

APPENDIX

II. CARBON AND CARBONATE ANALYSES, LEG 24

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Leg 24 sediments were analyzed for total carbon and acid-insoluble (organic) carbon using a LECO 70 Second Analyzer. The 3-cc sediment samples were first dried at 105°-110°C and then ground to a homogeneous powder. The ground sediment was redried and two samples, a 0.1-g and a 0.5-g sample, were then weighed into LECO clay crucibles. The 0.5-g sample was acidified with diluted hydrochloric acid and washed with distilled water. The sample was then dried and analyzed for acid-insoluble carbon, listed in the table as "organic" carbon. The 0.1-g sample was analyzed for total carbon without further treatment. If the result showed less than 10% CaCO₃, an additional 0.5-g sample was analyzed for greater accuracy. The calcium carbon percentages were calculated as follows: (% Total C-% Organic C) × 8.33 = % CaCO₃. Although other carbonates may be present, all acid-soluble carbon was calculated as calcium carbonate. All results are given in weight percent.

Detailed descriptions of the technique and theory may be found in Bader, Gerard, et al. (1970) and Boyce and Bode (1972).

For control purposes several standard sediments were made up from Deep Sea Drilling material and analyzed for total carbon at predetermined intervals with the regular samples. Listed below is the statistical data for these standards.

| DSDP Std. | No. of Samples | Total Carbon as %CaCO ₃ | Standard Deviation (%) | Maximum Range (%) |
|-----------|----------------|------------------------------------|------------------------|-------------------|
| 2 | 74 | 80.1 | ±0.6 | 3.6 |
| 3 | 5 | 3.9 | ±0.1 | 0.3 |
| 4 | 45 | 43.1 | ±0.6 | 3.0 |
| Total | 124 | | | |

These data indicate the precision of the mechanical aspect of the LECO analysis and do not necessarily reflect the precision of the total analytical procedure, which may be affected by factors such as sampling techniques and contamination during sampling and sample preparation.

REFERENCES

- Bader, R. G., Gerard, R. D., et al., 1970. Initial Reports of the Deep Sea Drilling Project, Volume 4: Washington (U. S. Government Printing Office).
- Boyce, R. E. and Bode, G. W., 1972. Carbon and carbonate analyses, Leg 9, Deep Sea Drilling Project. In Hays, J. D. et al., Initial Reports of the Deep Sea Drilling Project, Volume 9: Washington (U. S. Government Printing Office), p. 747.

TABLE 1
Carbon-Carbonate Results, DSDP, Leg 24

| Sample (Interval in cm) | Subbottom Depth (m) | Total Carbon (%) | Organic Carbon (%) | CaCO ₃ (%) |
|-------------------------|---------------------|------------------|--------------------|-----------------------|
| Hole 231 | | | | |
| 2-2, 72 | 2.7 | 6.8 | 0.7 | 51 |
| 31-4, 0 | 277.5 | 8.3 | 0.9 | 62 |
| 61-6, 81 | 565.3 | 4.3 | 0.3 | 33 |
| Hole 232 | | | | |
| 1-1, 89 | 0.9 | 8.8 | 1.3 | 62 |
| 4-5, 90 | 28.4 | 4.9 | 0.7 | 35 |
| 5-6, 68 | 39.2 | 6.8 | 0.7 | 50 |
| 5-6, 88 | 39.4 | 4.1 | 0.4 | 31 |
| 13-1, 61 | 107.6 | 3.3 | 0.6 | 22 |
| 18-3, 65 | 158.2 | 6.3 | 0.8 | 46 |
| Hole 232A | | | | |
| 1-4, 35 | 163.9 | 0.8 | 0.2 | 5 |
| 7-2, 112 | 218.6 | 2.6 | 0.3 | 19 |
| 9-5, 123 | 242.2 | 4.5 | 1.1 | 28 |
| 14-1, 110 | 283.6 | 2.5 | 1.0 | 13 |
| Site 233 | | | | |
| 2-4, 74 | 10.2 | 8.8 | 0.9 | 66 |
| 5-5, 95 | 40.5 | 7.4 | 1.5 | 49 |
| 5-5, 119 | 40.7 | 6.1 | 0.8 | 44 |
| 8-4, 129 | 67.8 | 7.3 | 2.2 | 43 |
| 11-4, 90 | 95.9 | 6.5 | 1.4 | 42 |
| 16-4, 38 | 142.9 | 8.1 | 2.8 | 44 |
| Site 234 | | | | |
| 1-2, 88 | 2.4 | 5.7 | 0.3 | 45 |
| 6-6, 140 | 84.9 | 0.4 | 0.1 | 2 |
| 9-1, 119 | 153.2 | 3.5 | 0.2 | 28 |
| 10-4, 17 | 166.2 | 1.1 | 0.2 | 7 |
| 15-3, 42 | 240.9 | 0.2 | 0.2 | 0 |
| Site 235 | | | | |
| 1-2, 97 | 2.5 | 7.2 | 0.6 | 55 |
| 4-3, 28 | 31.8 | 6.8 | 0.7 | 51 |
| 5-3, 60 | 70.1 | 11.0 | 0.2 | 90 |
| 5-6, 78 | 74.8 | 7.3 | 0.3 | 59 |
| 5-6, 89 | 74.9 | 1.7 | 0.6 | 8 |
| 5-6, 110 | 75.1 | 7.0 | 0.7 | 53 |
| 10-2, 112 | 221.1 | 0.9 | 0.7 | 2 |
| 10-2, 116 | 221.2 | 5.8 | 0.4 | 44 |
| 11-3, 25 | 269.3 | 10.0 | 0.3 | 81 |
| 11-3, 40 | 269.4 | 0.5 | 0.3 | 2 |
| 11-3, 84 | 269.8 | 6.8 | 0.3 | 54 |
| Site 236 | | | | |
| 3-2, 65 | 18.2 | 9.5 | 0.1 | 78 |
| 3-2, 128 | 18.8 | 6.0 | 0.1 | 49 |
| 5-3, 41 | 38.4 | 9.8 | 0.1 | 81 |
| 5-3, 71 | 38.7 | 11.3 | 0.1 | 94 |
| 5-6, 115 | 43.7 | 10.7 | 0.1 | 88 |

TABLE 1—Continued

| Sample (Interval in cm) | Subbottom Depth (m) | Total Carbon (%) | Organic Carbon (%) | CaCO ₃ (%) |
|----------------------------|---------------------------|------------------------|--------------------------|--------------------------|
| 6-2, 105 | 47.1 | 6.7 | 0.1 | 55 |
| 8-3, 87 | 67.4 | 2.9 | 0.1 | 23 |
| 9-3, 110 | 77.1 | 11.0 | 0.1 | 90 |
| 12-6, 39 | 109.4 | 11.2 | 0.1 | 92 |
| 12-6, 92 | 109.9 | 4.4 | 0.2 | 35 |
| 15-4, 92 | 135.4 | 5.1 | 0.1 | 41 |
| 16-5, 81 | 146.3 | 0.2 | 0.1 | 0 |
| 19-2, 85 | 170.4 | 0.1 | 0.1 | 0 |
| 20-5, 109 | 184.6 | 9.8 | 0.1 | 81 |
| 22-4, 89 | 201.9 | 10.3 | 0.0 | 86 |
| 25-4, 60 | 230.1 | 11.4 | 0.0 | 95 |
| 29-1, 140 | 264.4 | 9.6 | 0.0 | 80 |
| Site 238 | | | | |
| 1-4, 81 | 5.3 | 11.0 | 0.0 | 91 |
| 3-3, 99 | 23.0 | 11.0 | 0.0 | 91 |
| 5-4, 102 | 43.5 | 11.1 | 0.0 | 92 |
| 7-2, 111 | 56.1 | 11.3 | 0.0 | 94 |
| 7-2, 118 | 56.2 | 11.2 | 0.0 | 93 |
| 7-5, 12 | 59.6 | 11.1 | 0.0 | 92 |
| 10-4, 84 | 87.3 | 11.2 | 0.1 | 93 |
| 11-3, 101 | 95.5 | 10.3 | 0.0 | 86 |
| 13-3, 100 | 114.5 | 10.5 | 0.0 | 87 |
| 14-2, 76 | 122.3 | 11.7 | 0.0 | 97 |
| 14-4, 88 | 125.4 | 11.7 | 0.0 | 97 |
| 15-5, 72 | 136.2 | 11.3 | 0.0 | 94 |
| 16-5, 25 | 145.3 | 11.4 | 0.0 | 94 |
| 16-5, 100 | 146.0 | 11.6 | 0.0 | 96 |
| 38-5, 102 | 355.0 | 11.3 | 0.0 | 94 |
| 39-5, 98 | 364.5 | 11.1 | 0.4 | 89 |
| 42-2, 96 | 388.5 | 10.8 | 0.1 | 90 |
| 49-2, 97 | 455.0 | 11.2 | 0.1 | 92 |
| 51-2, 13 | 473;1 | 11.3 | 0.1 | 93 |
| 51-4, 70 | 476.7 | 7.6 | 0.1 | 63 |
| 52-1, 59 | 481.6 | 10.8 | 0.1 | 89 |
| 52.3, 2 | 484.0 | 0.2 | 0.1 | 1 |
| 52-3, 13 | 484.1 | 8.9 | 0.1 | 73 |
| 53-2, 6 | 492.1 | 8.3 | 0.1 | 69 |
| 53-4, 67 | 495.7 | 9.8 | 0.1 | 81 |
| 54-1, 23 | 500.2 | 11.0 | 0.1 | 90 |