*Table S1. BIF-standards used for the determination of REEs*

|  |  |  |  |
| --- | --- | --- | --- |
| REE(ppm) | Preparation + Analysis (ICP-MS) | TUB average value | Reference value |
| TUB 1 | TUB 2 | TUB 3 | TUB 4 | n = 4  | GSP2; BM |
| La | 11.0 | 12.0 | 8.2 | 7.0 | 9.55 | 12.0 |
| Ce | 24.0 | 25.0 | 23.0 | 24.0 | 24.0 | 25.0 |
| Pr | 2.7 | 2.8 | 3.1 | 3.0 | 2.9 | 3.0 |
| Nd | 11.0 | 11.0 | 10.0 | 11.0 | 10.75 | 12.0 |
| Sm | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| Eu | 1.3 | 1.4 | 1.2 | 1.3 | 1.3 | 1.25 |
| Gd | 2.1 | 2.2 | 2.0 | 2.2 | 2.12 | 2.0 |
| Tb | 0.38 | 0.36 | 0.37 | 0.38 | 0.37 | 0.4 |
| Dy | 2.1 | 2.2 | 2.1 | 2.0 | 2.1 | 2.0 |
| Ho | 0.5 | 0.4 | 0.4 | 0.5 | 0.45 | 0.6 |
| Er | 1.2 | 1.6 | 1.2 | 1.1 | 1.27 | 1.5 |
| Tm | 0.36 | 0.35 | 0.34 | 0.35 | 0.35 | 0.3 |
| Yb | 1.3 | 1.3 | 1.2 | 1.1 | 1.22 | 1.25 |
| Lu | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |

The La, Ce, Eu and Pr anomalies are calculated according to Bau and Dulski (1996) and Bolhar et al. (2004).

(La/La\*)SN = (La)SN/(3PrSN-2NdSN); (Ce/Ce\*)SN = CeSN/(0.5LaSN + 0.5PrSN);

(Eu/Eu\*)SN = (Eu)SN/(0.67SmSN+0.33TbSN); (Pr/Pr\*)SN = PrSN/(0.5CeSN+ 0.5NdSN).