 | .0114 | 49.5 |
| 45. | 661.320 | .330 | .0118 | .0109 | 51.9 |
| 50. | 734.800 | .300 | .0123 | .0103 | 54.4 |
| 55. | 808.280 | .270 | .0124 | .0102 | 54.9 |
| 60. | 881.760 | .250 | .0126 | .0100 | 55.8 |
| 65. | 955.240 | .230 | .0131 | .0096 | 57.8 |
| 70. | 1028.720 | .210 | .0135 | .0091 | 59.7 |
| 75. | 1102.200 | .200 | .0138 | .0088 | 61.2 |
| 80. | 1175.680 | .180 | .0141 | .0086 | 62.1 |
| 85. | 1249.160 | .170 | .0144 | .0082 | 63.6 |

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POROSITY DATA FOR SAMPLE R109-3675.

| 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 | .0148 | .0078 | 65.5 |
| 100. | 1469.600 | .150 | .0148 | .0078 | 65.5 |
| 110. | 1616.560 | .140 | .0152 | .0075 | 67.0 |
| 120. | 1763.520 | .130 | .0154 | .0073 | 68.0 |
| 130. | 1910.480 | .120 | .0158 | .0068 | 69.9 |
| 140. | 2057.440 | .110 | .0160 | .0066 | 70.9 |
| 150. | 2204.400 | .100 | .0163 | .0064 | 71.8 |
| 170. | 2490.320 | .088 | .0165 | .0062 | 72.8 |
| 180. | 2645.280 | .083 | .0169 | .0057 | 74.8 |
| 190. | 2792.240 | .079 | .0171 | .0055 | 75.7 |
| 200. | 2939.200 | .075 | .0174 | .0053 | 76.7 |
| 220. | 3233.120 | .068 | .0174 | .0053 | 76.7 |
| 240. | 3527.040 | .062 | .0178 | .0048 | 78.6 |
| 260. | 3820.960 | .057 | .0180 | .0046 | 79.6 |
| 280. | 4114.880 | .053 | .0181 | .0045 | 80.1 |
| 300. | 4408.800 | .050 | .0184 | .0043 | 81.1 |
| 330. | 4849.680 | .045 | .0188 | .0038 | 83.0 |
| 360. | 5290.560 | .041 | .0189 | .0037 | 83.5 |
| 390. | 5731.440 | .038 | .0193 | .0033 | 85.4 |
| 420. | 6172.320 | .035 | .0197 | .0030 | 86.9 |
| 450. | 6613.200 | .033 | .0199 | .0027 | 87.9 |
| 490. | 7201.040 | .030 | .0200 | .0026 | 88.3 |
| 510. | 7494.960 | .029 | .0203 | .0023 | 89.8 |
| 540. | 7935.840 | .027 | .0203 | .0023 | 89.8 |
| 590. | 8670.640 | .025 | .0207 | .0020 | 91.3 |
| 610. | 8964.560 | .024 | .0207 | .0020 | 91.3 |
| 640. | 9405.440 | .023 | .0209 | .0018 | 92.2 |
| 700. | 10287.200 | .021 | .0213 | .0013 | 94.2 |
| 740. | 10875.040 | .020 | .0215 | .0011 | 95.1 |
| 770. | 11315.920 | .019 | .0215 | .0011 | 95.1 |
| 800. | 11756.800 | .019 | .0219 | .0008 | 96.6 |
| 830. | 12197.680 | .018 | .0219 | .0008 | 96.6 |
| 860. | 12638.560 | .017 | .0221 | .0005 | 97.6 |
| 900. | 13226.400 | .017 | .0222 | .0004 | 98.1 |
| 930. | 13667.280 | .016 | .0224 | .0002 | 99.0 |
| 960. | 13961.200 | .016 | .0224 | .0002 | 99.0 |
| 1000. | 14696.000 | .014 | .0226 | .0000 | 100.0 |

Battelle-Columbus Labs.
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POROSITY DATA FOR SAMPLE R109-3685.

SEQUENCE NUMBER 22
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 | .0172 | .0 |
| 2. | 29.392 | 7.500 | .0013 | .0159 | 7.4 |
| 3. | 44.088 | 5.000 | .0023 | .0149 | 13.5 |
| 4. | 58.784 | 3.700 | .0030 | .0142 | 17.6 |
| 5. | 73.480 | 3.000 | .0036 | .0136 | 20.9 |
| 6. | 88.176 | 2.500 | .0038 | .0133 | 22.3 |
| 7. | 102.872 | 2.100 | .0045 | .0126 | 26.4 |
| 8. | 117.568 | 1.800 | .0048 | .0124 | 27.7 |
| 9. | 132.264 | 1.600 | .0051 | .0121 | 29.7 |
| 10. | 146.960 | 1.500 | .0055 | .0117 | 31.8 |
| 11. | 161.656 | 1.400 | .0057 | .0115 | 33.1 |
| 12. | 176.352 | 1.300 | .0058 | .0114 | 33.8 |
| 13. | 191.048 | 1.200 | .0059 | .0113 | 34.5 |
| 14. | 205.744 | 1.100 | .0064 | .0108 | 37.2 |
| 15. | 220.440 | 1.000 | .0065 | .0107 | 37.8 |
| 16. | 235.136 | .930 | .0066 | .0106 | 38.5 |
| 17. | 249.832 | .880 | .0067 | .0104 | 39.2 |
| 18. | 264.528 | .830 | .0068 | .0103 | 39.9 |
| 19. | 279.224 | .790 | .0071 | .0101 | 41.2 |
| 20. | 293.920 | .750 | .0072 | .0100 | 41.9 |
| 25. | 367.400 | .600 | .0079 | .0093 | 45.9 |
| 30. | 440.880 | .500 | .0083 | .0089 | 48.1 |
| 35. | 514.360 | .430 | .0085 | .0087 | 49.4 |
| 40. | 587.840 | .370 | .0087 | .0084 | 50.8 |
| 45. | 661.320 | .330 | .0089 | .0083 | 51.4 |
| 50. | 734.800 | .300 | .0093 | .0080 | 53.1 |
| 55. | 808.280 | .270 | .0093 | .0078 | 53.1 |
| 60. | 881.760 | .250 | .0094 | .0077 | 53.8 |
| 65. | 955.240 | .230 | .0098 | .0074 | 55.8 |
| 70. | 1028.720 | .210 | .0100 | .0072 | 57.2 |
| 75. | 1102.200 | .200 | .0101 | .0070 | 57.9 |
| 80. | 1175.680 | .180 | .0101 | .0070 | 57.9 |
| 85. | 1249.160 | .170 | .0101 | .0068 | 57.9 |

Battelle-Columbus Labs.
June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3685.

| 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 | .0114 | .0058 | 66.2 |
| 100. | 1469.600 | .150 | .0116 | .0056 | 67.6 |
| 110. | 1616.560 | .140 | .0117 | .0055 | 68.2 |
| 120. | 1763.520 | .130 | .0123 | .0049 | 71.6 |
| 130. | 1910.480 | .120 | .0123 | .0049 | 71.6 |
| 140. | 2057.440 | .110 | .0125 | .0046 | 73.0 |
| 150. | 2204.400 | .100 | .0125 | .0046 | 73.0 |
| 170. | 2490.320 | .088 | .0126 | .0045 | 73.6 |
| 180. | 2645.280 | .083 | .0129 | .0043 | 75.0 |
| 190. | 2792.240 | .079 | .0131 | .0041 | 76.4 |
| 200. | 2939.200 | .075 | .0131 | .0041 | 76.4 |
| 220. | 3233.120 | .068 | .0133 | .0038 | 77.7 |
| 240. | 3527.040 | .062 | .0137 | .0035 | 79.7 |
| 260. | 3820.960 | .057 | .0138 | .0034 | 80.4 |
| 280. | 4114.880 | .053 | .0138 | .0034 | 80.4 |
| 300. | 4408.800 | .050 | .0139 | .0032 | 81.1 |
| 330. | 4849.680 | .045 | .0143 | .0029 | 83.1 |
| 360. | 5290.560 | .041 | .0144 | .0028 | 83.8 |
| 390. | 5731.440 | .038 | .0146 | .0026 | 85.1 |
| 420. | 6172.320 | .035 | .0149 | .0023 | 86.5 |
| 450. | 6613.200 | .033 | .0149 | .0023 | 86.5 |
| 490. | 7201.040 | .030 | .0151 | .0021 | 87.8 |
| 510. | 7494.960 | .029 | .0153 | .0019 | 89.2 |
| 540. | 7935.840 | .027 | .0153 | .0019 | 89.2 |
| 590. | 8670.640 | .025 | .0156 | .0016 | 90.5 |
| 610. | 8964.560 | .024 | .0158 | .0014 | 91.9 |
| 640. | 9405.440 | .023 | .0158 | .0014 | 91.9 |
| 700. | 10287.200 | .021 | .0161 | .0010 | 93.9 |
| 740. | 10875.040 | .020 | .0161 | .0010 | 93.9 |
| 770. | 11315.920 | .019 | .0164 | .0008 | 95.3 |
| 800. | 11756.800 | .019 | .0164 | .0008 | 95.3 |
| 830. | 12197.680 | .018 | .0164 | .0008 | 95.3 |
| 860. | 12638.560 | .017 | .0167 | .0005 | 97.3 |
| 900. | 13226.400 | .017 | .0167 | .0005 | 97.3 |
| 930. | 13667.280 | .016 | .0169 | .0002 | 98.6 |
| 960. | 13961.200 | .016 | .0169 | .0002 | 98.6 |
| 1000. | 14696.000 | .014 | .0172 | .0000 | 100.0 |

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June 20, 1979

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POROSITY DATA FOR SAMPLE R109-3695.

SEQUENCE NUMBER 23
PORE VOLUME .019 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 | .0193 | .0 |
| 2. | 29.392 | 7.500 | .0015 | .0178 | 8.0 |
| 3. | 44.088 | 5.000 | .0021 | .0173 | 10.6 |
| 4. | 58.784 | 3.700 | .0031 | .0162 | 16.0 |
| 5. | 73.480 | 3.000 | .0036 | .0157 | 18.6 |
| 6. | 88.176 | 2.500 | .0041 | .0152 | 21.3 |
| 7. | 102.872 | 2.100 | .0046 | .0147 | 23.9 |
| 8. | 117.568 | 1.800 | .0051 | .0142 | 26.6 |
| 9. | 132.264 | 1.600 | .0053 | .0140 | 27.7 |
| 10. | 146.960 | 1.500 | .0060 | .0134 | 30.9 |
| 11. | 161.656 | 1.400 | .0062 | .0132 | 31.9 |
| 12. | 176.352 | 1.300 | .0064 | .0129 | 33.0 |
| 13. | 191.048 | 1.200 | .0067 | .0126 | 34.6 |
| 14. | 205.744 | 1.100 | .0067 | .0126 | 34.6 |
| 15. | 220.440 | 1.000 | .0072 | .0121 | 37.2 |
| 16. | 235.136 | .930 | .0076 | .0117 | 39.4 |
| 17. | 249.832 | .880 | .0076 | .0117 | 39.4 |
| 18. | 264.528 | .830 | .0080 | .0113 | 41.5 |
| 19. | 279.224 | .790 | .0081 | .0112 | 42.0 |
| 20. | 293.920 | .750 | .0081 | .0112 | 42.0 |
| 25. | 367.400 | .600 | .0087 | .0106 | 45.2 |
| 30. | 440.880 | .500 | .0092 | .0101 | 47.9 |
| 35. | 514.360 | .430 | .0098 | .0096 | 50.5 |
| 40. | 587.840 | .370 | .0103 | .0090 | 53.2 |
| 45. | 661.320 | .330 | .0105 | .0088 | 54.3 |
| 50. | 734.800 | .300 | .0107 | .0086 | 55.3 |
| 55. | 808.280 | .270 | .0110 | .0083 | 56.9 |
| 60. | 881.760 | .250 | .0113 | .0080 | 58.5 |
| 65. | 955.240 | .230 | .0116 | .0077 | 60.1 |
| 70. | 1028.720 | .210 | .0118 | .0075 | 61.2 |
| 75. | 1102.200 | .200 | .0122 | .0071 | 63.3 |
| 80. | 1175.680 | .180 | .0125 | .0068 | 64.9 |
| 85. | 1249.160 | .170 | .0125 | .0068 | 64.9 |

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POROSITY DATA FOR SAMPLE R109-3695.

| 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 | .0125 | .0068 | 64.9 |
| 100. | 1469.600 | .150 | .0128 | .0065 | 66.5 |
| 110. | 1616.560 | .140 | .0132 | .0062 | 68.1 |
| 120. | 1763.520 | .130 | .0135 | .0059 | 69.7 |
| 130. | 1910.480 | .120 | .0135 | .0059 | 69.7 |
| 140. | 2057.440 | .110 | .0136 | .0058 | 70.2 |
| 150. | 2204.400 | .100 | .0142 | .0051 | 73.4 |
| 170. | 2498.320 | .089 | .0143 | .0050 | 73.9 |
| 180. | 2645.280 | .083 | .0146 | .0047 | 75.5 |
| 190. | 2792.240 | .079 | .0146 | .0047 | 75.5 |
| 200. | 2939.200 | .075 | .0146 | .0047 | 75.5 |
| 220. | 3233.120 | .068 | .0149 | .0044 | 77.1 |
| 240. | 3527.040 | .062 | .0153 | .0040 | 79.3 |
| 260. | 3820.960 | .057 | .0155 | .0038 | 80.3 |
| 280. | 4114.880 | .053 | .0156 | .0037 | 80.9 |
| 300. | 4408.800 | .050 | .0158 | .0035 | 81.9 |
| 330. | 4849.680 | .045 | .0160 | .0033 | 83.0 |
| 360. | 5290.560 | .041 | .0162 | .0031 | 84.0 |
| 390. | 5731.440 | .038 | .0164 | .0029 | 85.1 |
| 420. | 6172.320 | .035 | .0166 | .0027 | 86.2 |
| 450. | 6613.200 | .033 | .0166 | .0027 | 86.2 |
| 490. | 7201.040 | .030 | .0170 | .0024 | 87.8 |
| 510. | 7494.960 | .029 | .0172 | .0022 | 88.8 |
| 540. | 7935.840 | .027 | .0173 | .0021 | 89.4 |
| 590. | 8670.640 | .025 | .0178 | .0015 | 92.0 |
| 610. | 8964.560 | .024 | .0178 | .0015 | 92.0 |
| 640. | 9405.440 | .023 | .0179 | .0014 | 92.6 |
| 700. | 10287.200 | .021 | .0181 | .0012 | 93.6 |
| 740. | 10875.040 | .020 | .0183 | .0010 | 94.7 |
| 770. | 11315.920 | .019 | .0184 | .0009 | 95.2 |
| 800. | 11756.800 | .019 | .0184 | .0009 | 95.2 |
| 830. | 12197.680 | .018 | .0184 | .0009 | 95.2 |
| 860. | 12638.560 | .017 | .0189 | .0004 | 97.9 |
| 900. | 13226.400 | .017 | .0189 | .0004 | 97.9 |
| 930. | 13667.280 | .016 | .0191 | .0002 | 98.9 |
| 960. | 13961.200 | .016 | .0191 | .0002 | 98.9 |
| 1000. | 14696.000 | .014 | .0193 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3705.

SEQUENCE NUMBER 24
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 | .0202 | .0 |
| 2. | 29.392 | 7.500 | .0020 | .0182 | 10.1 |
| 3. | 44.088 | 5.000 | .0032 | .0170 | 15.7 |
| 4. | 58.784 | 3.700 | .0040 | .0162 | 19.7 |
| 5. | 73.480 | 3.000 | .0045 | .0157 | 22.5 |
| 6. | 88.176 | 2.500 | .0051 | .0151 | 25.3 |
| 7. | 102.872 | 2.100 | .0058 | .0144 | 28.7 |
| 8. | 117.568 | 1.800 | .0062 | .0140 | 30.9 |
| 9. | 132.264 | 1.600 | .0067 | .0135 | 33.1 |
| 10. | 146.960 | 1.500 | .0069 | .0133 | 34.3 |
| 11. | 161.656 | 1.400 | .0073 | .0129 | 36.0 |
| 12. | 176.352 | 1.300 | .0075 | .0127 | 37.1 |
| 13. | 191.048 | 1.200 | .0078 | .0124 | 38.6 |
| 14. | 205.744 | 1.100 | .0081 | .0121 | 39.9 |
| 15. | 220.440 | 1.000 | .0082 | .0120 | 40.4 |
| 16. | 235.136 | .930 | .0086 | .0116 | 42.7 |
| 17. | 249.832 | .860 | .0091 | .0111 | 44.9 |
| 18. | 264.528 | .830 | .0091 | .0111 | 44.9 |
| 19. | 279.224 | .790 | .0092 | .0110 | 45.5 |
| 20. | 293.920 | .750 | .0092 | .0110 | 45.5 |
| 25. | 367.400 | .600 | .0098 | .0104 | 48.3 |
| 30. | 440.880 | .500 | .0102 | .0100 | 50.6 |
| 35. | 514.360 | .430 | .0108 | .0094 | 53.4 |
| 40. | 587.840 | .370 | .0113 | .0088 | 56.2 |
| 45. | 661.320 | .330 | .0117 | .0085 | 57.9 |
| 50. | 734.800 | .300 | .0119 | .0083 | 59.0 |
| 55. | 808.280 | .270 | .0123 | .0079 | 60.7 |
| 60. | 881.760 | .250 | .0127 | .0075 | 62.9 |
| 65. | 955.240 | .230 | .0128 | .0074 | 63.5 |
| 70. | 1028.720 | .210 | .0130 | .0071 | 64.6 |
| 75. | 1102.200 | .200 | .0134 | .0068 | 66.3 |
| 80. | 1175.680 | .180 | .0136 | .0066 | 67.4 |
| 85. | 1249.160 | .170 | .0137 | .0065 | 68.0 |

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POROSITY DATA FOR SAMPLE RL09-3705.

| 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 | .0064 | 68.5 |
| 100. | 1469.600 | .150 | .0145 | .0057 | 71.9 |
| 110. | 1616.560 | .140 | .0146 | .0056 | 72.5 |
| 120. | 1763.520 | .130 | .0147 | .0054 | 73.0 |
| 130. | 1910.480 | .120 | .0150 | .0052 | 74.2 |
| 140. | 2057.440 | .110 | .0152 | .0050 | 75.3 |
| 150. | 2204.400 | .100 | .0153 | .0049 | 75.8 |
| 170. | 2498.320 | .088 | .0158 | .0044 | 78.1 |
| 180. | 2645.280 | .083 | .0159 | .0043 | 78.7 |
| 190. | 2792.240 | .079 | .0159 | .0043 | 78.7 |
| 200. | 2939.200 | .075 | .0159 | .0043 | 78.7 |
| 220. | 3233.120 | .068 | .0163 | .0039 | 80.9 |
| 240. | 3527.040 | .062 | .0163 | .0039 | 80.9 |
| 260. | 3820.960 | .057 | .0166 | .0036 | 82.0 |
| 280. | 4114.880 | .053 | .0170 | .0032 | 84.3 |
| 300. | 4408.800 | .050 | .0170 | .0032 | 84.3 |
| 330. | 4849.680 | .045 | .0171 | .0031 | 84.8 |
| 360. | 5290.560 | .041 | .0171 | .0031 | 84.8 |
| 390. | 5731.440 | .038 | .0176 | .0026 | 87.1 |
| 420. | 6172.320 | .035 | .0178 | .0024 | 88.2 |
| 450. | 6613.200 | .033 | .0179 | .0023 | 88.8 |
| 480. | 7201.040 | .030 | .0182 | .0020 | 89.9 |
| 510. | 7494.960 | .029 | .0182 | .0020 | 89.9 |
| 540. | 7935.840 | .027 | .0185 | .0017 | 91.6 |
| 590. | 8670.640 | .025 | .0185 | .0017 | 91.6 |
| 610. | 8964.560 | .024 | .0186 | .0016 | 92.1 |
| 640. | 9405.440 | .023 | .0191 | .0011 | 94.4 |
| 700. | 10287.200 | .021 | .0193 | .0009 | 95.5 |
| 740. | 10875.040 | .020 | .0193 | .0009 | 95.5 |
| 770. | 11315.920 | .019 | .0195 | .0007 | 96.6 |
| 800. | 11756.800 | .019 | .0195 | .0007 | 96.6 |
| 830. | 12197.680 | .018 | .0197 | .0005 | 97.8 |
| 860. | 12638.560 | .017 | .0197 | .0005 | 97.8 |
| 900. | 13226.400 | .017 | .0199 | .0003 | 98.3 |
| 930. | 13667.280 | .016 | .0199 | .0003 | 98.3 |
| 960. | 13961.200 | .016 | .0202 | .0000 | 100.0 |
| 1000. | 14696.000 | .014 | .0202 | .0000 | 100.0 |

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POROSITY DATA FOR SAMPLE R109-3711.

SEQUENCE NUMBER 25
PORE VOLUME .019 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 | .0188 | .0 |
| 2. | 29.392 | 7.500 | .0020 | .0168 | 10.4 |
| 3. | 44.088 | 5.000 | .0022 | .0166 | 11.6 |
| 4. | 58.784 | 3.700 | .0030 | .0158 | 16.2 |
| 5. | 73.480 | 3.000 | .0036 | .0152 | 19.1 |
| 6. | 88.176 | 2.500 | .0041 | .0147 | 22.0 |
| 7. | 102.872 | 2.100 | .0046 | .0142 | 24.3 |
| 8. | 117.568 | 1.800 | .0052 | .0136 | 27.7 |
| 9. | 132.264 | 1.600 | .0054 | .0134 | 28.9 |
| 10. | 146.960 | 1.500 | .0058 | .0130 | 30.6 |
| 11. | 161.656 | 1.400 | .0063 | .0125 | 33.5 |
| 12. | 176.352 | 1.300 | .0065 | .0123 | 34.7 |
| 13. | 191.048 | 1.200 | .0070 | .0118 | 37.0 |
| 14. | 205.744 | 1.100 | .0070 | .0118 | 37.0 |
| 15. | 220.440 | 1.000 | .0074 | .0114 | 39.3 |
| 16. | 235.136 | .930 | .0074 | .0114 | 39.3 |
| 17. | 249.832 | .880 | .0076 | .0112 | 40.5 |
| 18. | 264.528 | .830 | .0077 | .0111 | 41.0 |
| 19. | 279.224 | .790 | .0080 | .0108 | 42.8 |
| 20. | 293.920 | .750 | .0083 | .0105 | 43.9 |
| 25. | 367.400 | .600 | .0087 | .0101 | 46.2 |
| 30. | 440.880 | .500 | .0092 | .0096 | 49.1 |
| 35. | 514.360 | .430 | .0098 | .0090 | 52.0 |
| 40. | 587.840 | .370 | .0103 | .0085 | 54.9 |
| 45. | 661.320 | .330 | .0105 | .0083 | 56.1 |
| 50. | 734.800 | .300 | .0109 | .0079 | 57.8 |
| 55. | 808.280 | .270 | .0111 | .0077 | 59.0 |
| 60. | 881.760 | .250 | .0113 | .0075 | 60.1 |
| 65. | 955.240 | .230 | .0115 | .0073 | 61.3 |
| 70. | 1028.720 | .210 | .0117 | .0071 | 62.4 |
| 75. | 1102.200 | .200 | .0118 | .0070 | 63.0 |
| 80. | 1175.680 | .180 | .0119 | .0068 | 63.6 |
| 85. | 1249.160 | .170 | .0121 | .0067 | 64.2 |

Battelle Columbus Labs.
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POROSITY DATA FOR SAMPLE R109-3711.

| 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 | .0123 | .0065 | 65.3 |
| 100. | 1469.600 | .150 | .0126 | .0062 | 67.1 |
| 110. | 1616.560 | .140 | .0130 | .0058 | 69.4 |
| 120. | 1763.520 | .130 | .0130 | .0058 | 69.4 |
| 130. | 1910.480 | .120 | .0133 | .0055 | 70.5 |
| 140. | 2057.440 | .110 | .0137 | .0051 | 72.8 |
| 150. | 2204.400 | .100 | .0139 | .0049 | 74.0 |
| 170. | 2498.320 | .088 | .0140 | .0048 | 74.6 |
| 180. | 2645.280 | .083 | .0141 | .0047 | 75.1 |
| 190. | 2792.240 | .079 | .0141 | .0047 | 75.1 |
| 200. | 2939.200 | .075 | .0141 | .0047 | 75.1 |
| 220. | 3233.120 | .068 | .0146 | .0042 | 77.5 |
| 240. | 3527.040 | .062 | .0150 | .0038 | 79.8 |
| 260. | 3820.960 | .057 | .0151 | .0037 | 80.3 |
| 280. | 4114.880 | .053 | .0152 | .0036 | 80.9 |
| 300. | 4408.800 | .050 | .0154 | .0034 | 82.1 |
| 330. | 4849.680 | .045 | .0158 | .0030 | 83.8 |
| 360. | 5290.560 | .041 | .0158 | .0030 | 83.8 |
| 390. | 5731.440 | .038 | .0161 | .0027 | 85.5 |
| 420. | 6172.320 | .035 | .0164 | .0024 | 87.3 |
| 450. | 6613.200 | .033 | .0166 | .0022 | 88.4 |
| 490. | 7201.040 | .030 | .0166 | .0022 | 88.4 |
| 510. | 7494.960 | .029 | .0166 | .0022 | 88.4 |
| 540. | 7935.840 | .027 | .0169 | .0018 | 90.2 |
| 590. | 8670.640 | .025 | .0174 | .0014 | 92.5 |
| 610. | 8964.560 | .024 | .0176 | .0012 | 93.6 |
| 640. | 9405.440 | .023 | .0176 | .0012 | 93.6 |
| 700. | 10287.200 | .021 | .0180 | .0008 | 96.0 |
| 740. | 10875.040 | .020 | .0180 | .0008 | 96.0 |
| 770. | 11315.920 | .019 | .0180 | .0008 | 96.0 |
| 800. | 11756.800 | .019 | .0180 | .0008 | 96.0 |
| 830. | 12197.680 | .018 | .0180 | .0008 | 96.0 |
| 860. | 12638.560 | .017 | .0185 | .0003 | 98.3 |
| 900. | 13226.400 | .017 | .0185 | .0003 | 98.3 |
| 930. | 13667.280 | .016 | .0186 | .0002 | 98.8 |
| 960. | 13961.200 | .016 | .0186 | .0002 | 98.8 |
| 1000. | 14696.000 | .014 | .0188 | .0000 | 100.0 |

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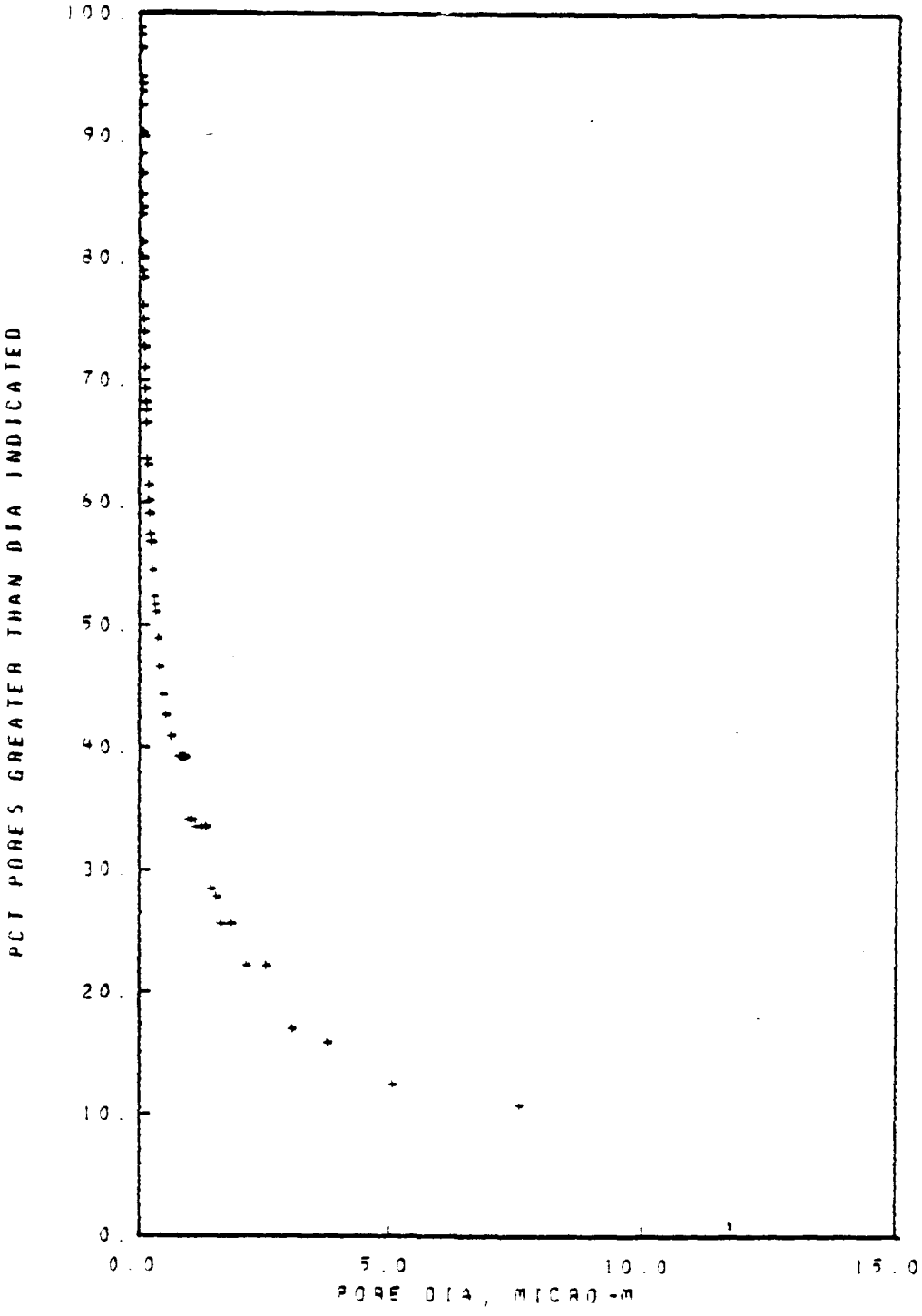
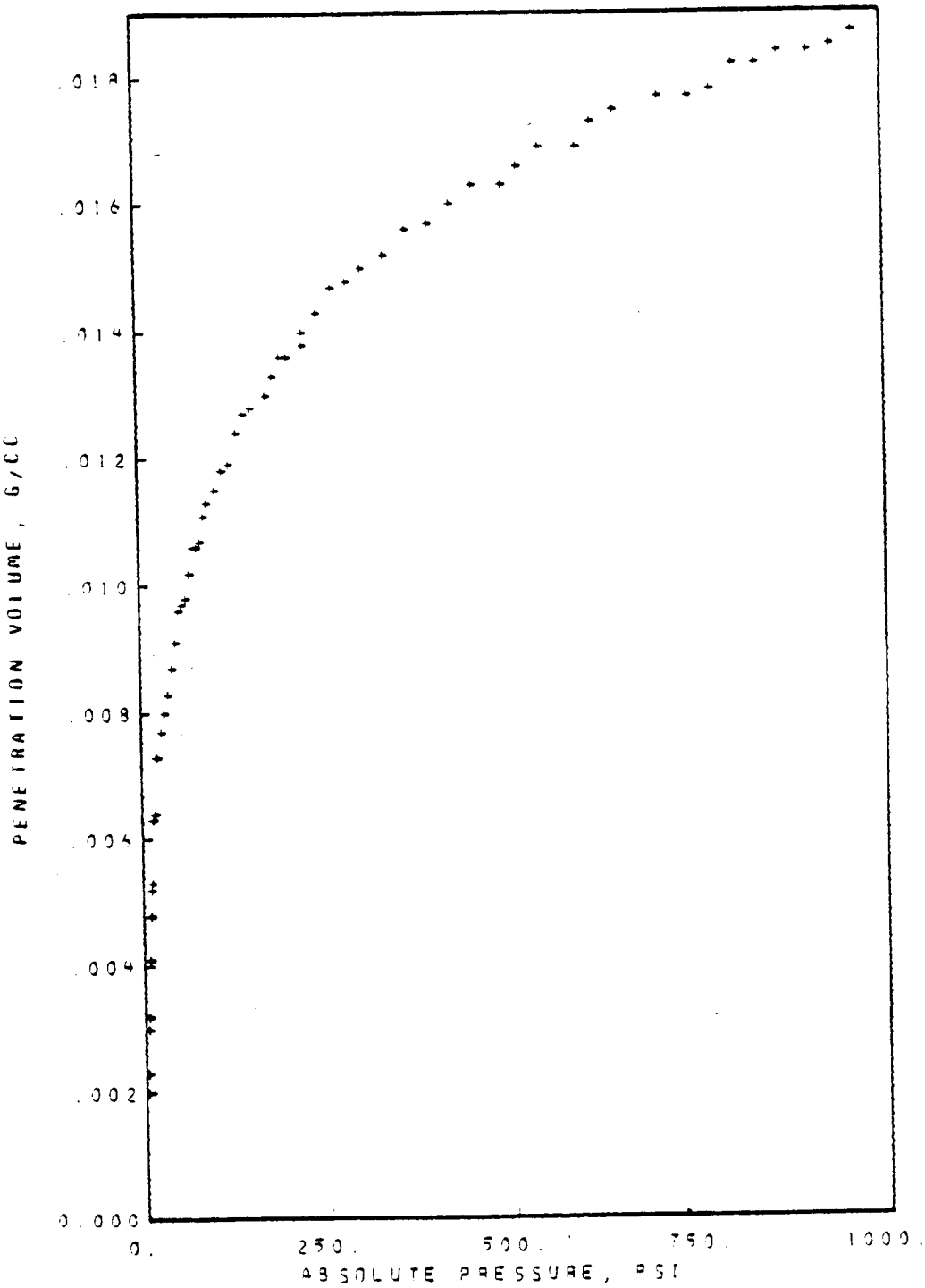



R109-3494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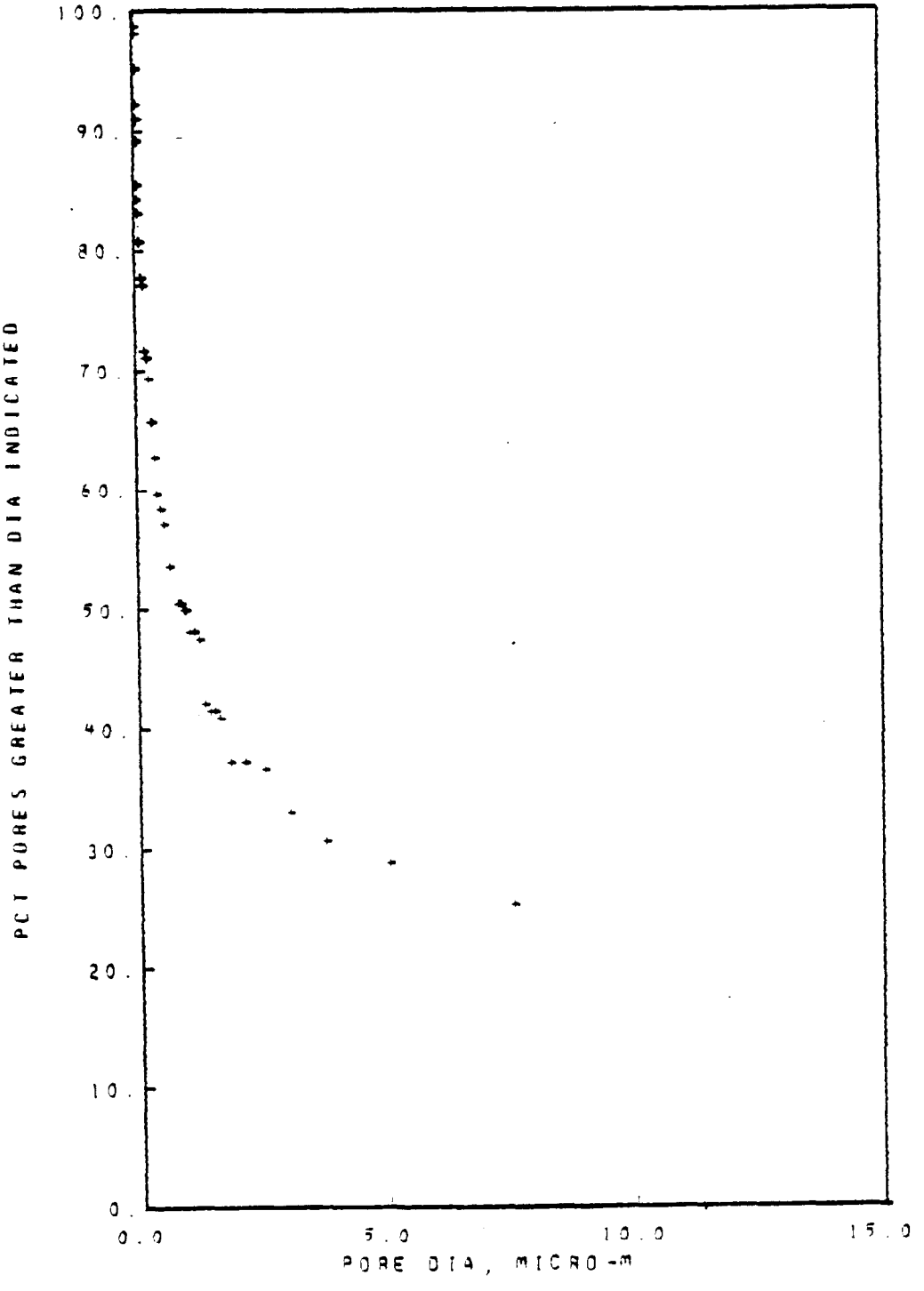
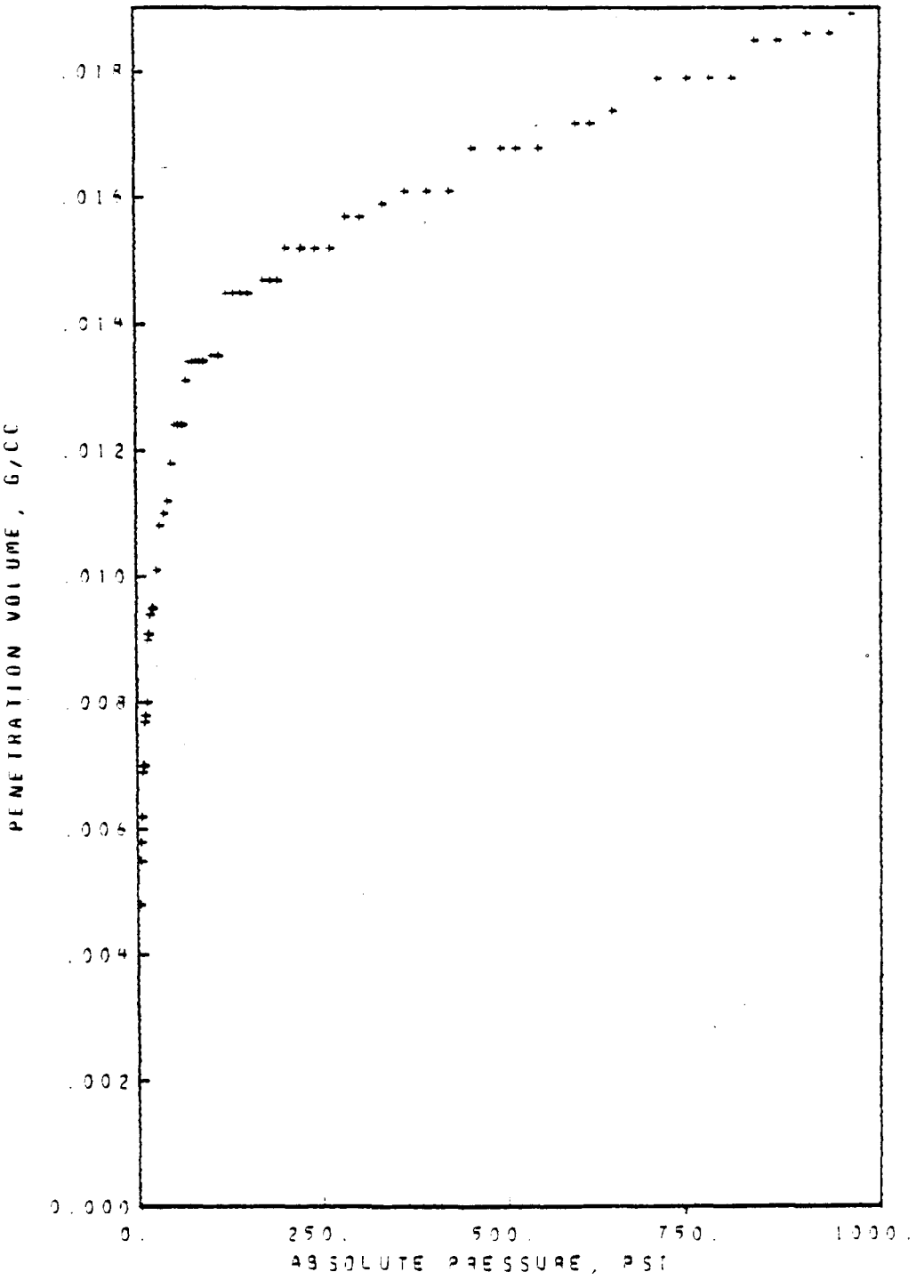
750.
1000.
ABSOLUTE PRESSURE, PSI

R109-3494

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3506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.016
.014
.012
.010
.008
.006
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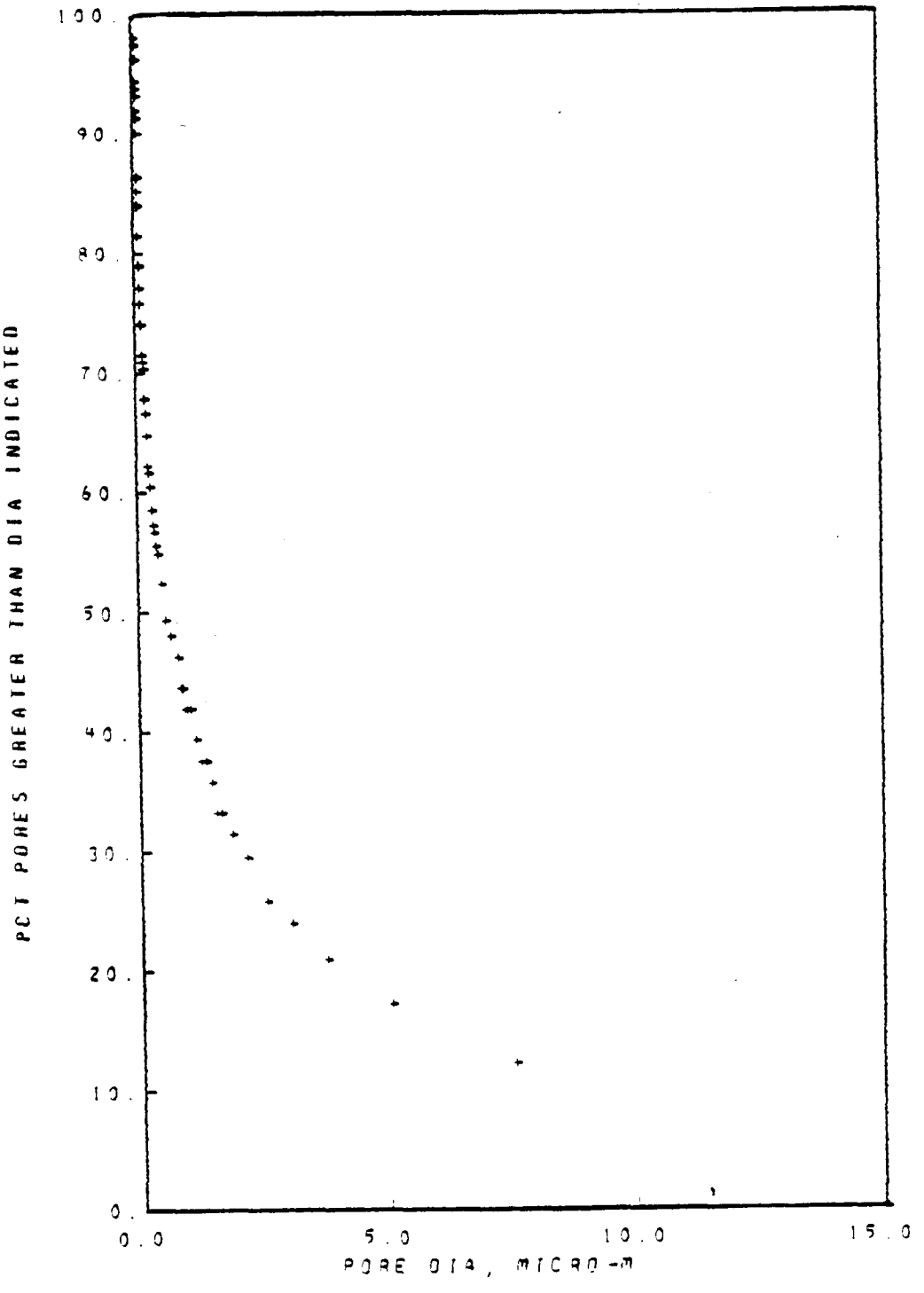
250.
500.
750.
1000.
ABSOLUTE PRESSURE, PSI

R109-3506

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3516

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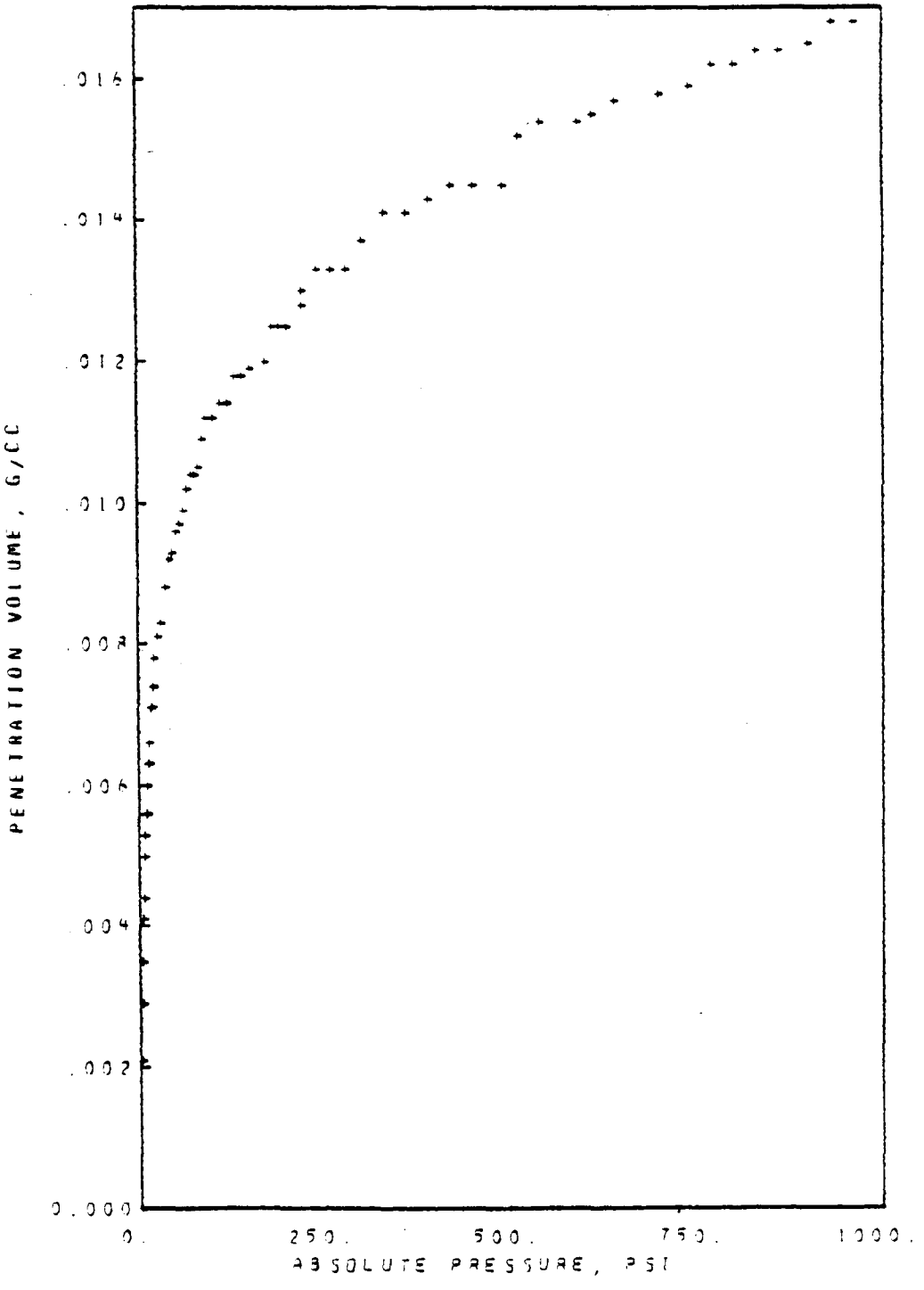
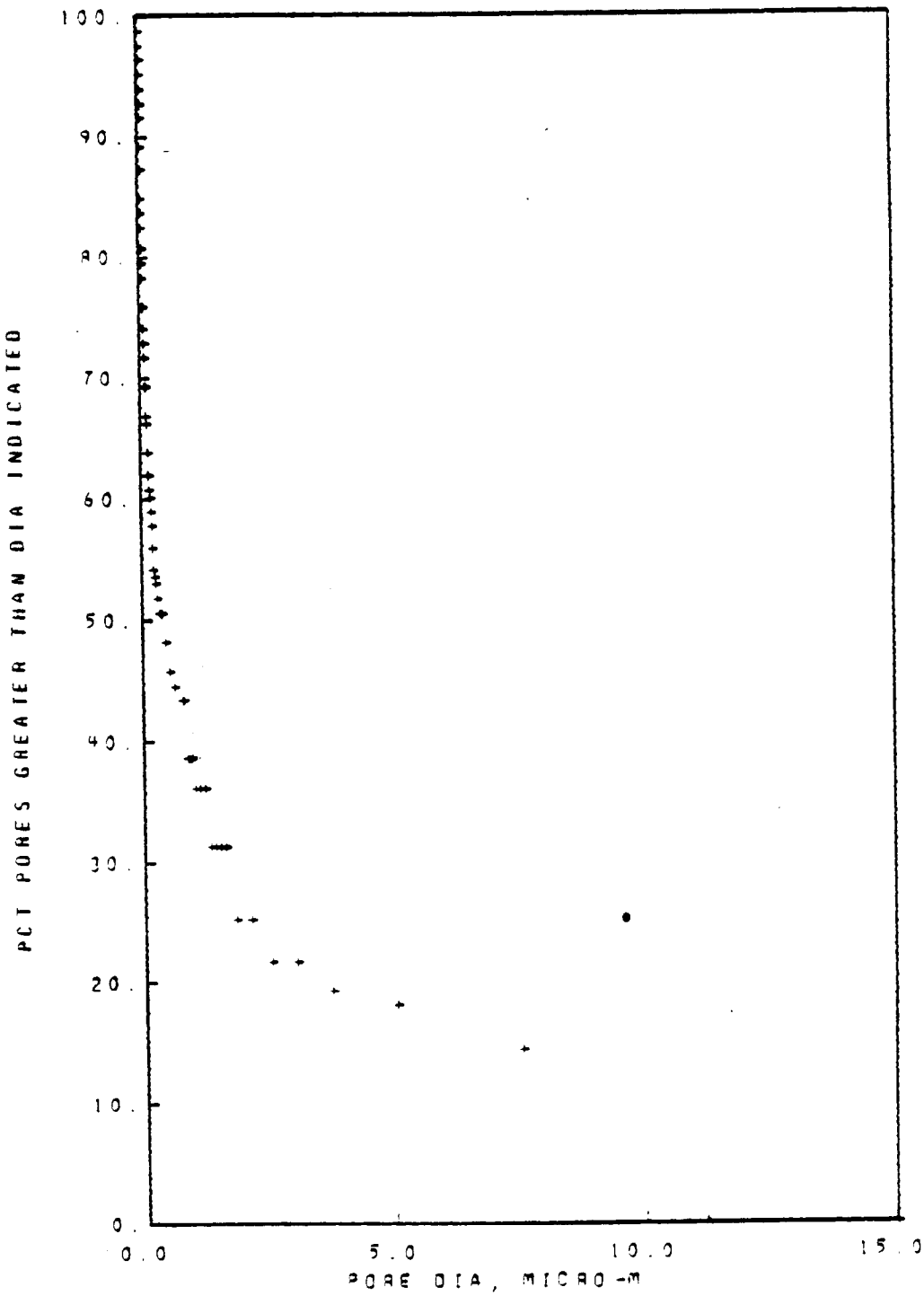
June 20, 1979



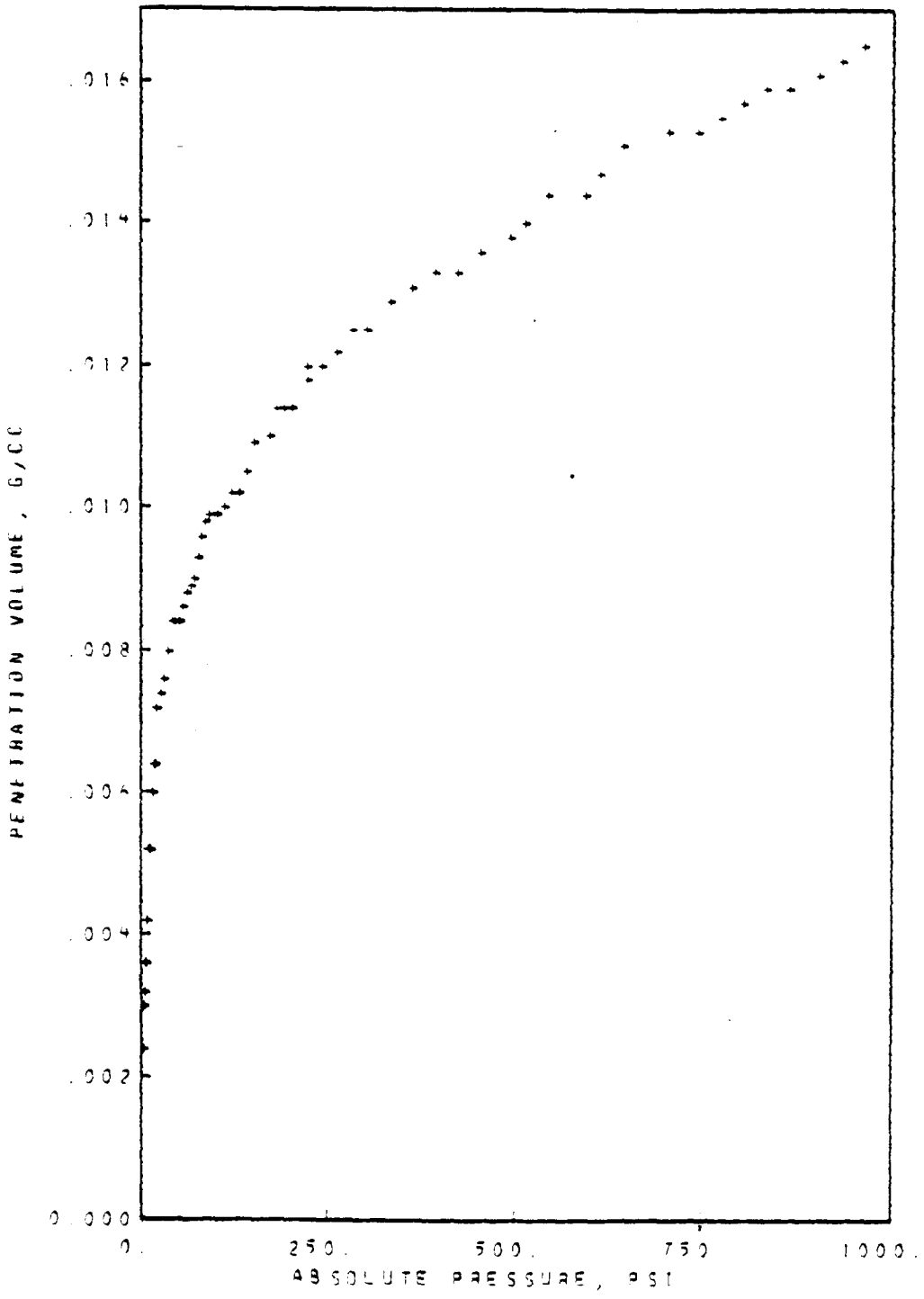

R109-3516

Battelle Columbus Labs.
June 20, 1979




R109-3526

Battelle Columbus Labs.
June 20, 1979




R109-3526

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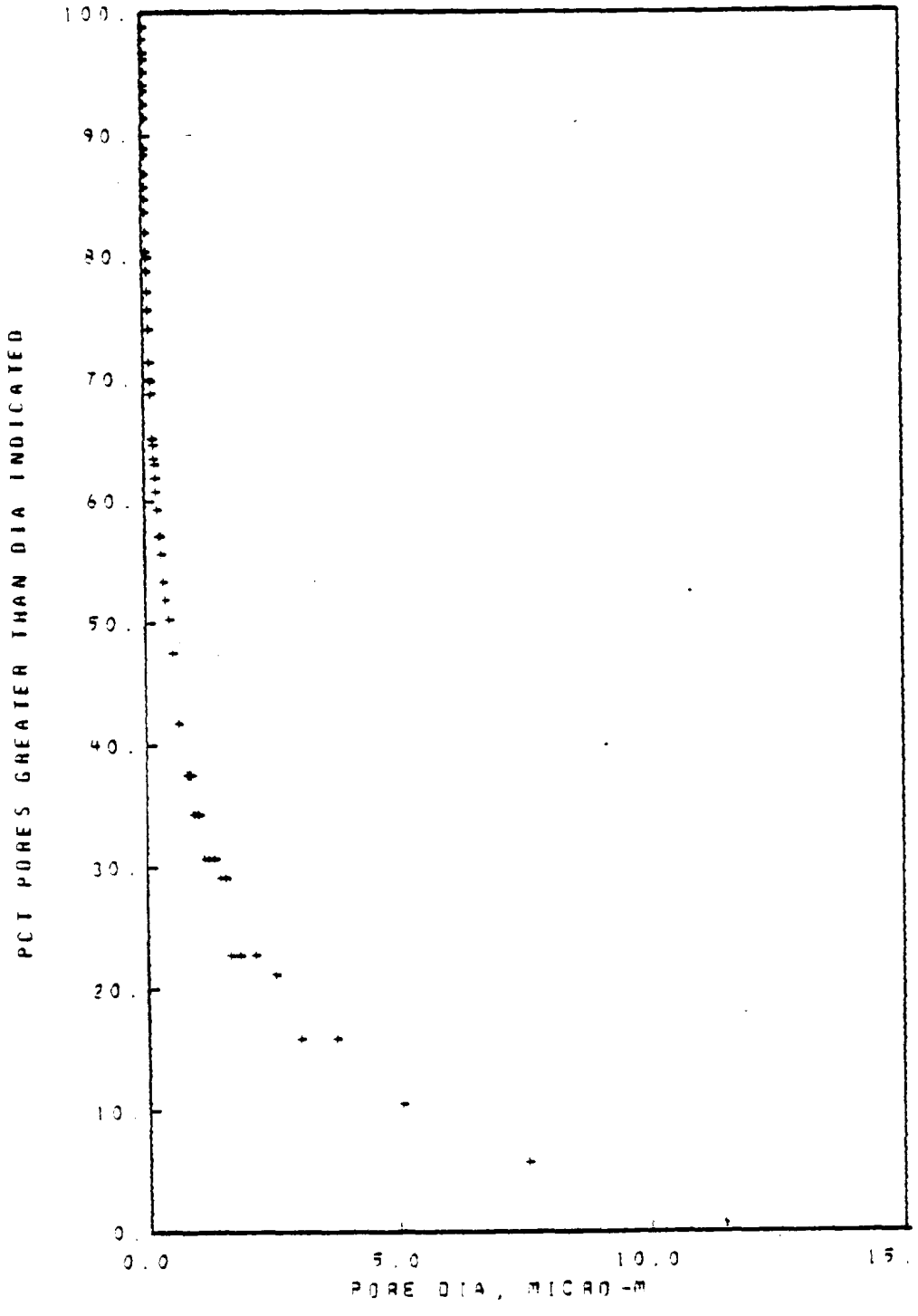
June 20, 1979




R109-3536

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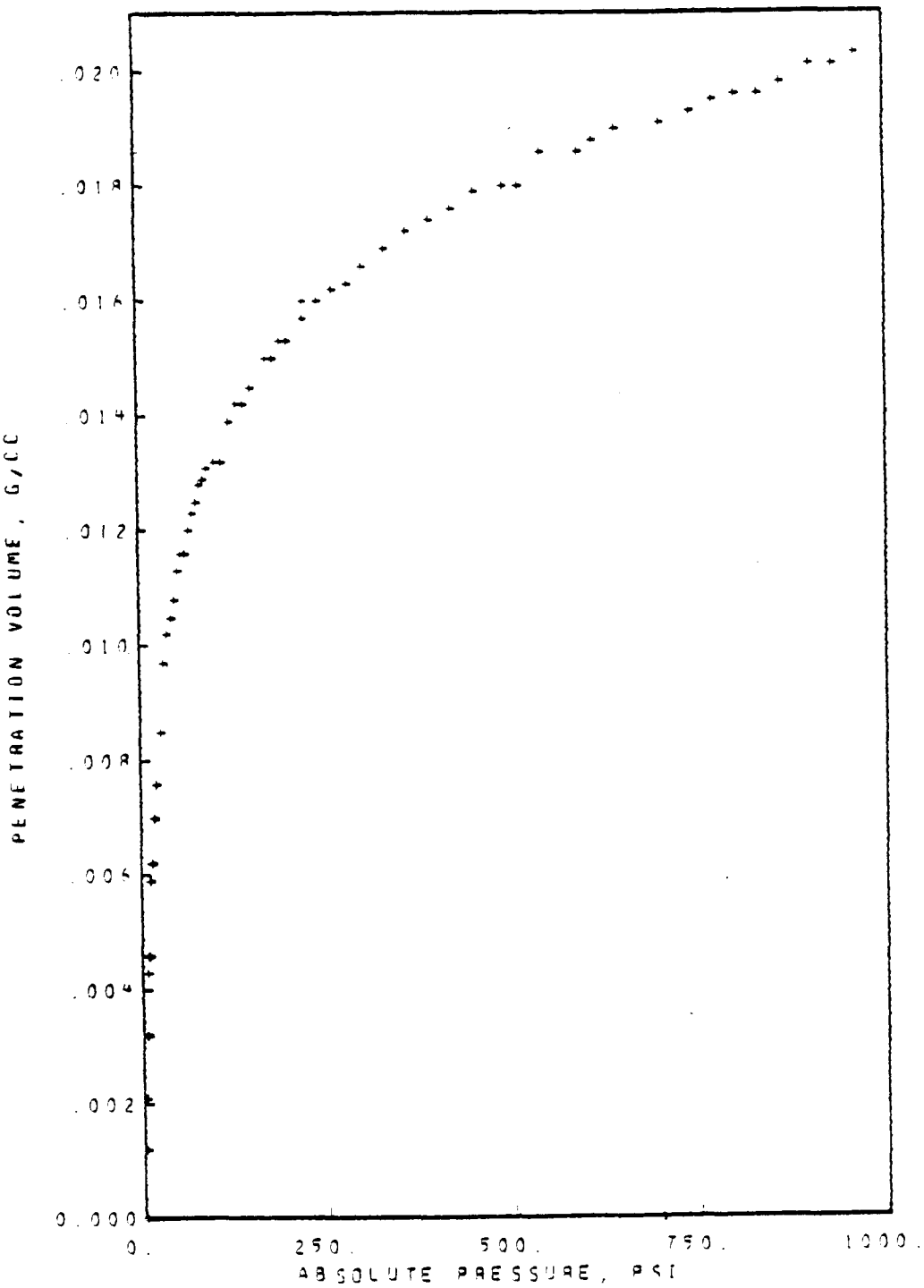
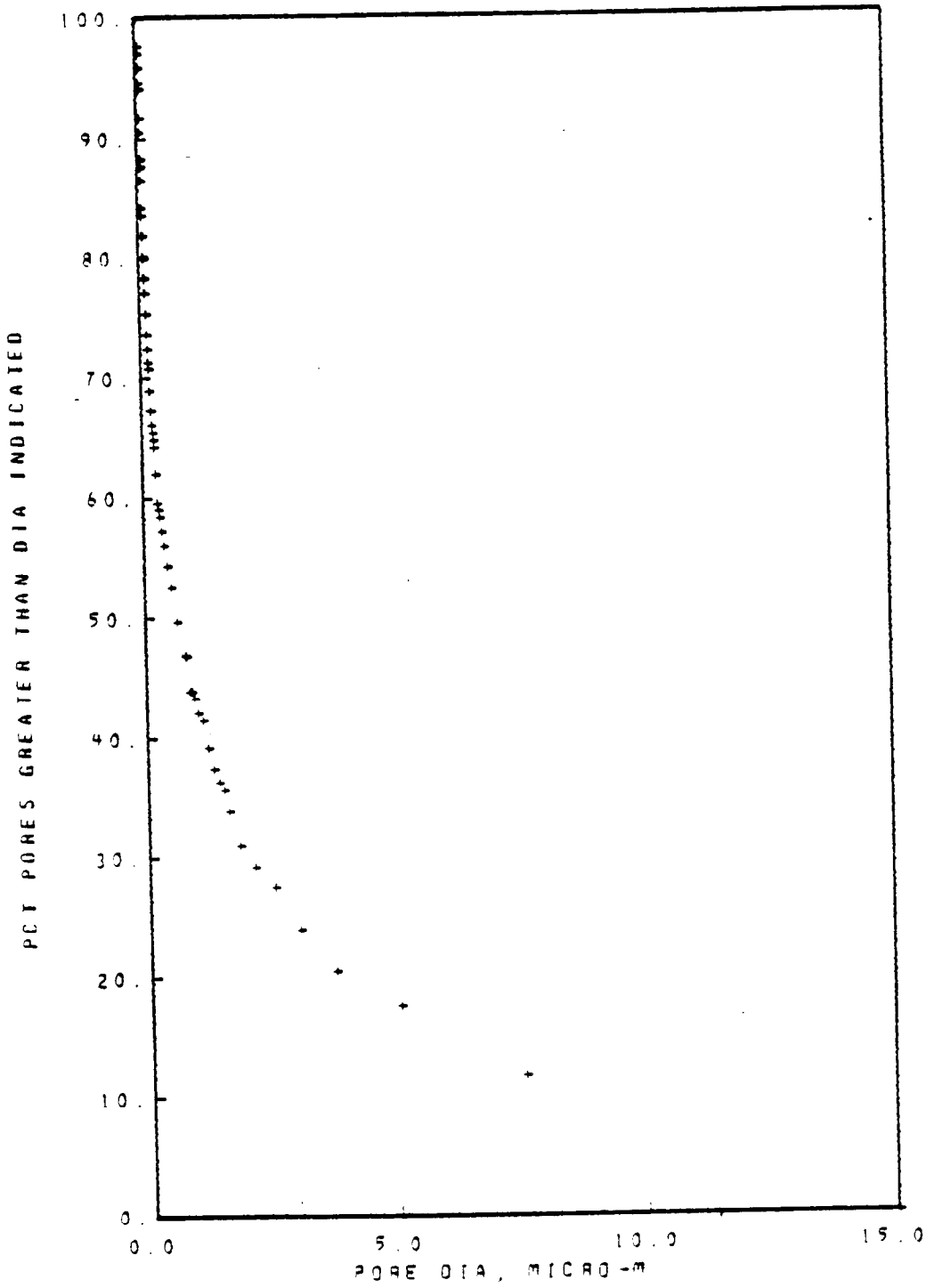
June 20, 1979




R109-3536

Battelle Columbus Labs.
June 20, 1979




R109-3545

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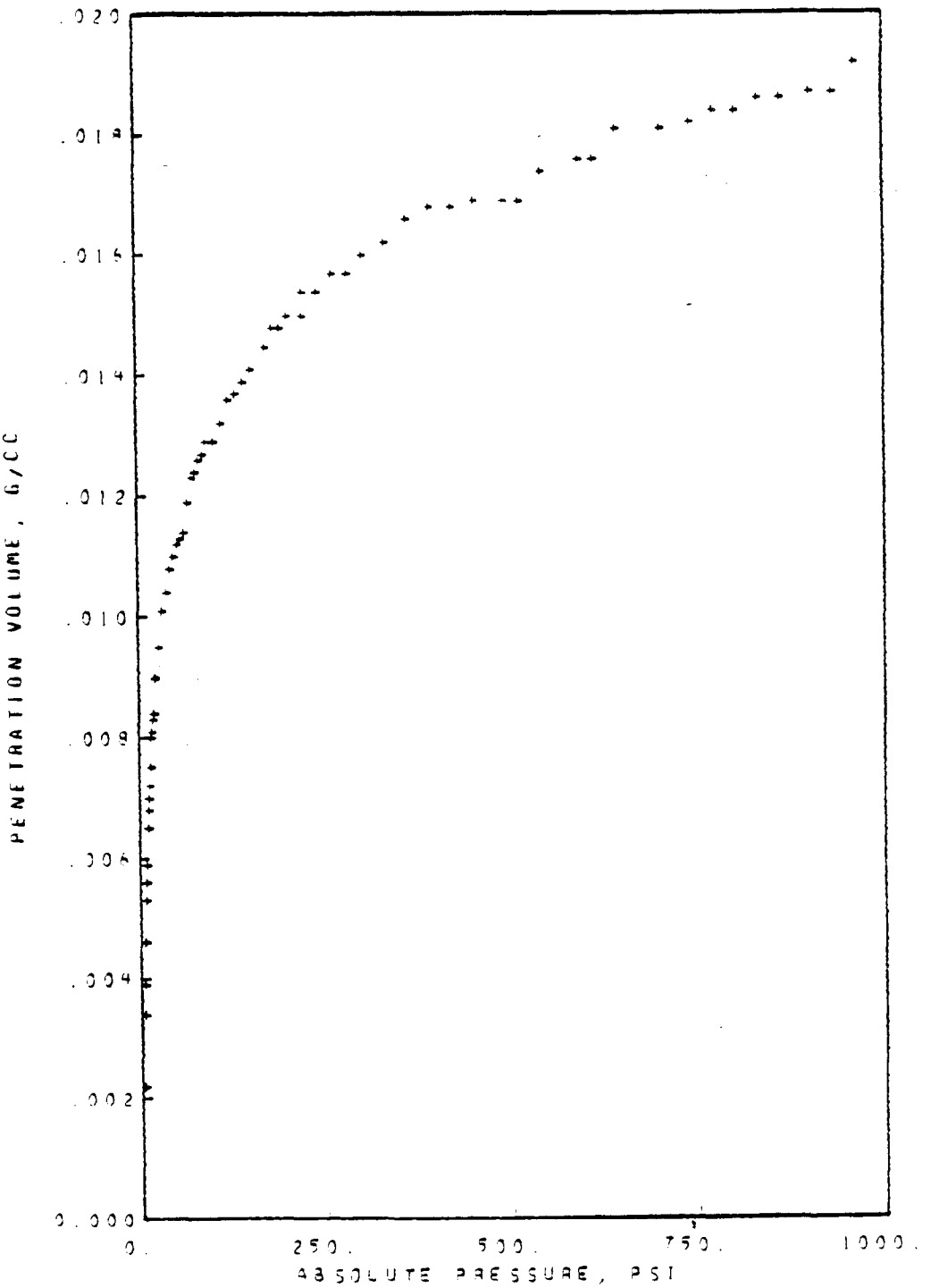
June 20, 1979




R109-3545

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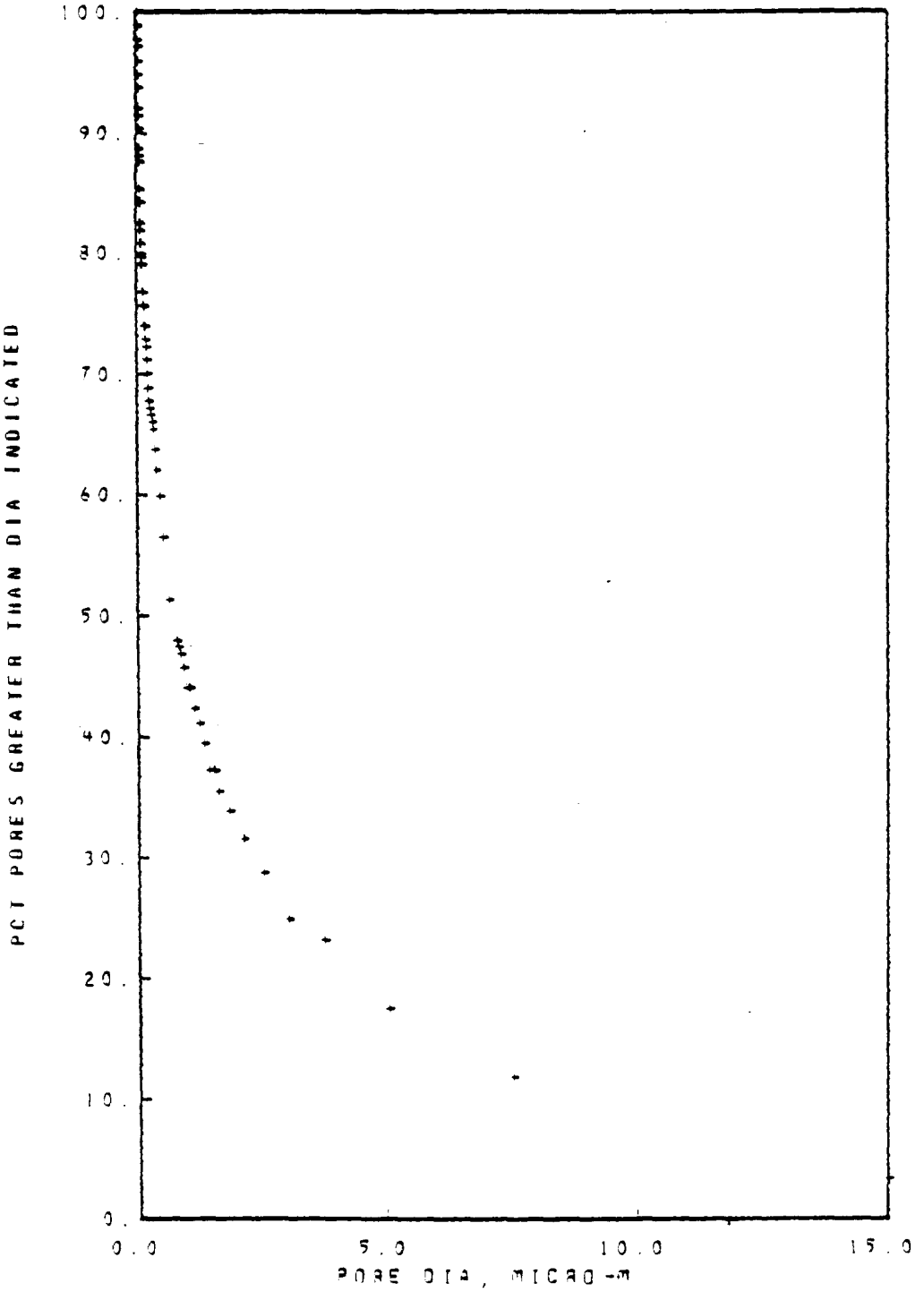
June 20, 1979




R109-3555

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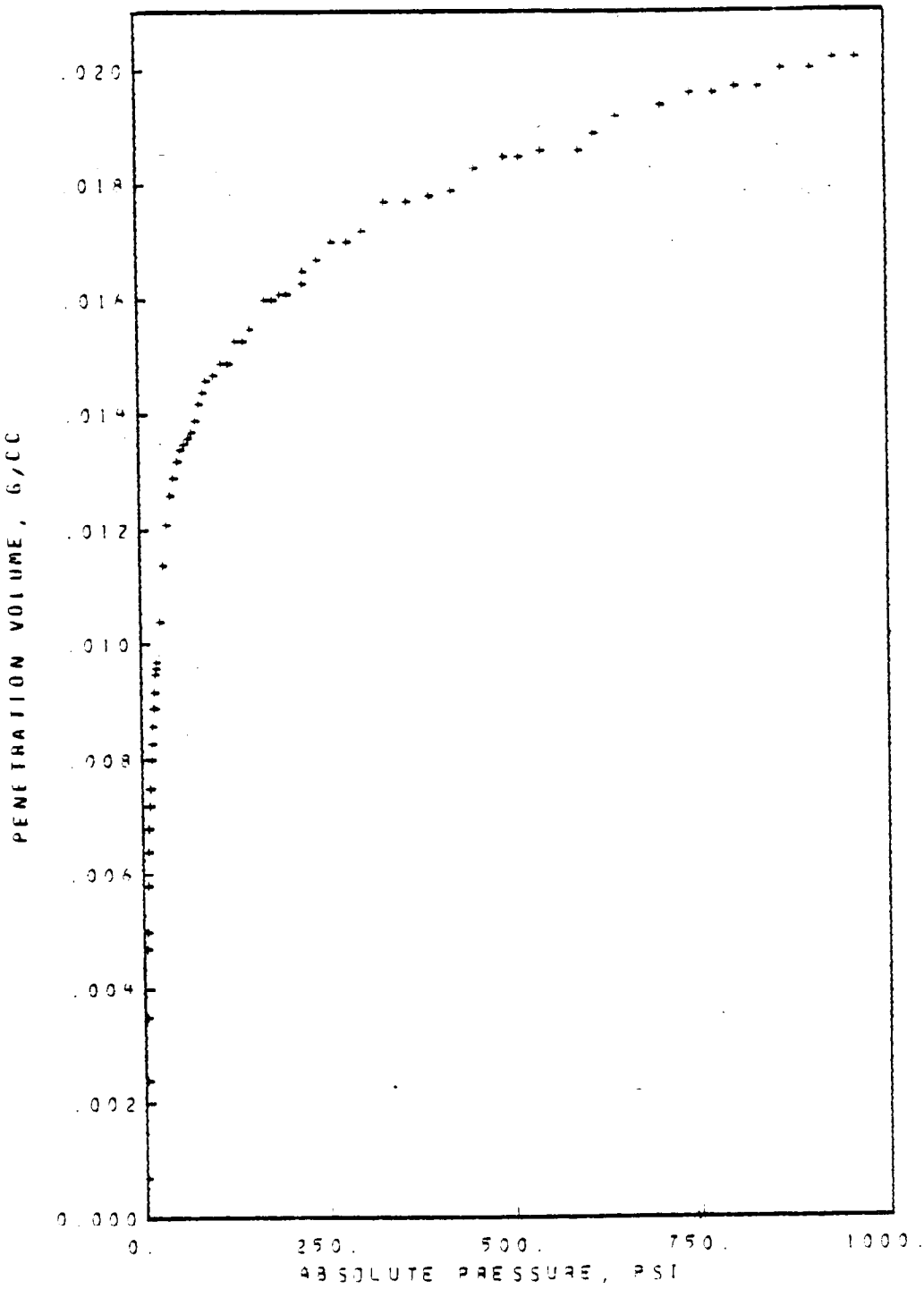
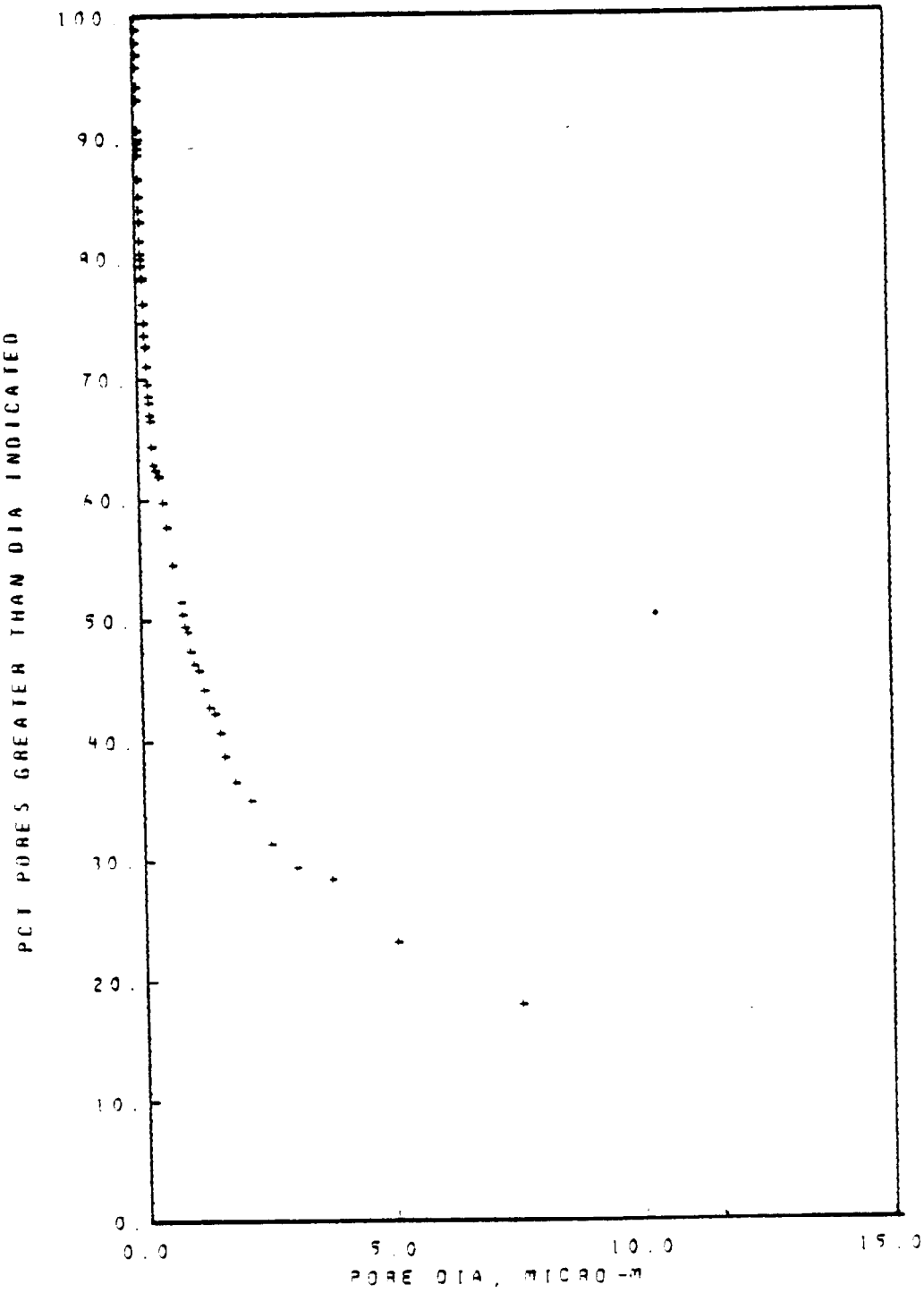
June 20, 1979



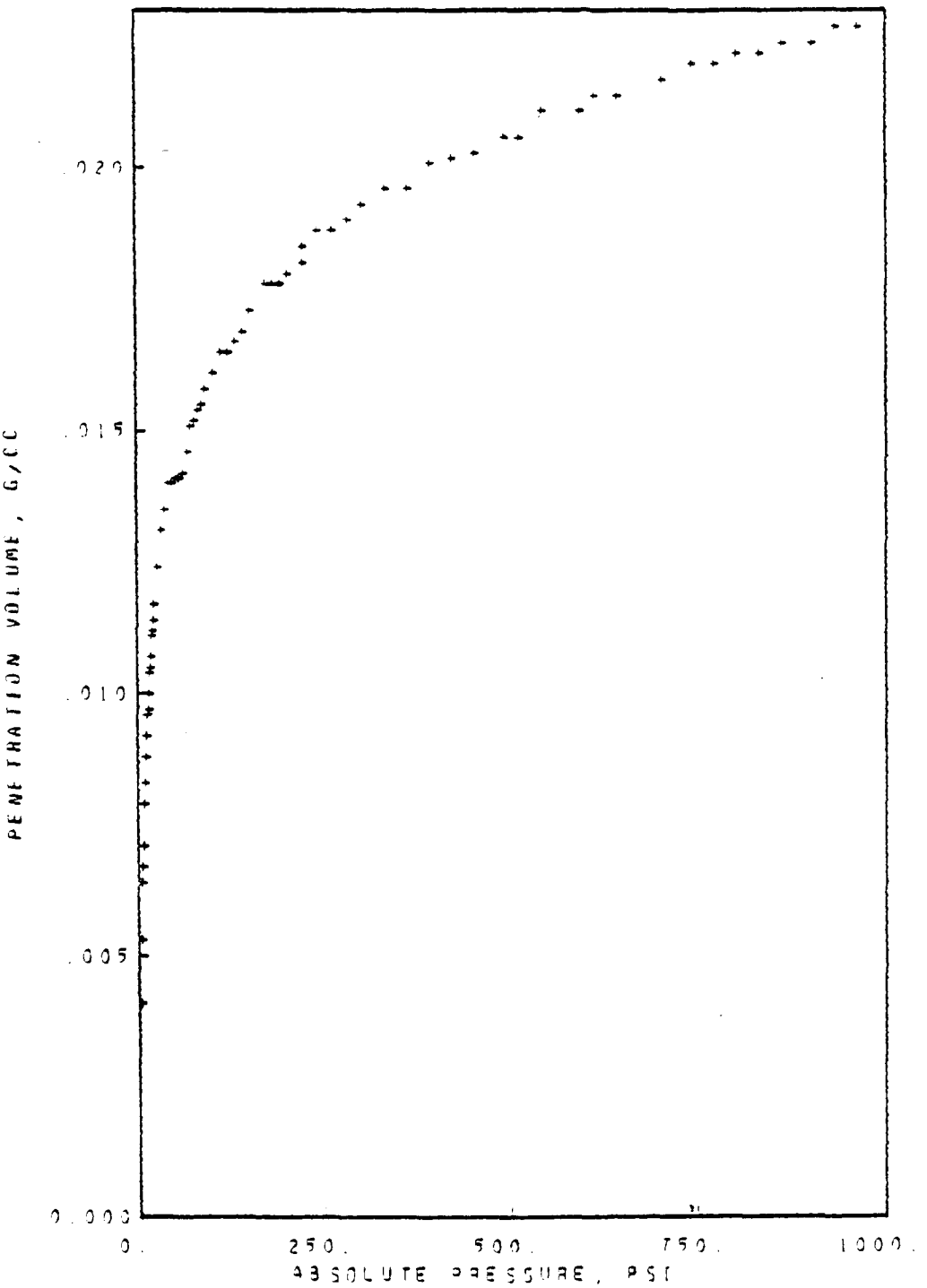

R109-3555

JGR File #100
Battelle Columbus Labs.
June 20, 1979



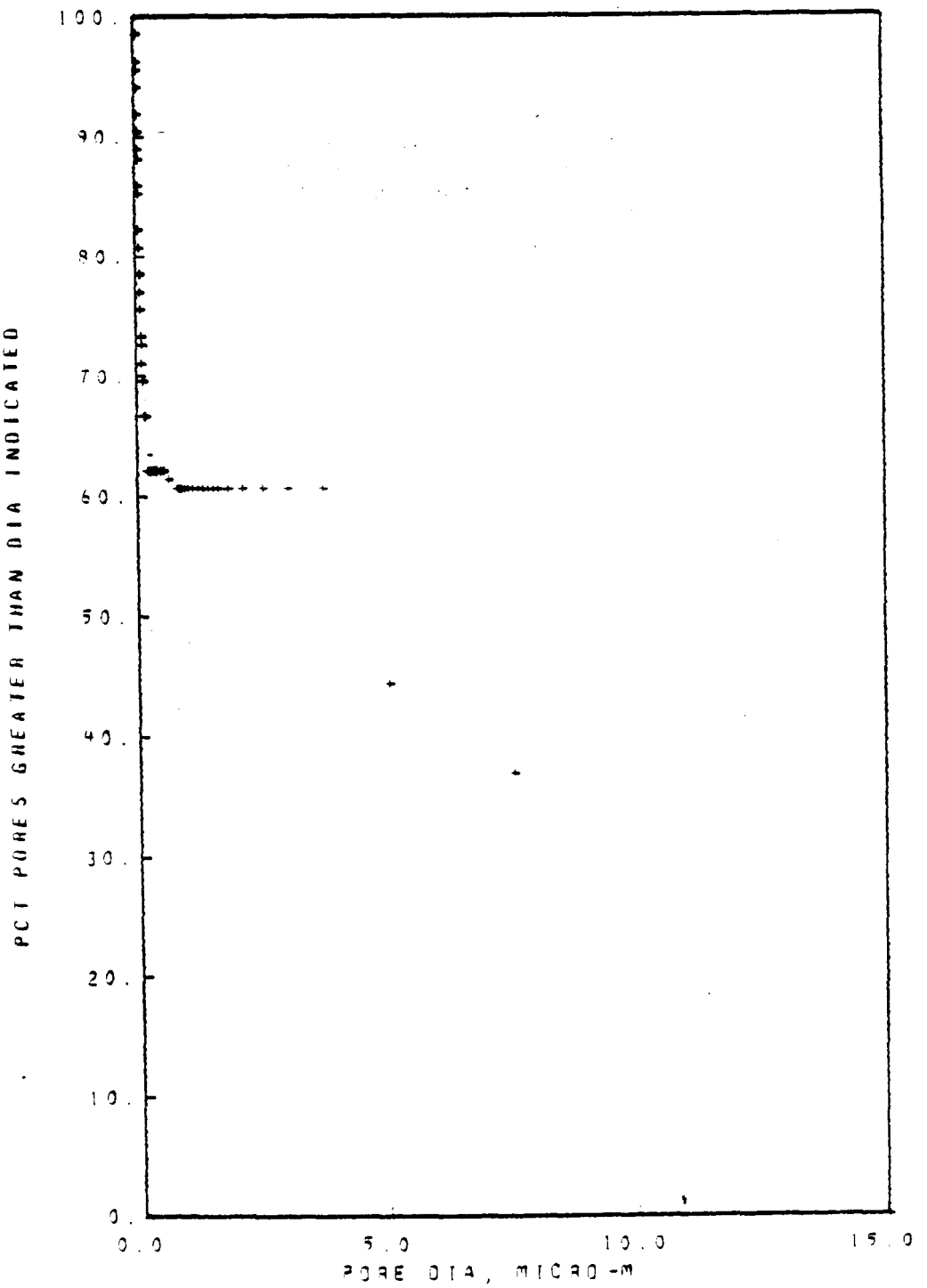

R109-3564

UGR File #188
Battelle Columbus Labs.
June 20, 1979



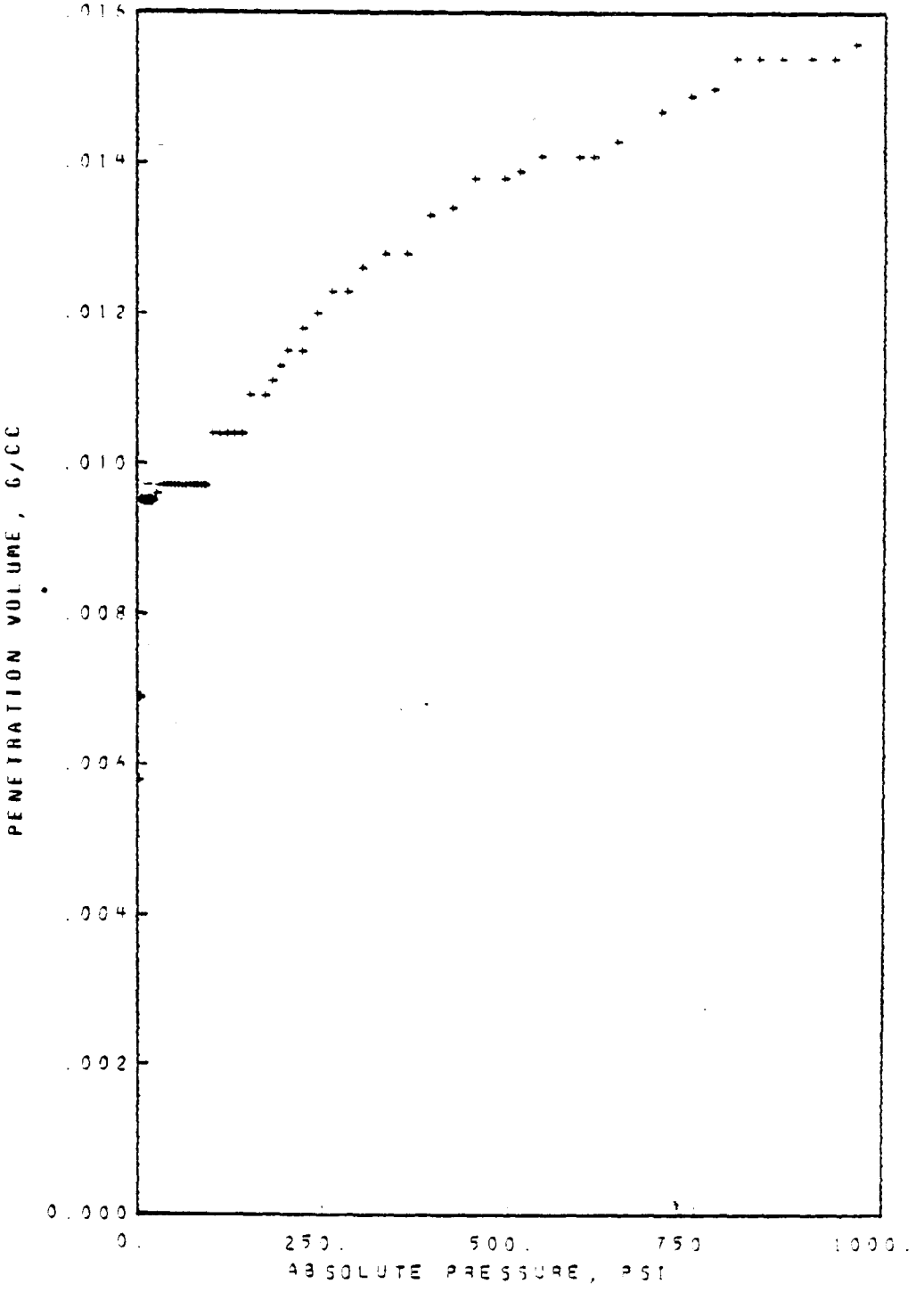

R109-3564

Battelle Columbus Labs.
June 20, 1979



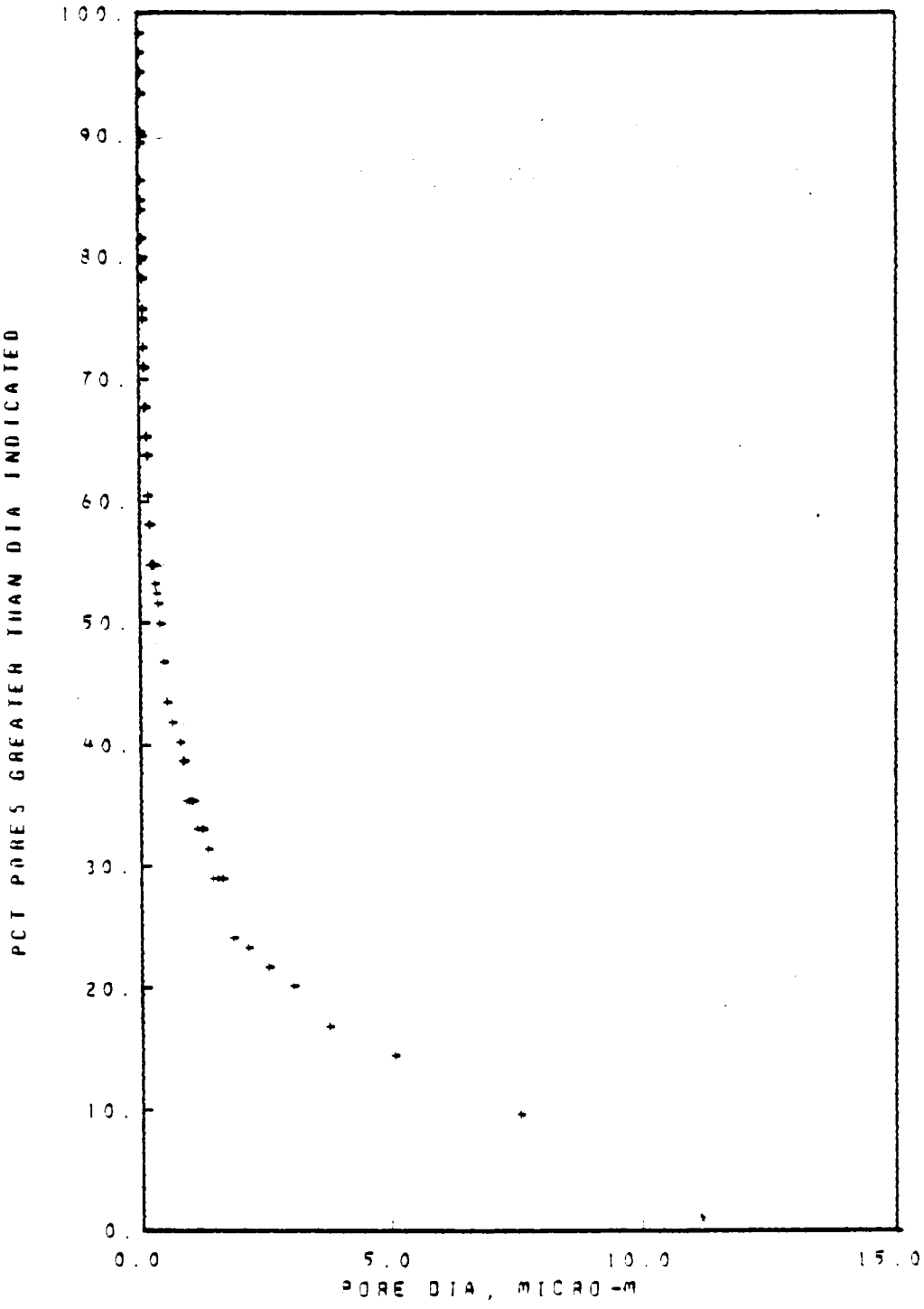

R109-3575

Battelle Columbus Labs.
June 20, 1979



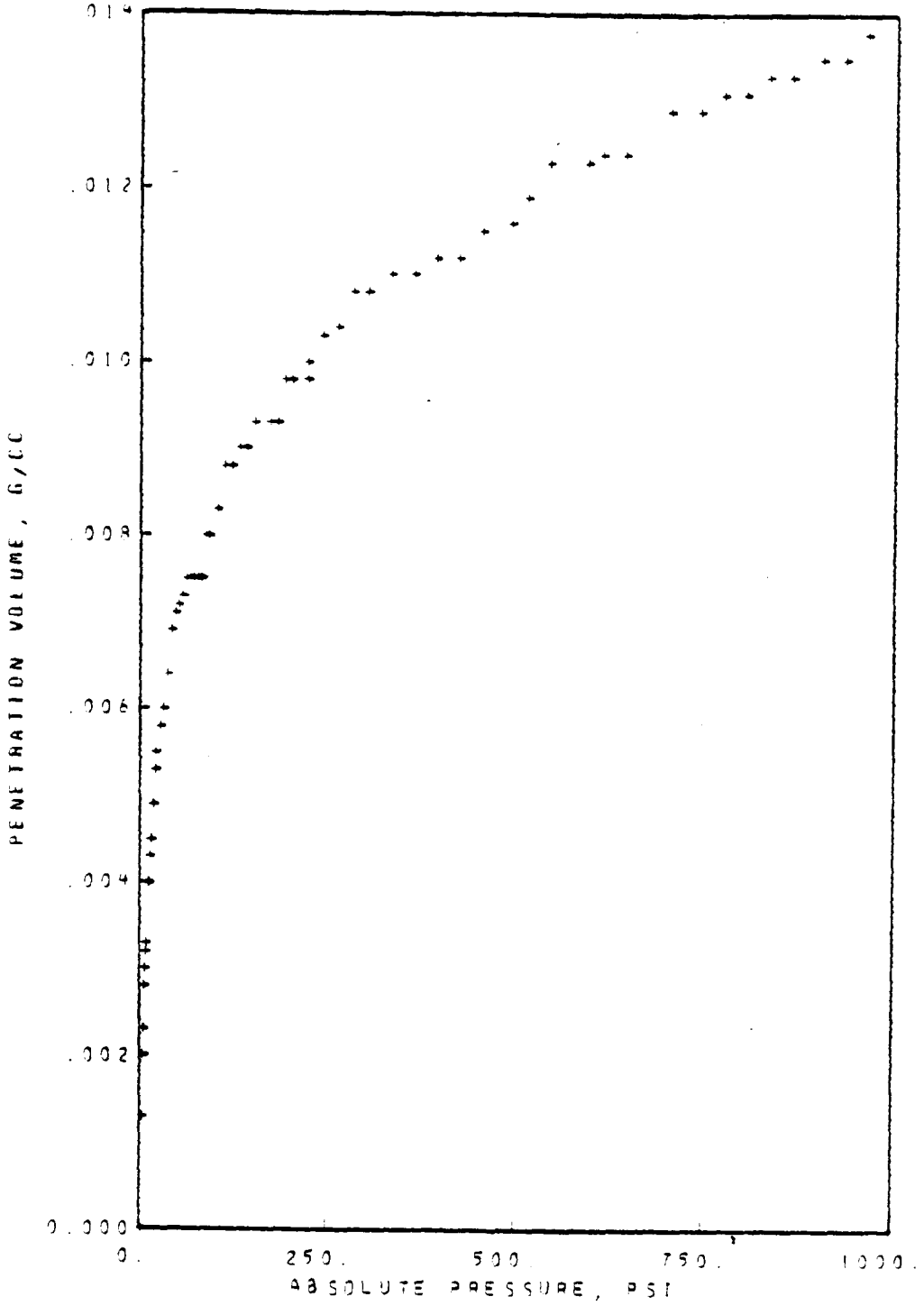

R109-3575

UGR File #188
Battelle Columbus Labs.
June 20, 1979



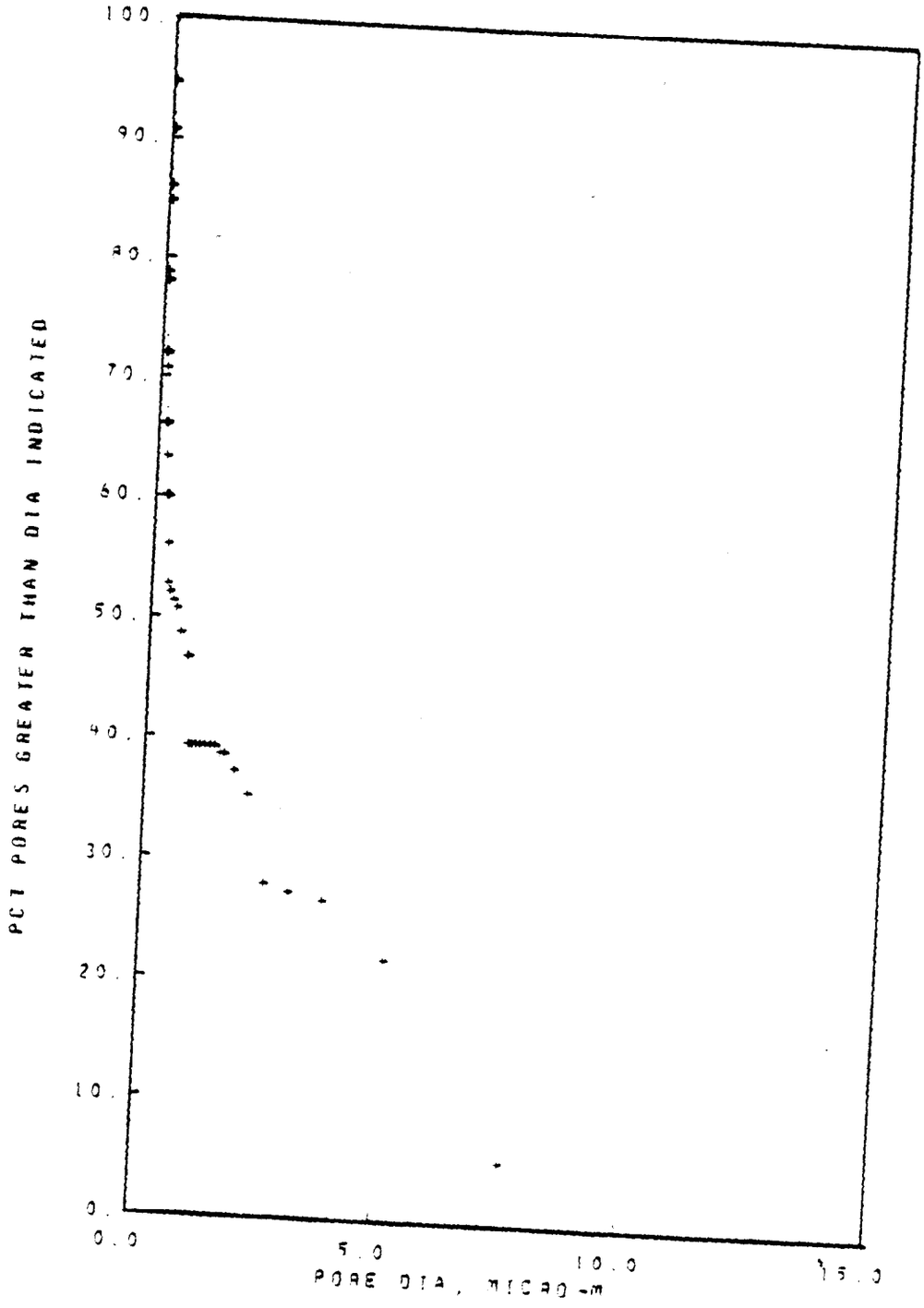

R109-3585

UGR File #188
Battelle Columbus Labs.
June 20, 1979

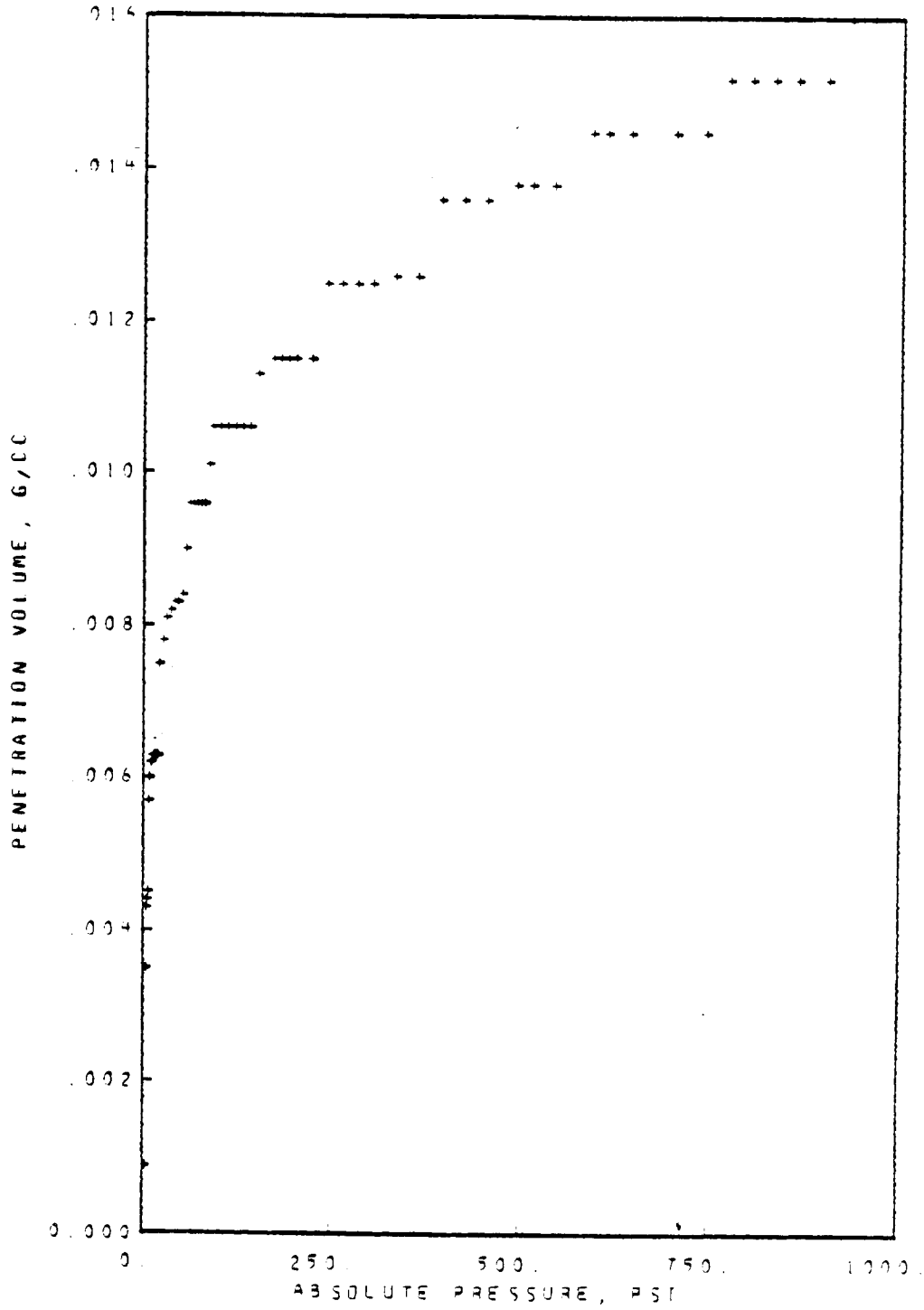



R109-3585

JGR File #188
Battelle Columbus Labs.
June 20, 1979

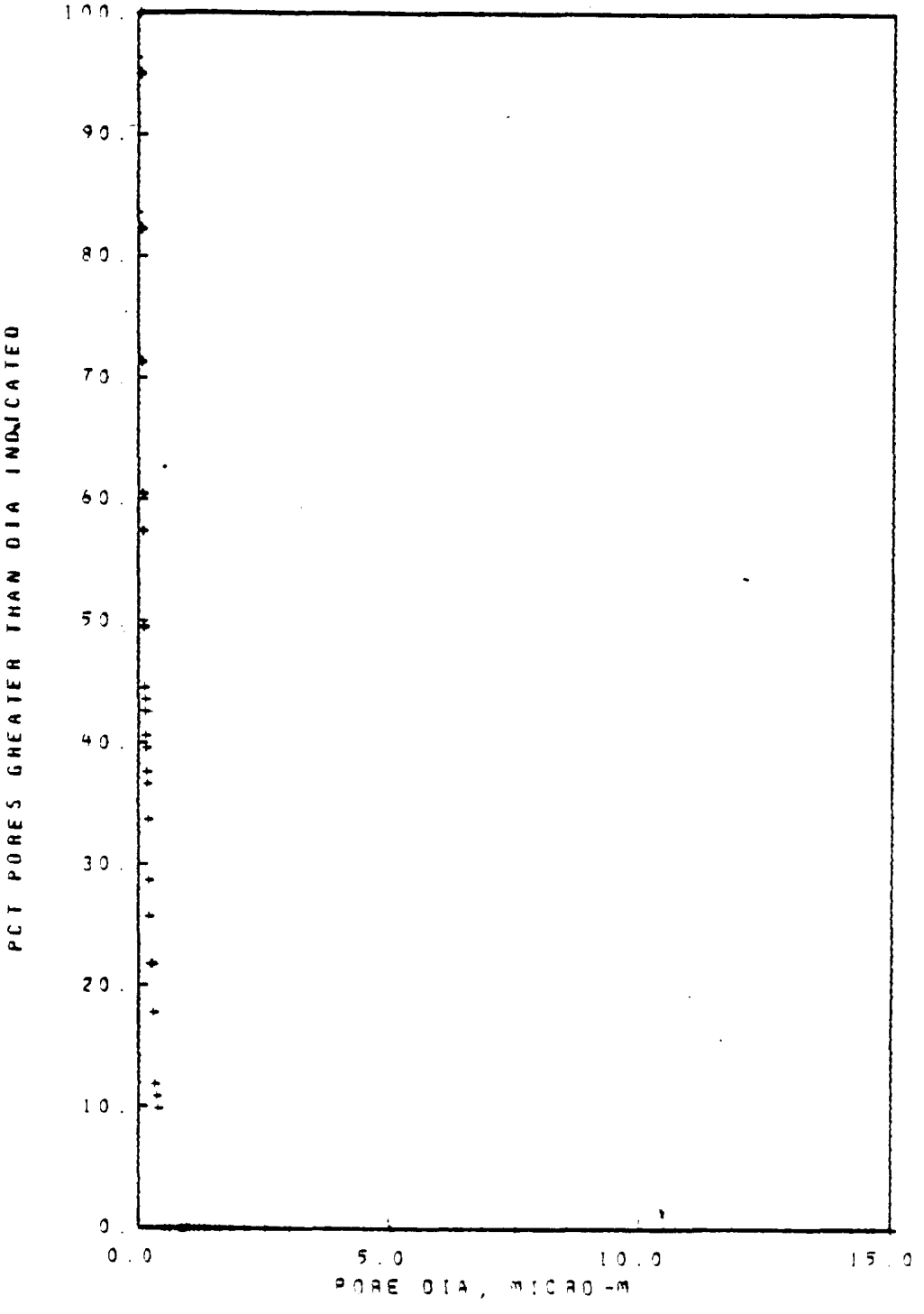



R109-3593

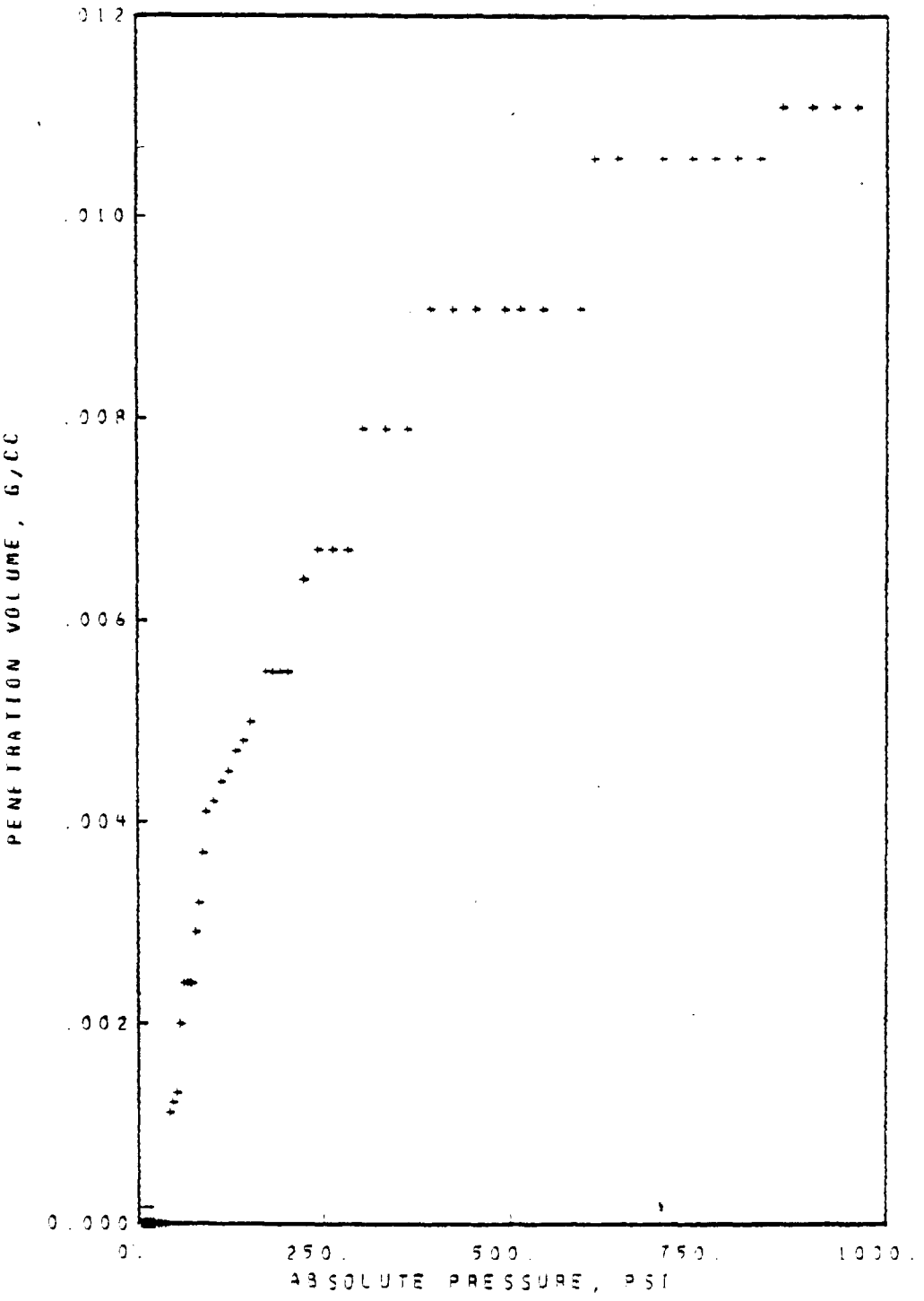

PENETRATION VOLUME, G/CC
.016
.014
.012
.010
.008
.006
.004
.002
0.000
0
250
500
750
1000
ABSOLUTE PRESSURE, PSI

R109-3593

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3605


.012
.010
.008
.006
.004
.002
0.000
PENETRATION VOLUME, G/CC
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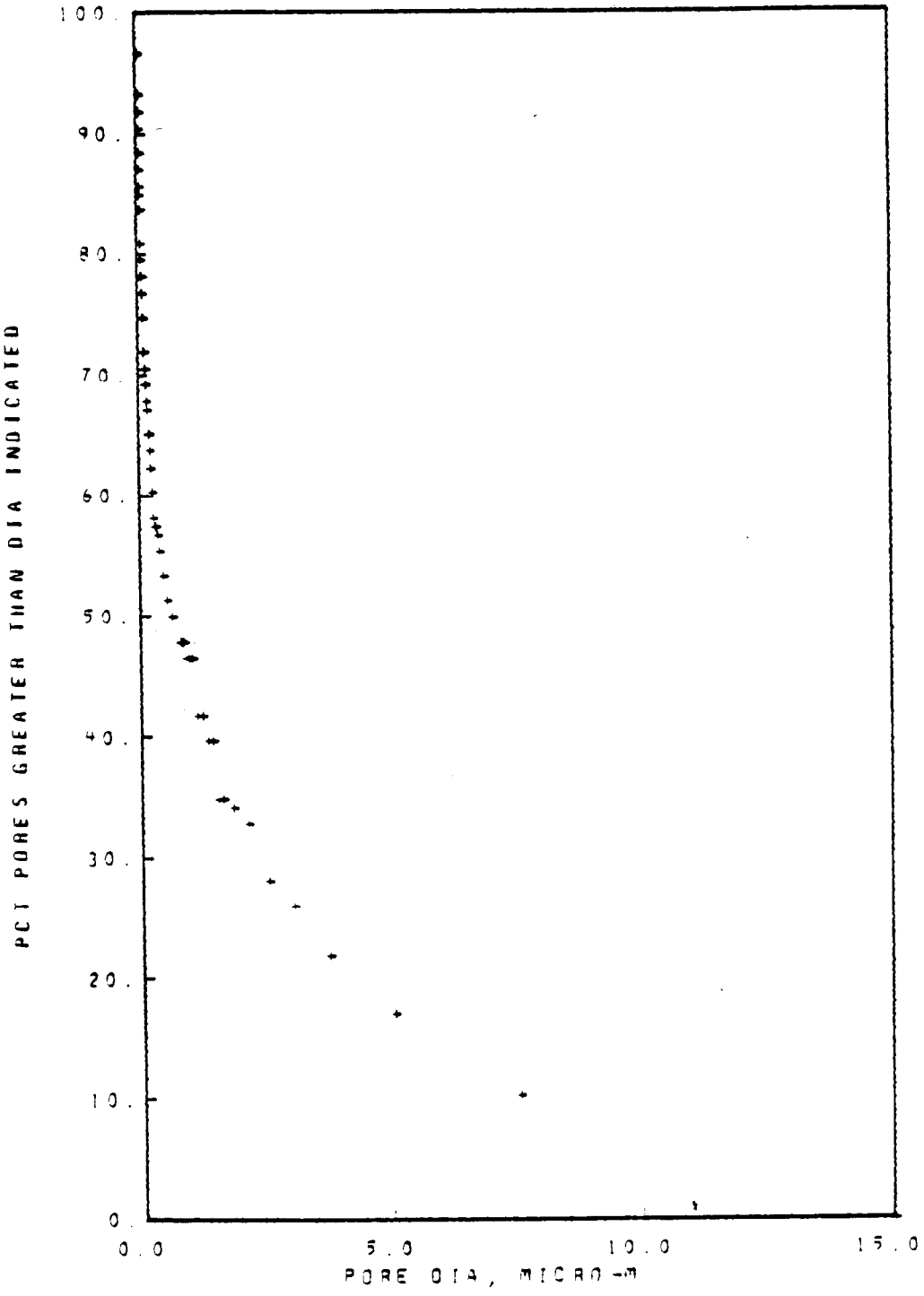
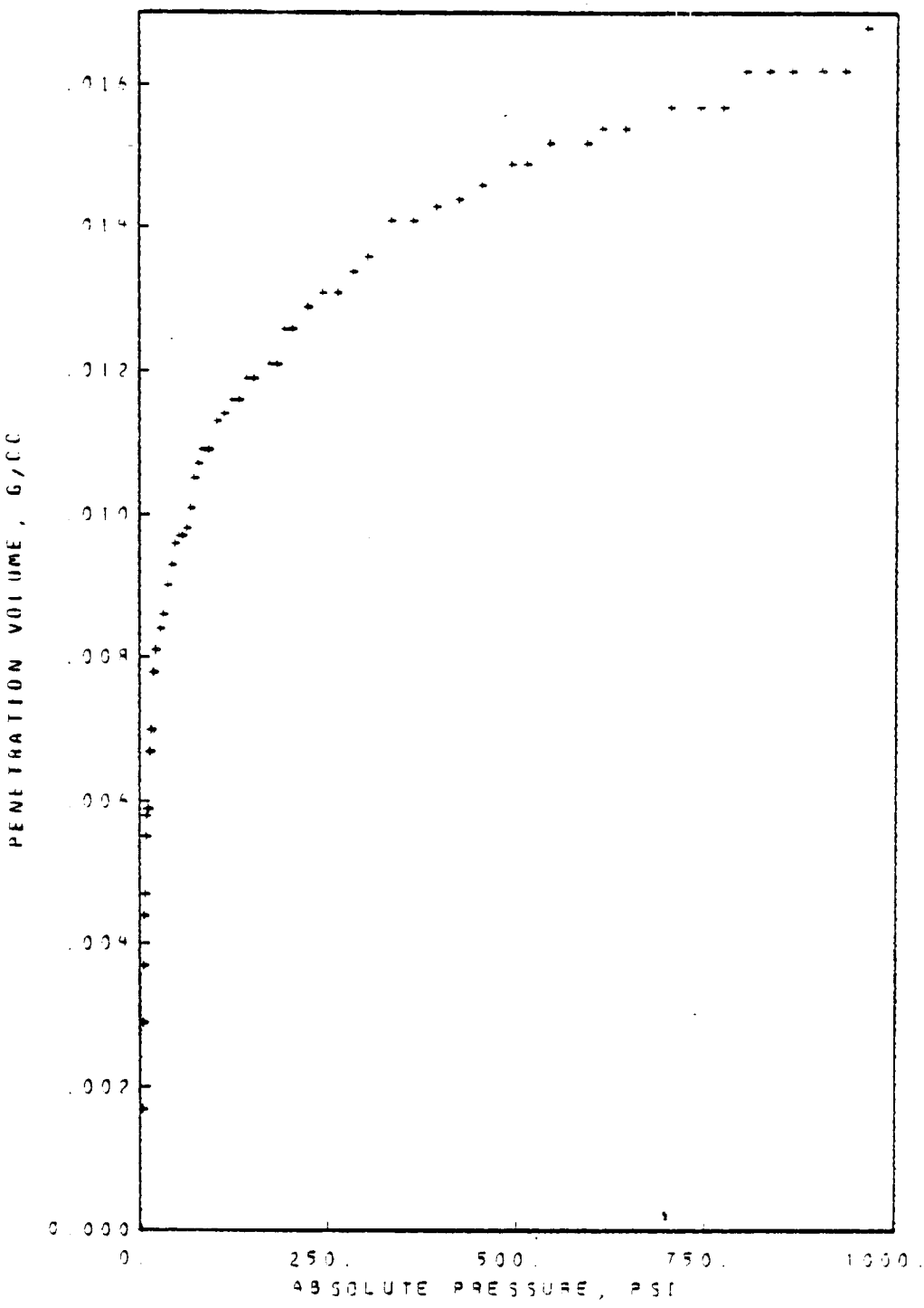
250.
500.
750.
1000.
ABSOLUTE PRESSURE, PSI

R109-3605

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3606A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.004
.002
0.000
PENETRATION VOLUME, G/CC
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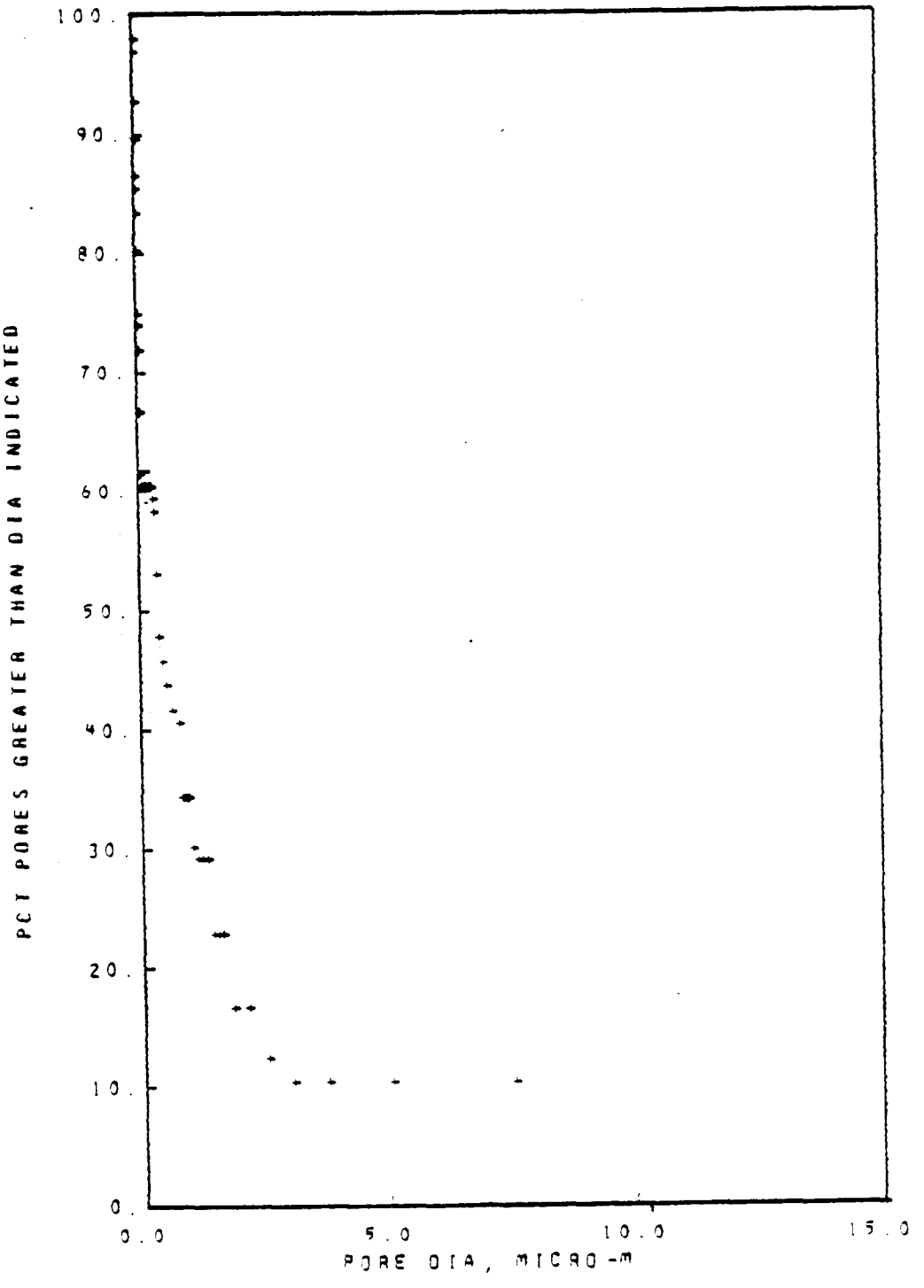
750.
1000.
ABSOLUTE PRESSURE, PSI

R109-3606A

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3606B

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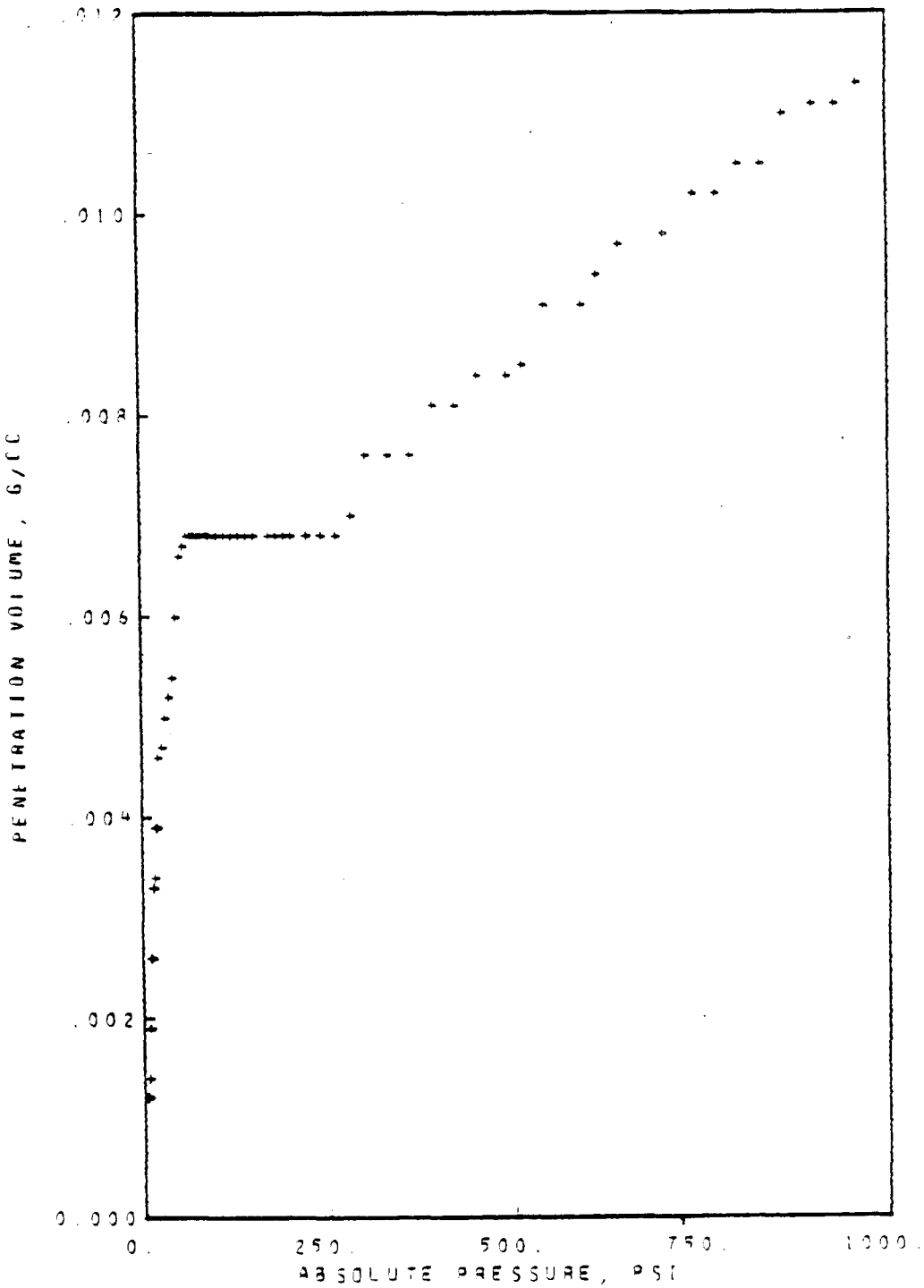
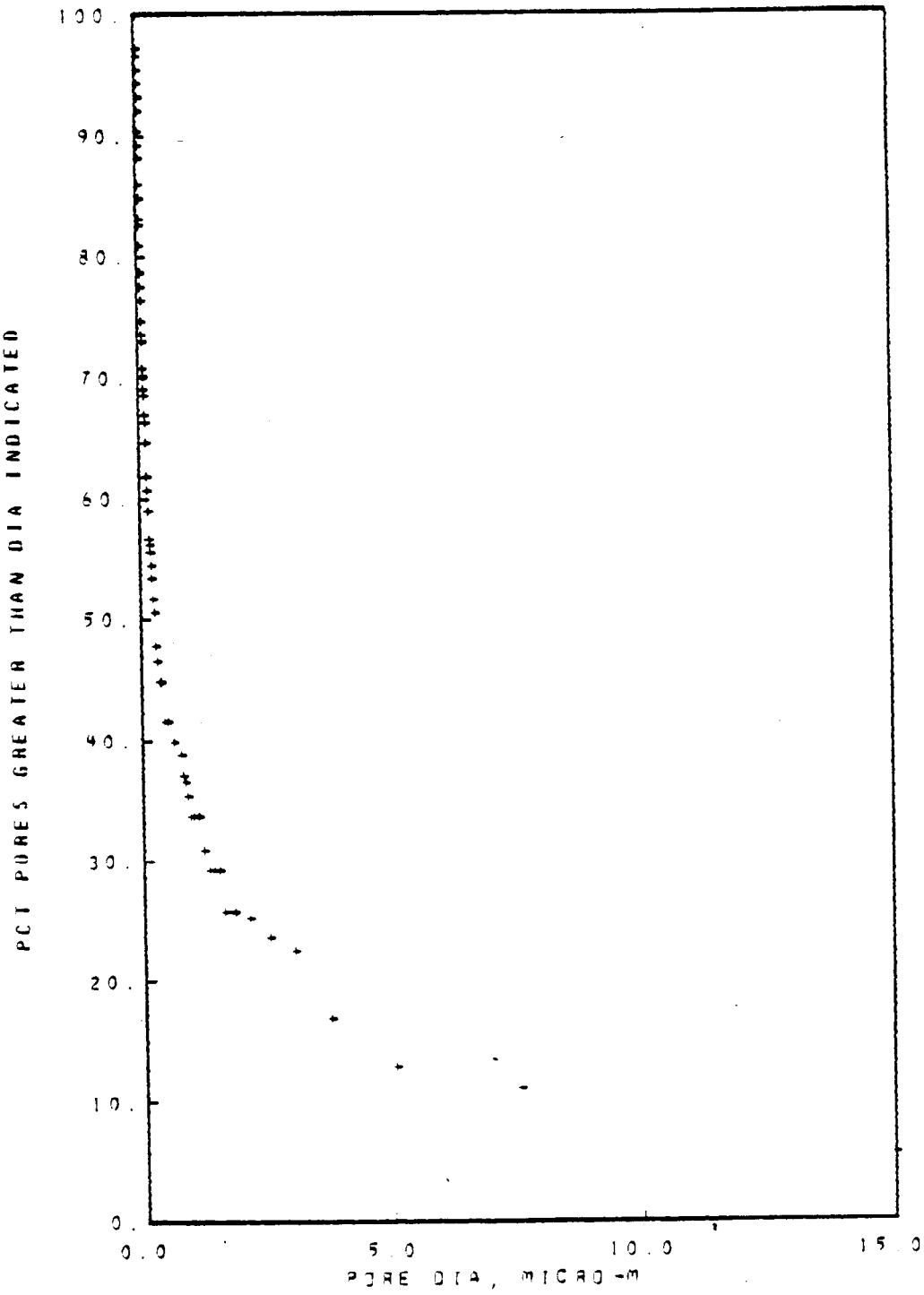
Battelle Columbus Labs.
June 20, 1979



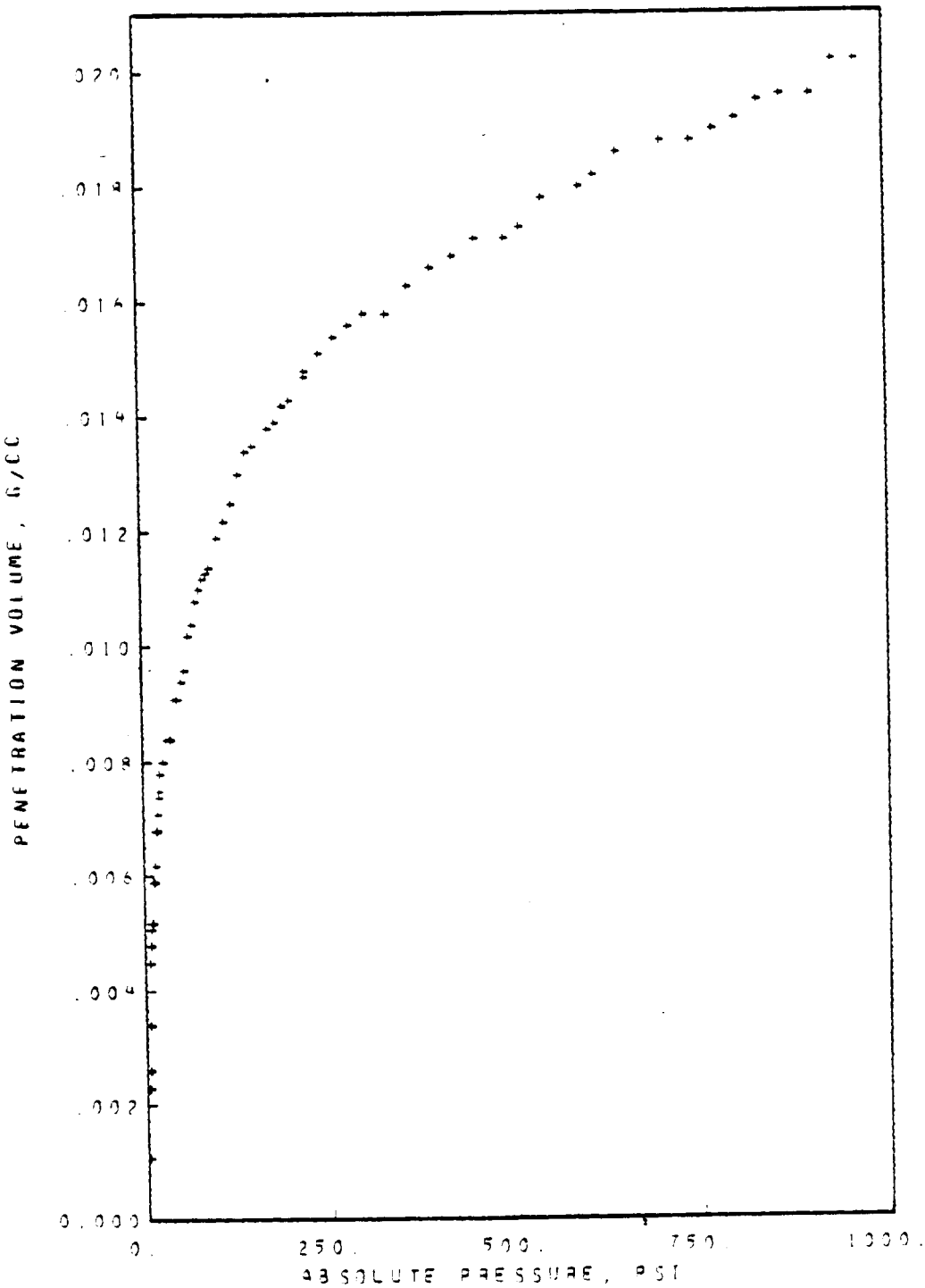

R109-3606B

UGR File #188
Battelle Columbus Labs.
June 20, 1979



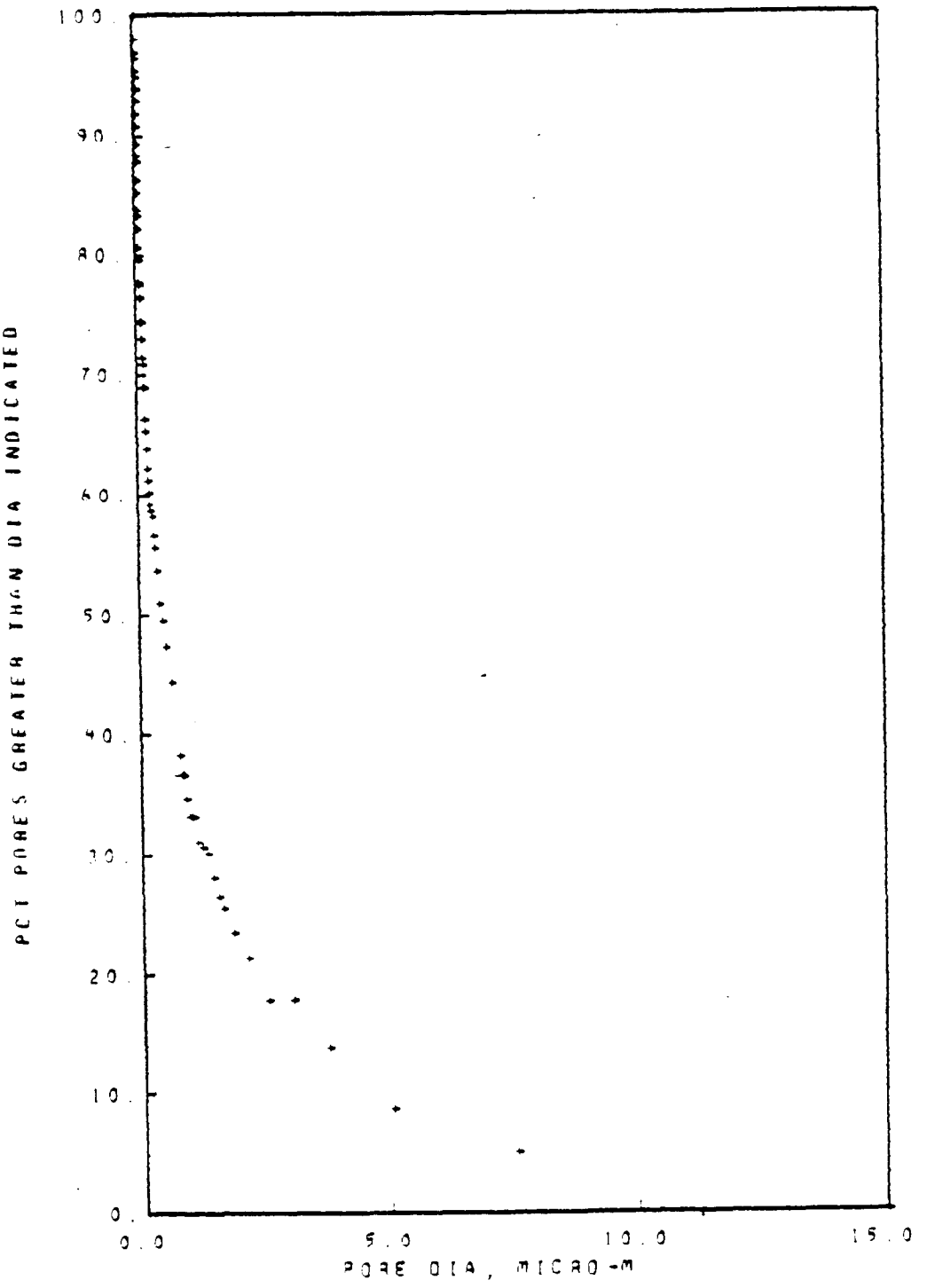

R109-3616

UGR File #188
Battelle Columbus Labs.
June 20, 1979

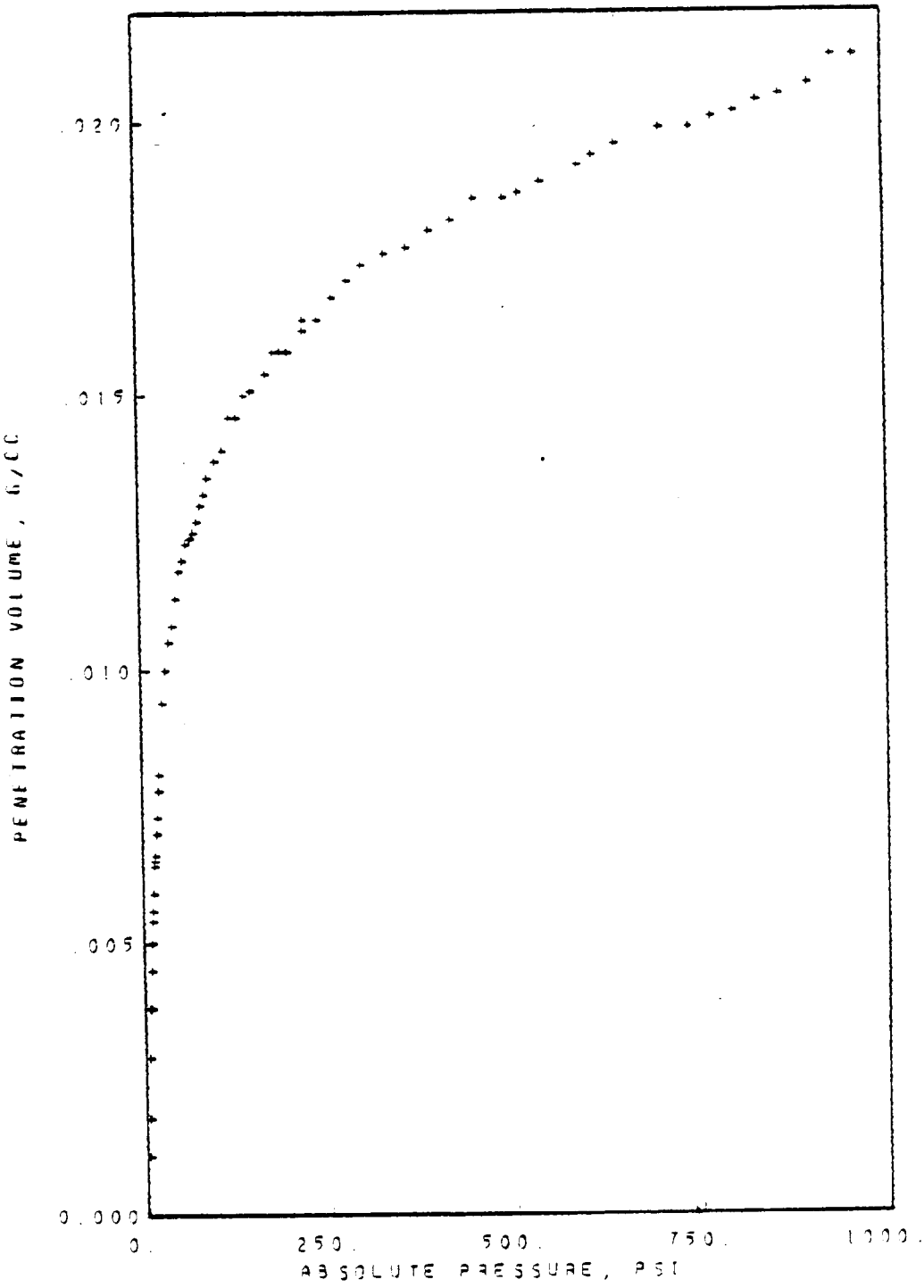



R109-3616

UGR File #.88
Battelle Columbus Labs.
June 20, 1979




R109-3626


.020
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0.000
PENETRATION VOLUME, G/CC
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500.
750.
1000.
ABSOLUTE PRESSURE, PSI

R109-3626

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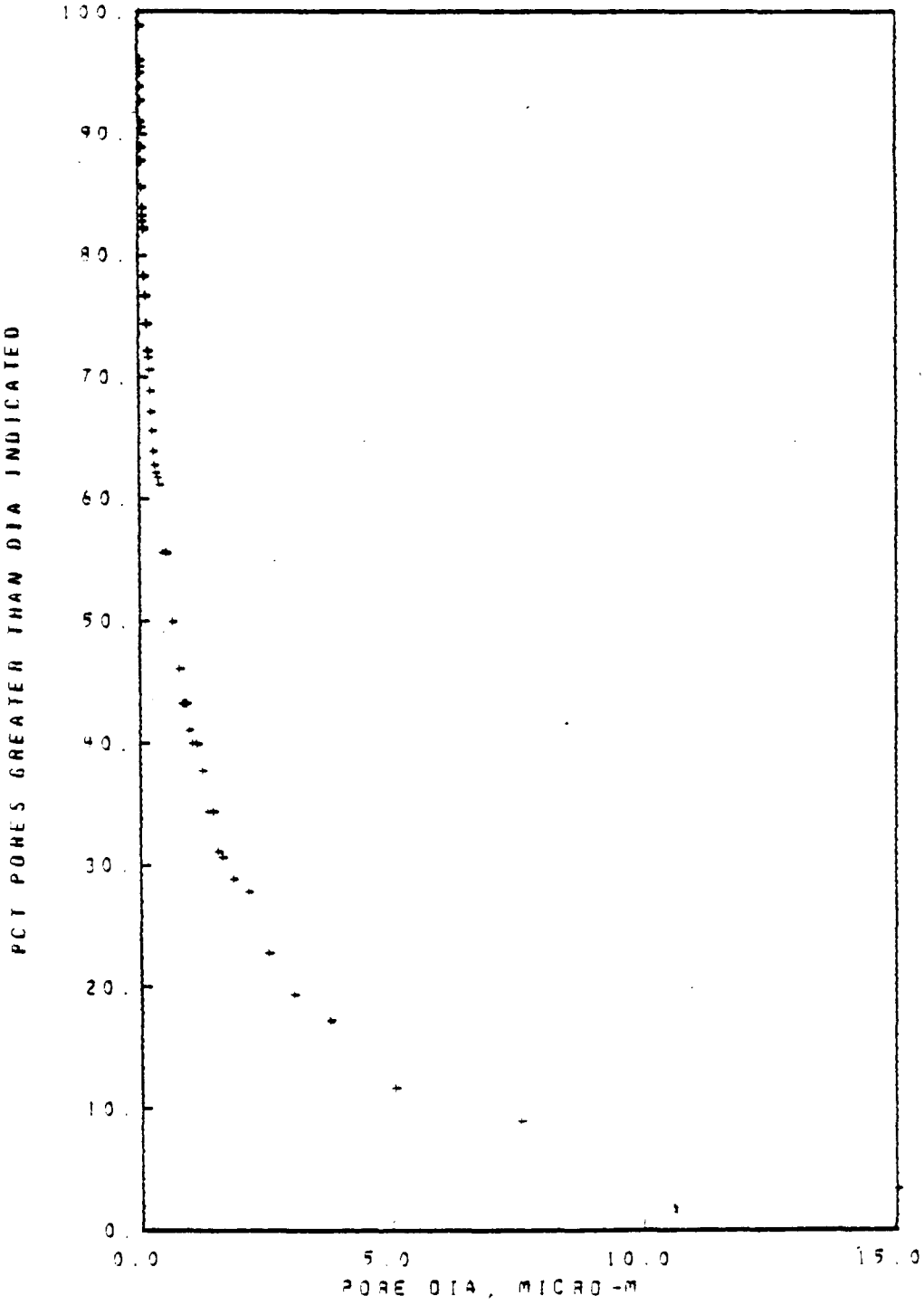
Battelle Columbus Labs.
June 20, 1979




R109-3634

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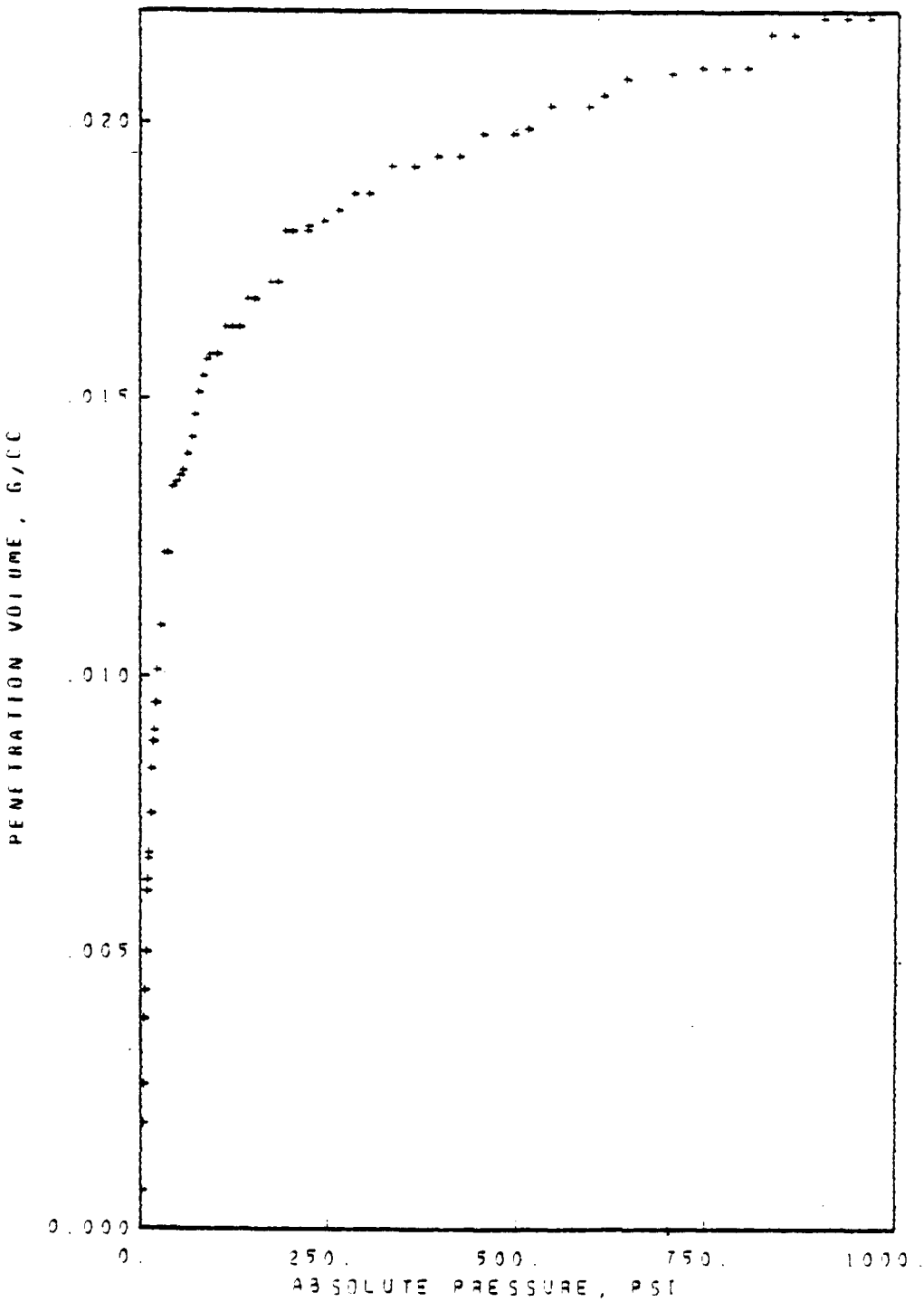
Battelle Columbus Labs.
June 20, 1979




R109-3634

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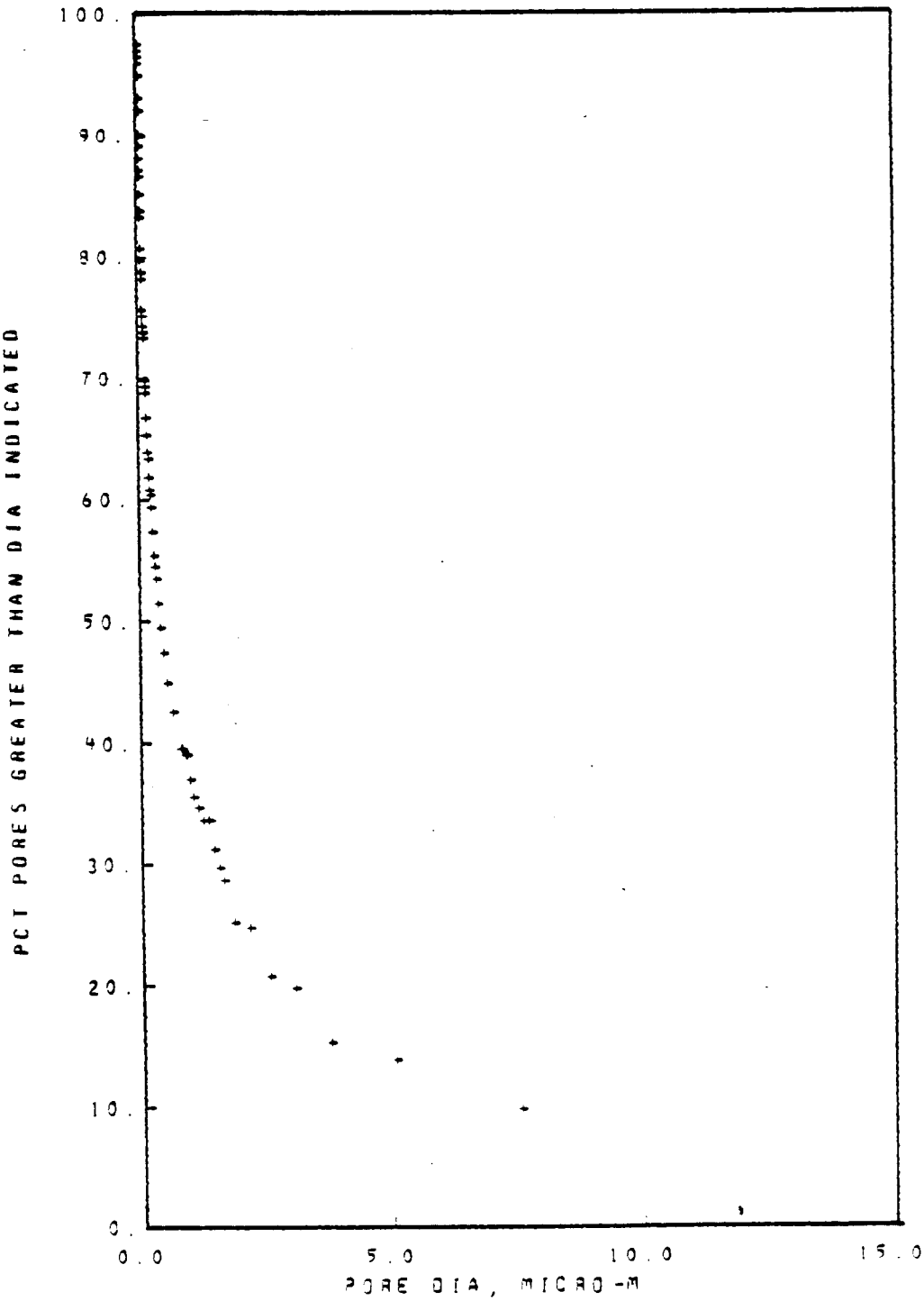
Battelle Columbus Labs.
June 20, 1979




R109-3644

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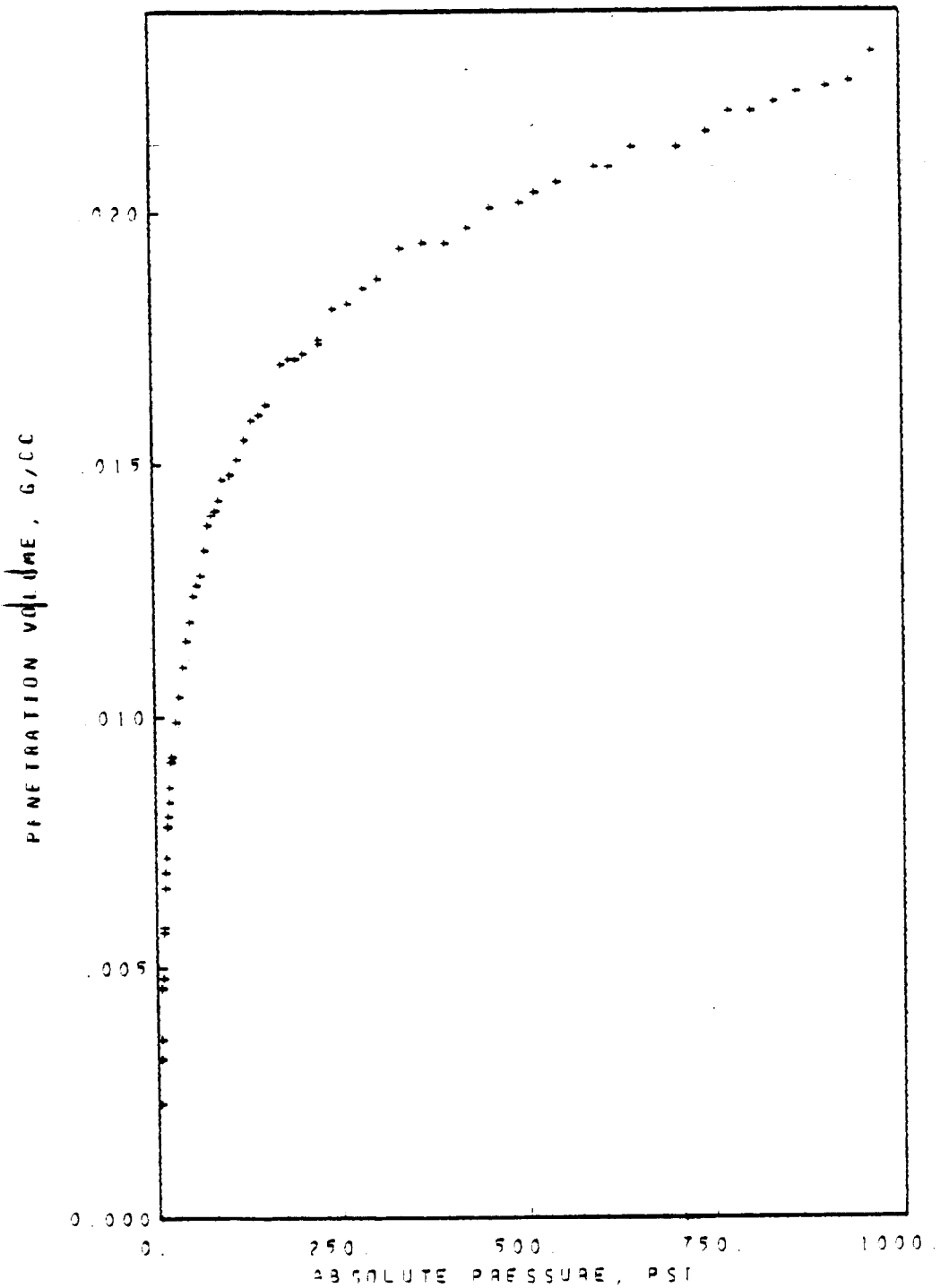
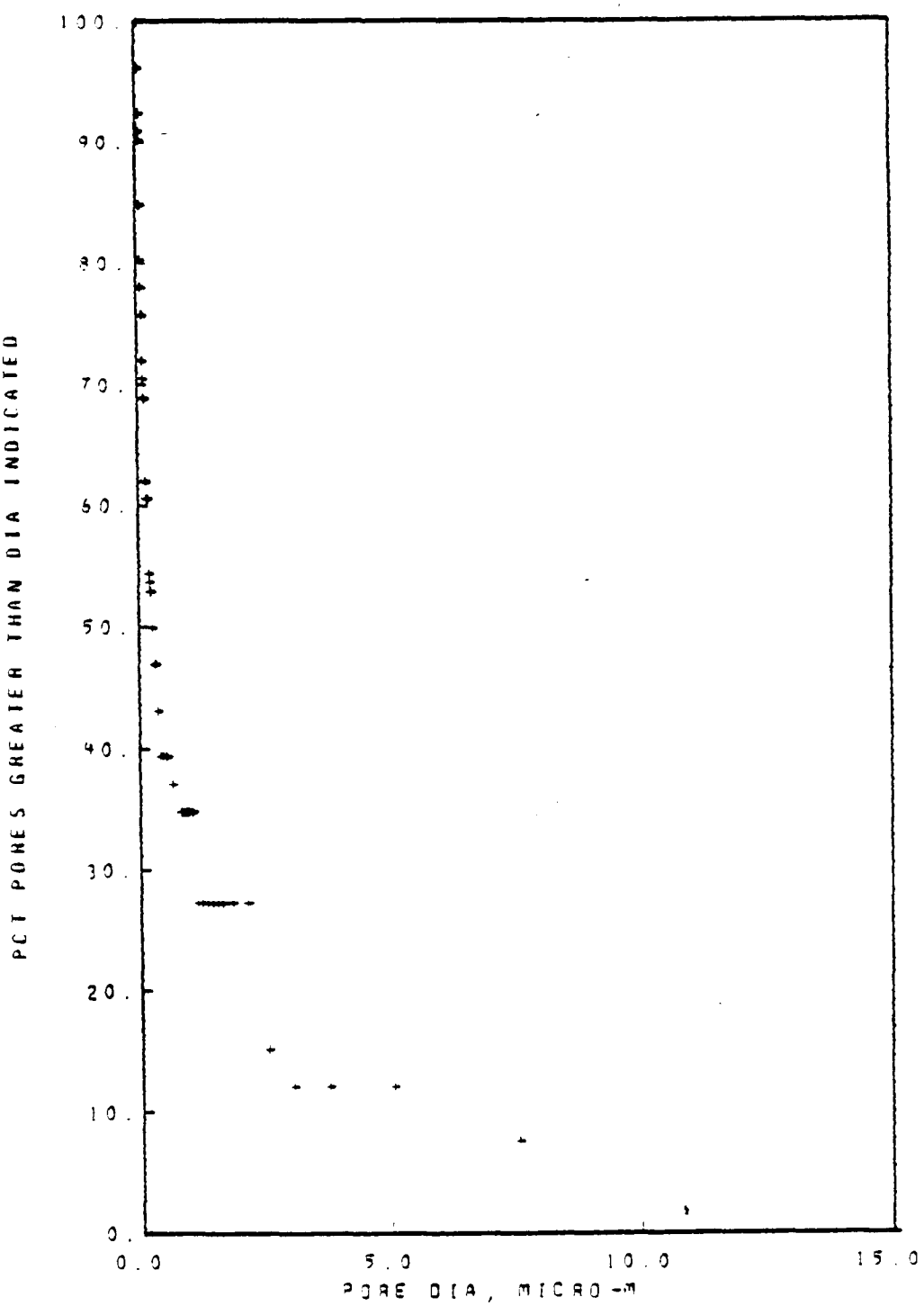
Battelle Columbus Labs.
June 20, 1979

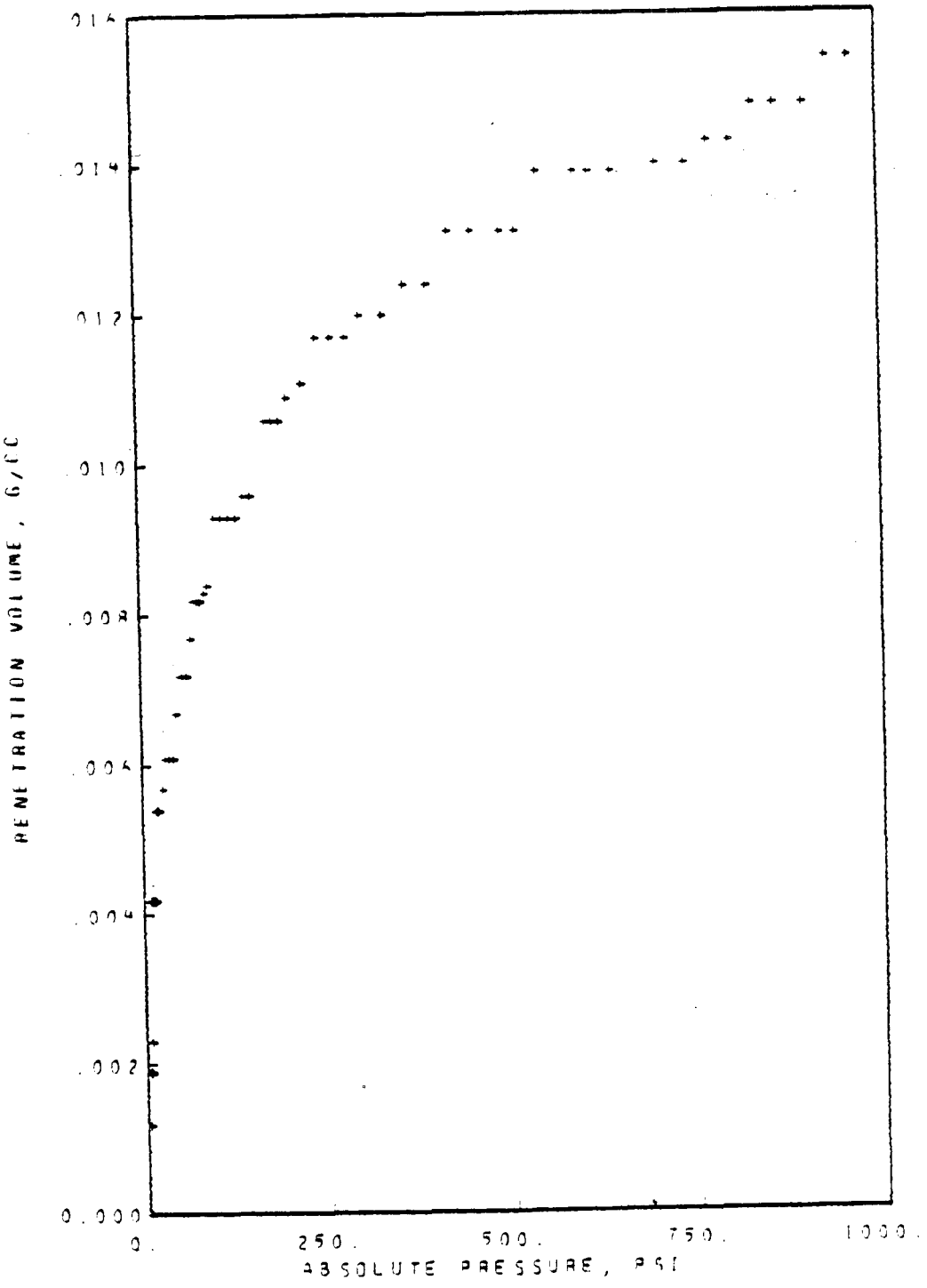



R109-3644

Battelle Columbus Labs.
June 20, 1979




R109-3644A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.010
.008
.006
.004
.002
0.000
PENETRATION VOLUME, G/CC
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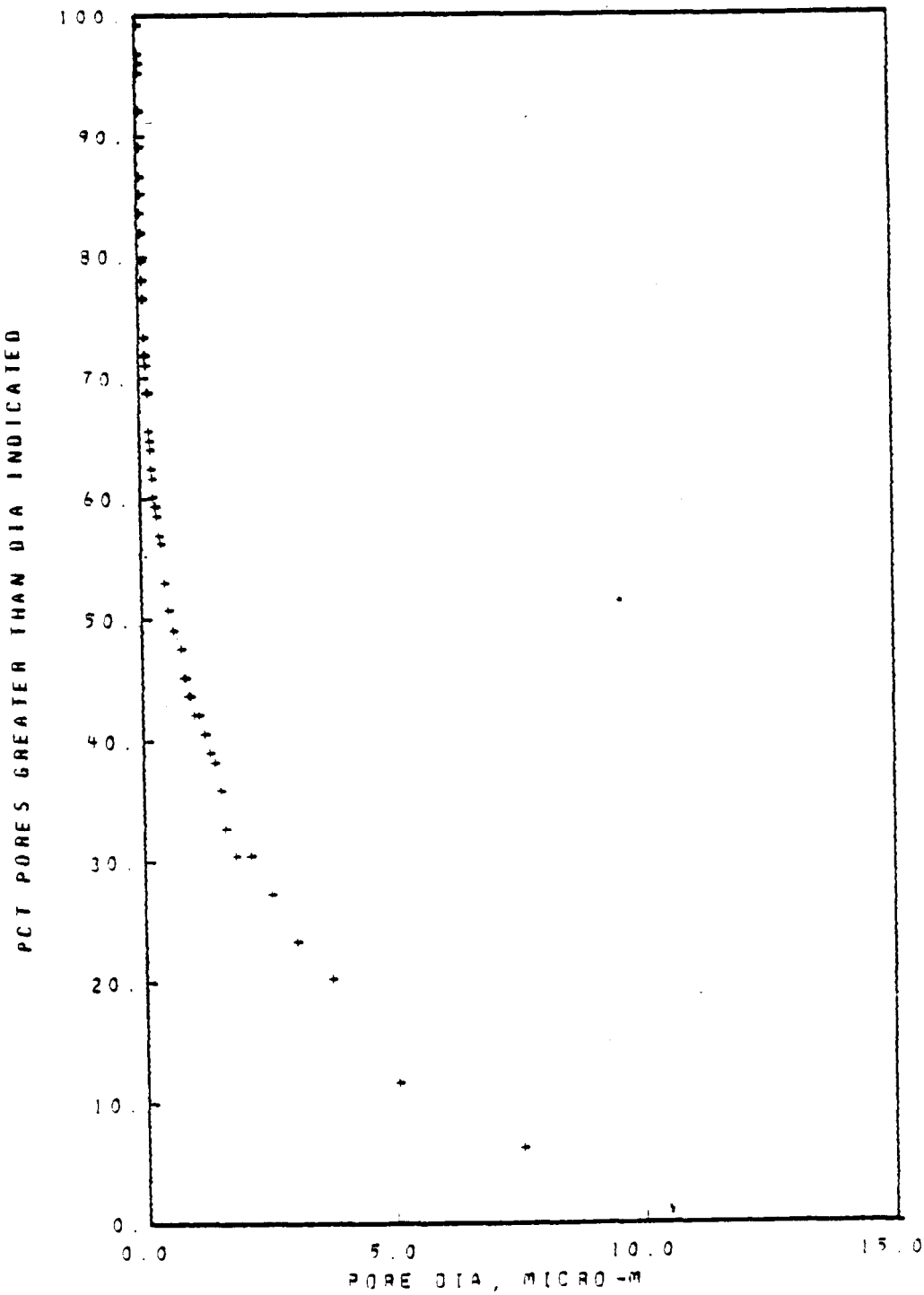
750.
1000.
ABSOLUTE PRESSURE, PSI

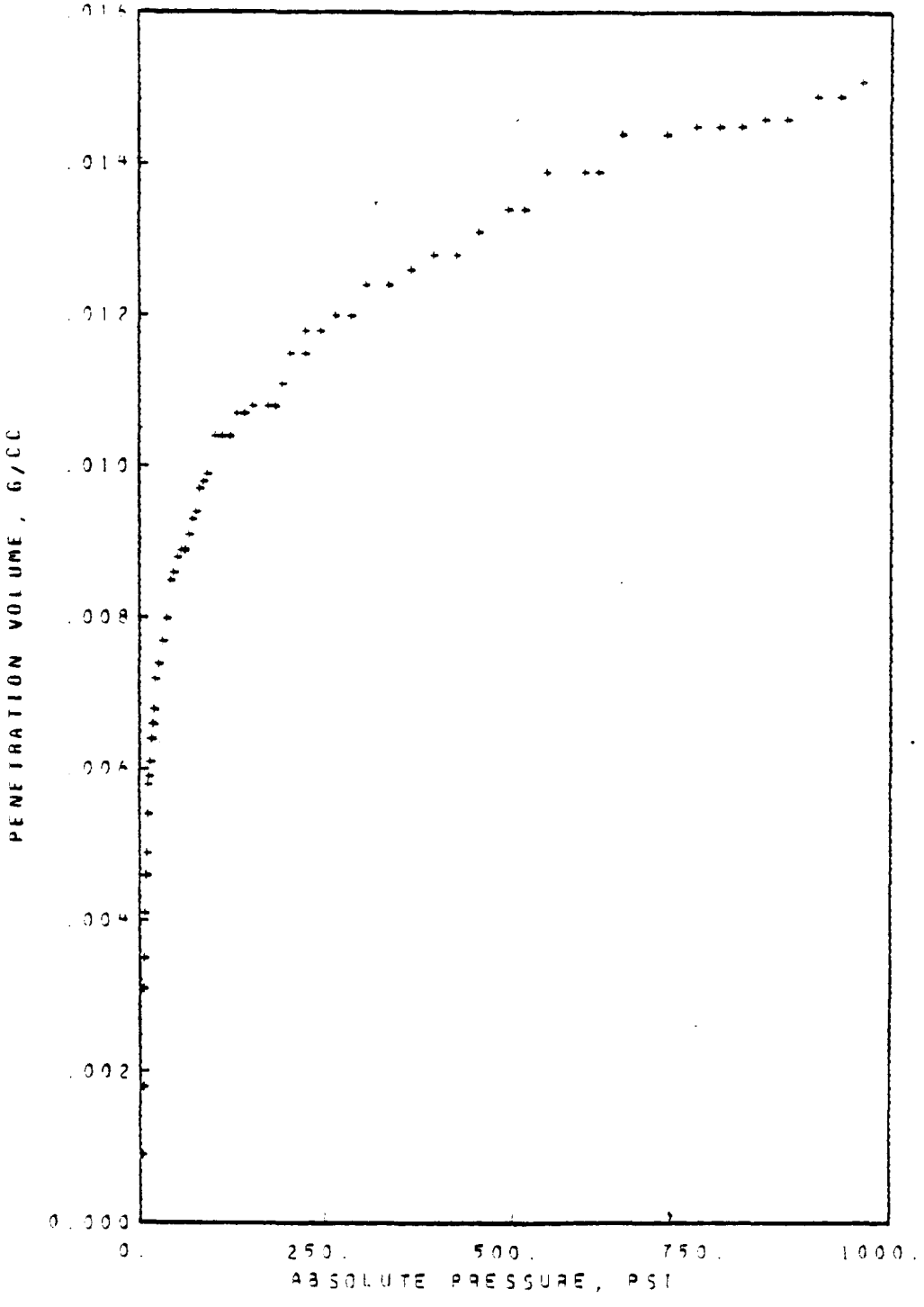
R109-3644A

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3665

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3665

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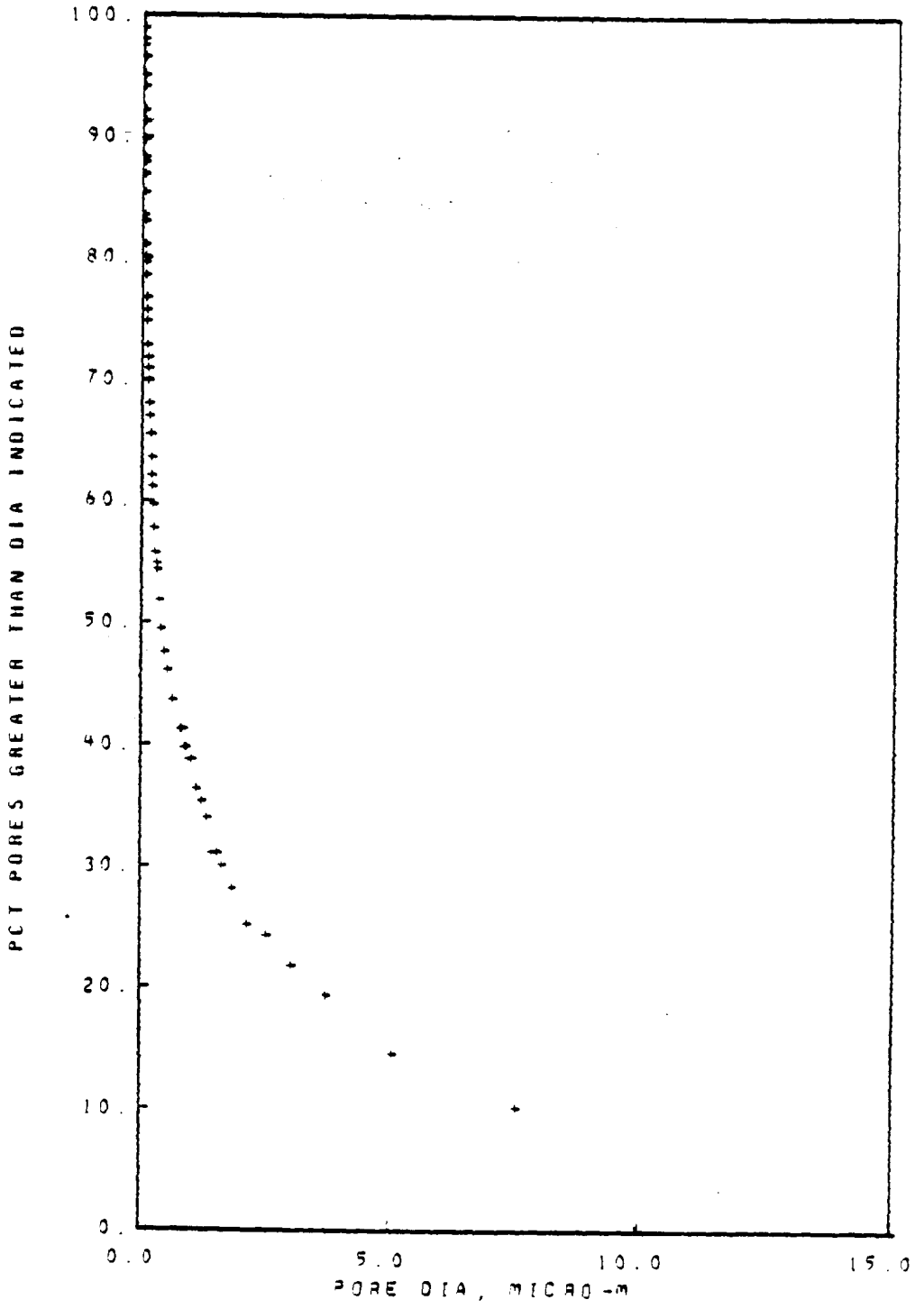
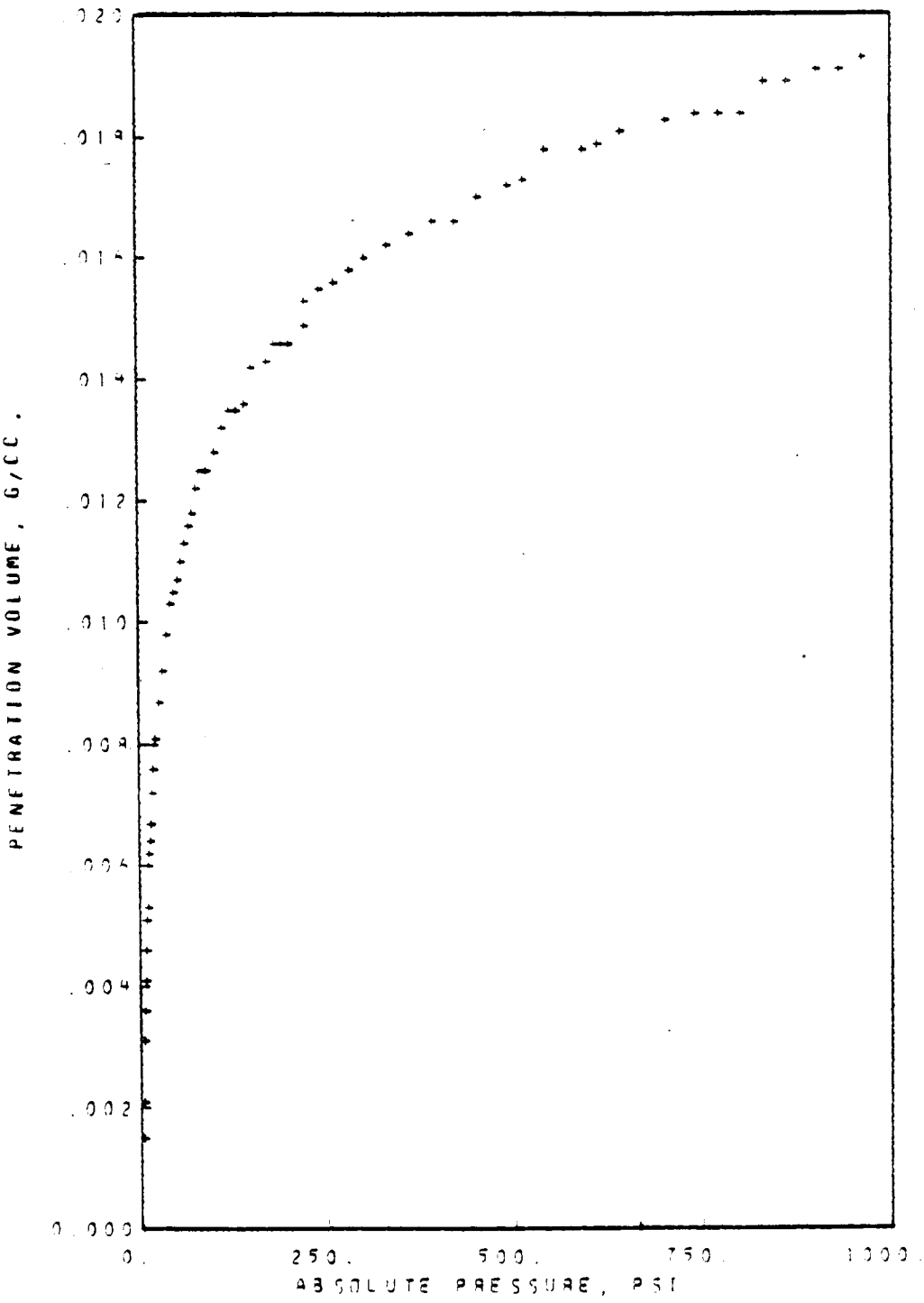
Battelle Columbus Labs.
June 20, 1979

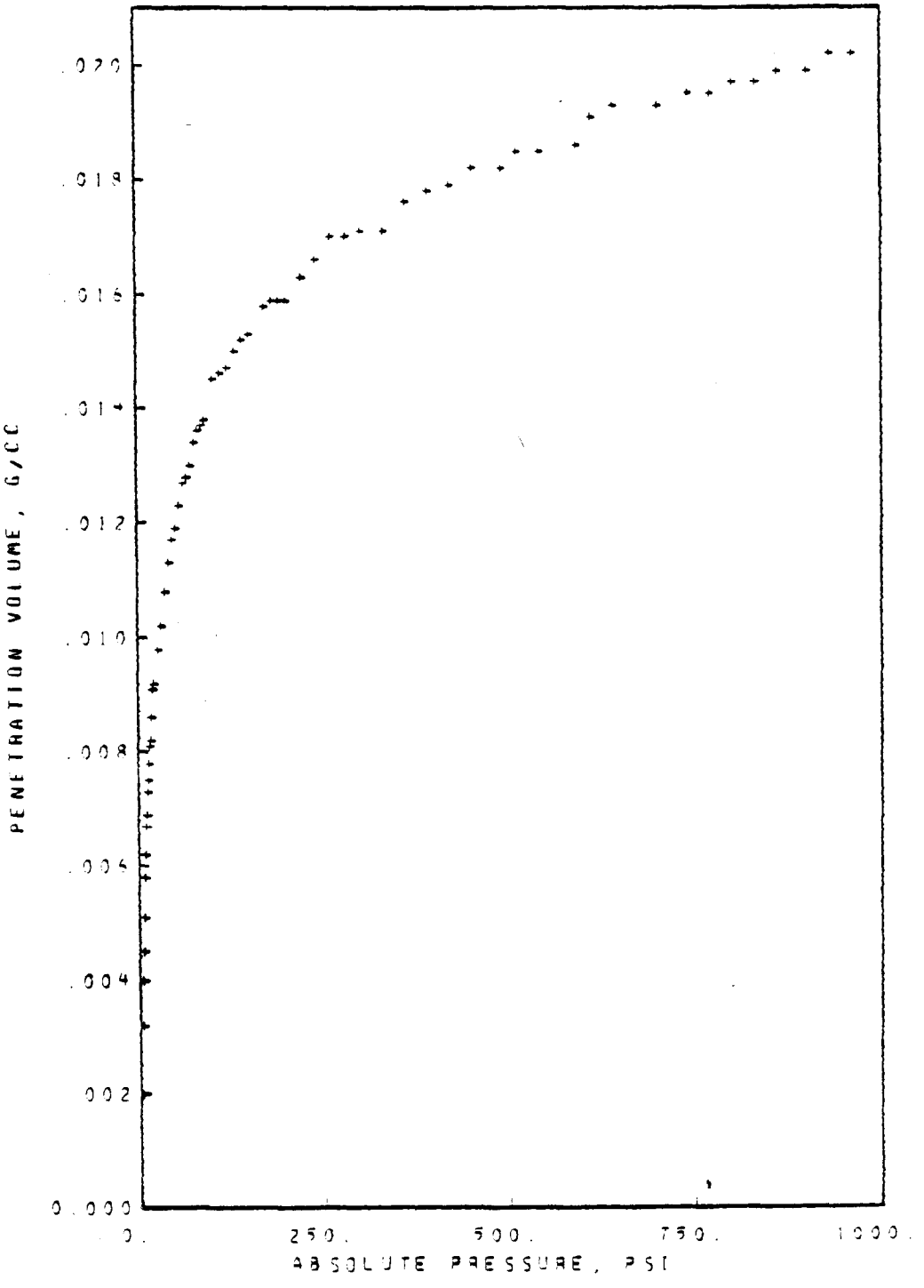



R109-3675

Battelle Columbus Labs.
June 20, 1979




R109-3695


.020
.018
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.014
.012
.010
.008
.006
.004
.002
0.000
PENETRATION VOLUME, G/CC
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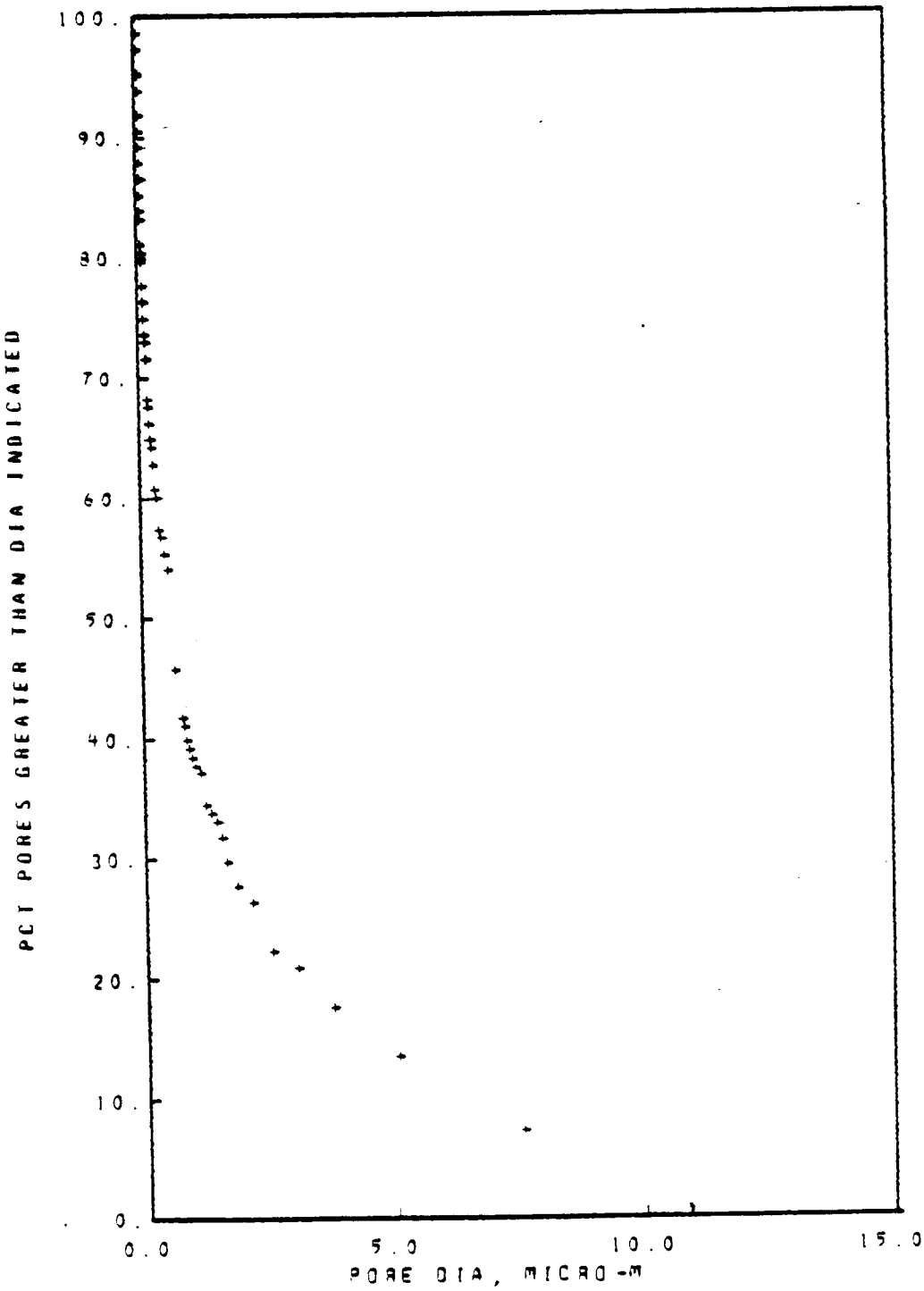
750.
1000.
ABSOLUTE PRESSURE, PSI

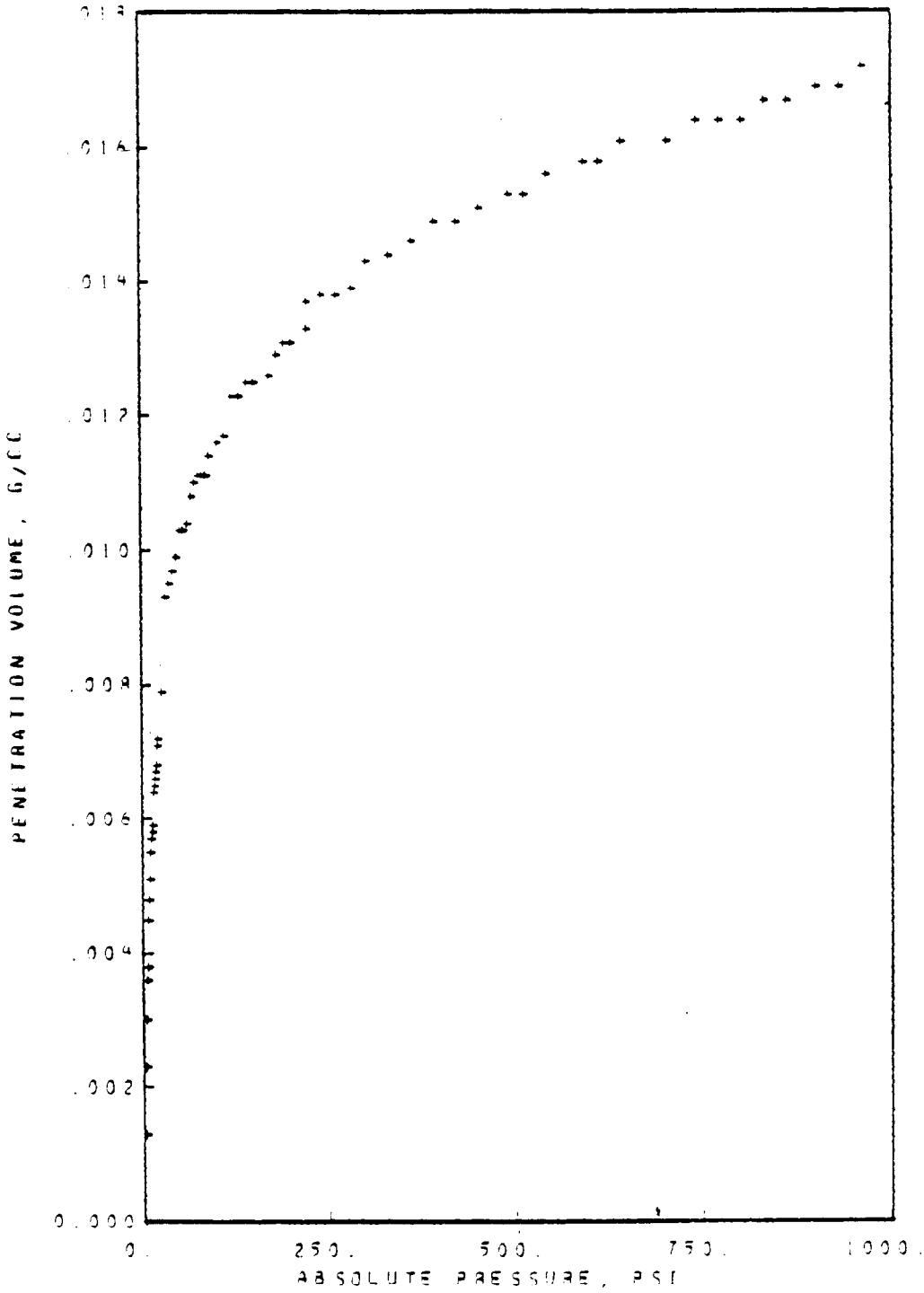
R109-3705

124

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3685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0.000
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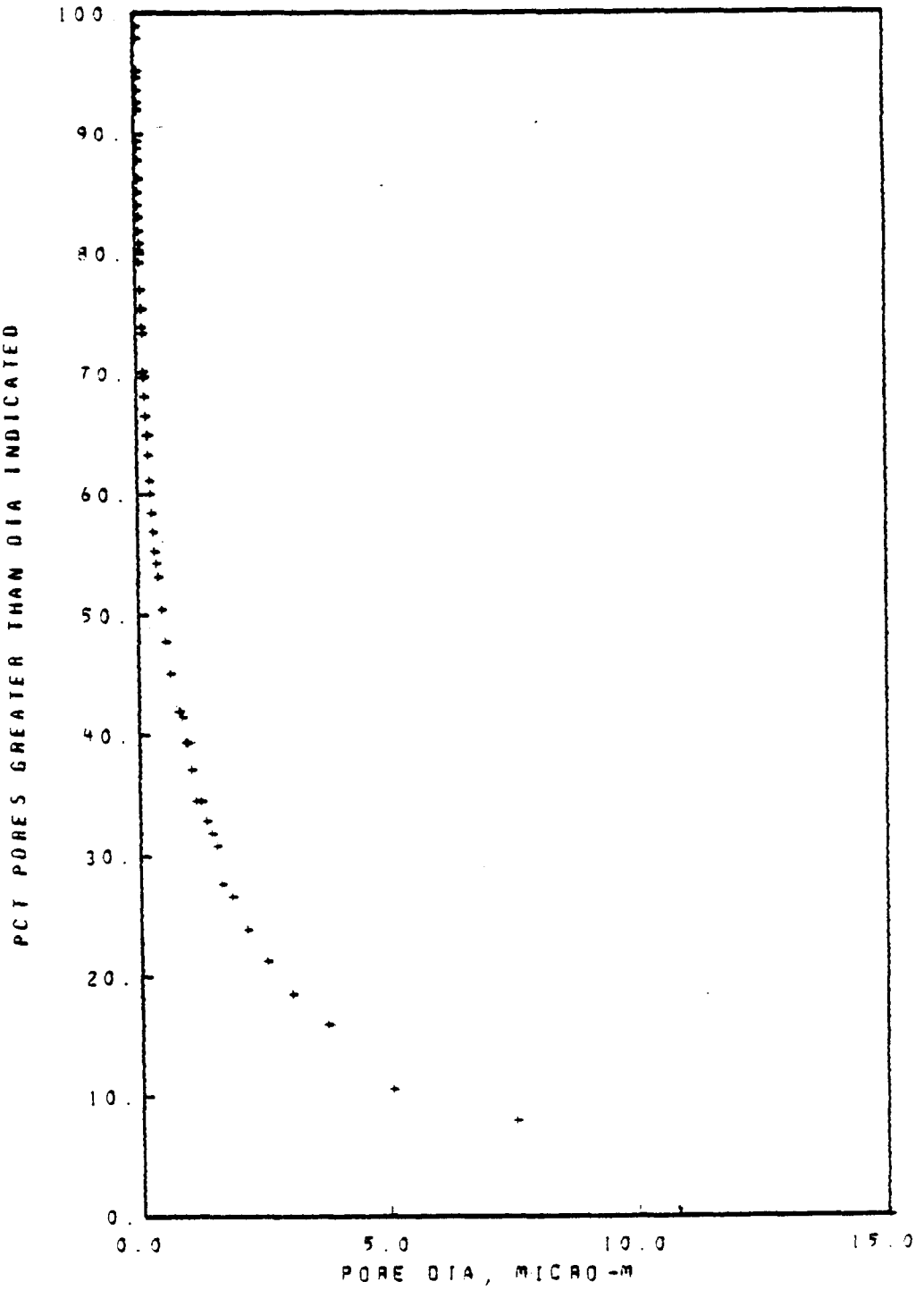
750.
1000.
ABSOLUTE PRESSURE, PSI

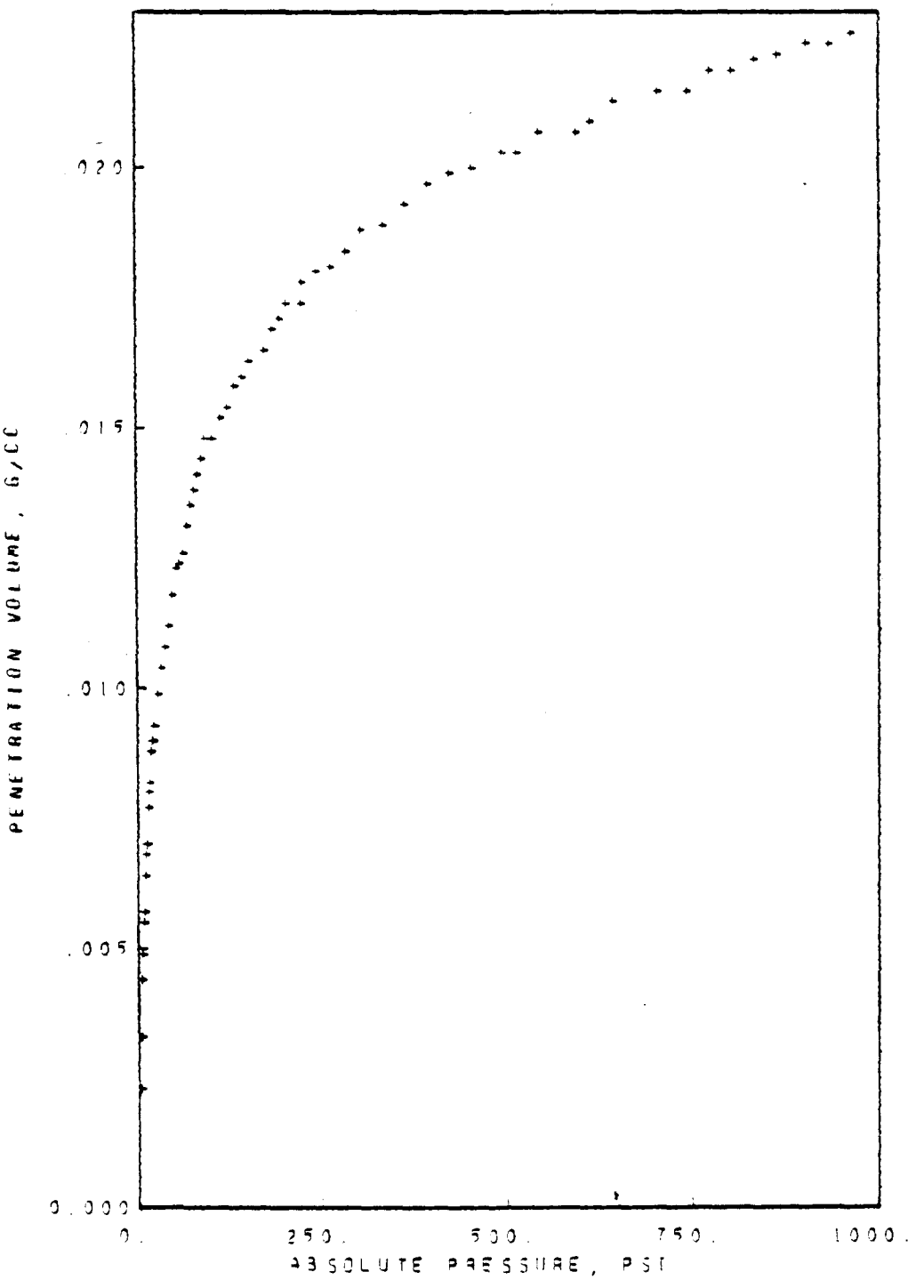
R109-3685

126

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3695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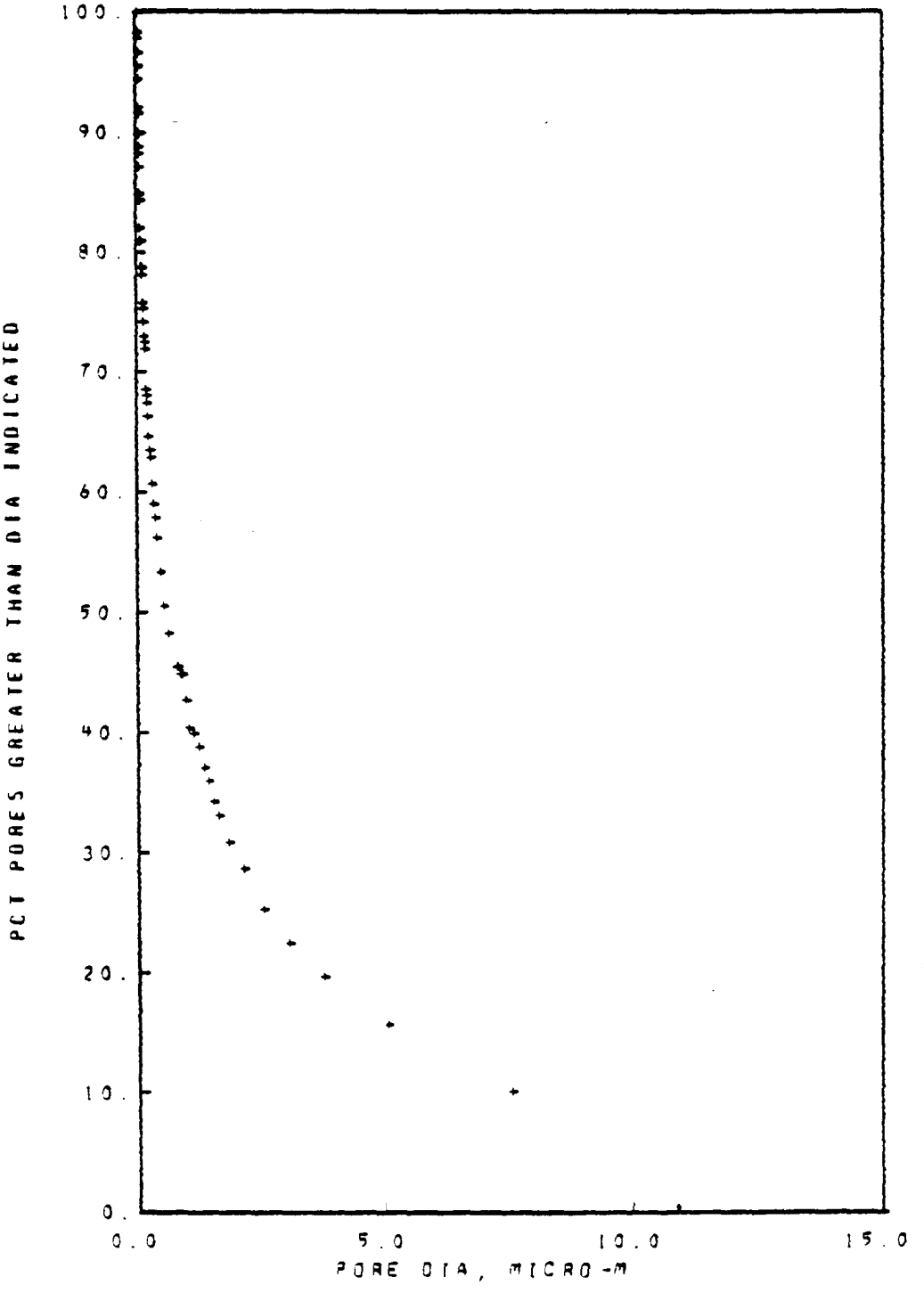
750.
1000.
ABSOLUTE PRESSURE, PSI

R109-3675

128

UGR File #188
Battelle Columbus Labs.
June 20, 1979




R109-3705