



United States Geological Survey

Certificate of Analysis

Dunite, DTS-1

DTS-1 is a reference material which can be used to establish analytical accuracy in the analysis of ultramafic rocks composed primarily of the mineral olivine. Material for the standard was collected from the Twin Sisters area of Washington state (Flanagan, 1967, 1972).

Element concentrations were determined by cooperating laboratories using a variety of analytical methods. Certificate values are based primarily on international data compilations (Abbey, 1983, Gladney, et al., 1987, Govindaraju, 1994). USGS reports (Flanagan, 1967, 1972) provide background information on this material.

Recommended values

| Oxide | Wt % | ± | Oxide | Wt % | ± |
|----------------------------------|-------|------|-------------------------------|--------|--------|
| SiO ₂ | 40.41 | 0.47 | MnO | 0.12 | 0.01 |
| Fe ₂ O ₃ | 1.03 | 0.36 | MgO | 49.59 | 0.33 |
| FeO | 6.97 | 0.26 | CaO | 0.17 | 0.03 |
| Fe ₂ O ₃ T | 8.68 | 0.24 | | | |
| Element | µg/g | ± | Element | µg/g | ± |
| C _{tot} | 220 | 80 | Ni | 2360 | 170 |
| Ce | 0.07 | 0.02 | Sc | 3.5 | 0.3 |
| Co | 140 | 15 | Th | 0.01 | 0.001 |
| Cr | 3990 | 300 | U | 0.0036 | 0.0004 |
| Li | 2.1 | 0.12 | | | |
| Oxide | Wt % | | Oxide | Wt % | |
| Al ₂ O ₃ | 0.19 | | Na ₂ O | 0.01 | |
| K ₂ O | 0.001 | | P ₂ O ₅ | 0.002 | |
| | | | TiO ₂ | 0.005 | |
| Element | µg/g | | Element | µg/g | |
| As | 0.034 | | S _{tot} | 12 | |
| Ba | 1.7 | | Sb | 0.5 | |
| Cd | 0.01 | | Sn | 0.55 | |
| Cl | 11 | | Sr | 0.32 | |
| Cu | 7.1 | | V | 11 | |
| F | 13 | | Zn | 46 | |
| Pb | 12 | | | | |

Denver, Colorado
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Bibliography

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Govindaraju, K., 1994, 1994 Compilation of Working Values and Descriptions for 383 Geostandards, Geostandards Newsletter, 18:1-158

Ragland, P.C., Rogers, J.J.W., and Justus, P.S., 1068, Origin and differentiation of Triassic dolerite magmas, North Carolina, USA: Contributions to Mineralogy and Petrology, v. 20, no. 1, p. 57-80

Glossary

| | |
|----------------------------------|---|
| Fe ₂ O ₃ T | Total iron concentration expressed as Fe ₂ O ₃ |
| S _{tot} | Total sulfur concentration |
| Wt % | Percent of total element concentration |
| μg/g | Total element concentration expressed as micrograms of element per gram of solid sample |
| ± | One standard deviation |

Notes

Unless otherwise indicated, total element concentrations are reported for material on an as-received basis.

Ordering Information

This reference material is no longer available.

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URL: http://minerals.cr.usgs.gov/geo_chem_stand/dunite.pdf