

**Tab. S2** Approximate coefficients for log-ratios of combined major and trace element-based DF1 and DF2 equations for the set of five diagrams for intermediate magmas proposed by Verma and Verma (2013) and acid magmas by Verma et al. (2013)

| Equation characteristics<br>DFn <sub>(TF1-TF2-TF3)figt</sub> | Equation<br>Number<br>(B) | Approximate coefficient values obtained from LDA |                |                |                |                |                |                |                |
|--------------------------------------------------------------|---------------------------|--------------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                                                              |                           | C <sub>1</sub>                                   | C <sub>2</sub> | C <sub>3</sub> | C <sub>4</sub> | C <sub>5</sub> | C <sub>6</sub> | C <sub>7</sub> | C <sub>C</sub> |
| DF1 <sub>(IA+CA-CR+OI-Col)mtint</sub>                        | (31)                      | 1.023                                            | 0.631          | -0.939         | -0.415         | 1.677          | 0.454          | 0.583          | 1.901          |
| DF2 <sub>(IA+CA-CR+OI-Col)mtint</sub>                        | (32)                      | 0.249                                            | -0.477         | -0.336         | -0.131         | -1.712         | 0.214          | -2.008         | -18.638        |
| DF1 <sub>(IA-CA-CR+OI)mtint</sub>                            | (33)                      | 0.875                                            | 0.428          | -0.686         | -0.372         | 1.924          | 0.835          | 0.843          | 8.228          |
| DF2 <sub>(IA-CA-CR+OI)mtint</sub>                            | (34)                      | -1.172                                           | -2.651         | 0.176          | 0.118          | -0.185         | 1.921          | 0.387          | 12.452         |
| DF1 <sub>(IA-CA-Col)mtint</sub>                              | (35)                      | -0.801                                           | 0.125          | 0.908          | 0.320          | -0.368         | -0.641         | 0.723          | 8.109          |
| DF2 <sub>(IA-CA-Col)mtint</sub>                              | (36)                      | 1.317                                            | 2.200          | -0.124         | -0.134         | -0.872         | -1.783         | -1.365         | -20.630        |
| DF1 <sub>(IA-CR+OI-Col)mtint</sub>                           | (37)                      | -0.856                                           | -0.301         | 0.862          | 0.385          | -1.583         | -0.757         | -0.692         | -4.469         |
| DF2 <sub>(IA-CR+OI-Col)mtint</sub>                           | (38)                      | 0.215                                            | -0.504         | -0.323         | -0.122         | -1.710         | 0.426          | -1.981         | -17.041        |
| DF1 <sub>(CA-CR+OI-Col)mtint</sub>                           | (39)                      | -1.256                                           | -1.082         | 1.438          | 0.545          | -1.620         | 0.337          | -1.714         | 5.752          |
| DF2 <sub>(CA-CR+OI-Col)mtint</sub>                           | (40)                      | -0.024                                           | -0.054         | -0.861         | -0.174         | -1.641         | 0.069          | -1.772         | -21.028        |
| DF1 <sub>(IA+CA-CR+OI-Col)mtacid</sub>                       | (41)                      | -0.091                                           | -0.228         | 0.729          | —              | —              | -0.237         | 0.577          | 4.704          |
| DF2 <sub>(IA+CA-CR+OI-Col)mtacid</sub>                       | (42)                      | -0.268                                           | -1.253         | -0.476         | —              | —              | 0.209          | -0.082         | -3.709         |
| DF1 <sub>(IA-CA-CR+OI)mtacid</sub>                           | (43)                      | -0.018                                           | -0.025         | 1.060          | —              | —              | -0.530         | 0.301          | 4.701          |
| DF2 <sub>(IA-CA-CR+OI)mtacid</sub>                           | (44)                      | -0.197                                           | 0.118          | -0.724         | —              | —              | 1.099          | 0.742          | 3.702          |
| DF1 <sub>(IA-CA-Col)mtacid</sub>                             | (45)                      | 0                                                | 0.248          | 1.183          | —              | —              | -0.861         | 0.136          | 3.988          |
| DF2 <sub>(IA-CA-Col)mtacid</sub>                             | (46)                      | 0                                                | 1.129          | -0.382         | —              | —              | 1.126          | 0.682          | 7.274          |
| DF1 <sub>(IA-CR+OI-Col)mtacid</sub>                          | (47)                      | 0.095                                            | -0.079         | 1.104          | —              | —              | -0.900         | 0.333          | 2.771          |
| DF2 <sub>(IA-CR+OI-Col)mtacid</sub>                          | (48)                      | -0.298                                           | -0.998         | -0.279         | —              | —              | 0.339          | 0.171          | -0.805         |
| DF1 <sub>(CA-CR+OI-Col)mtacid</sub>                          | (49)                      | -0.081                                           | -0.432         | 0.444          | —              | —              | -0.131         | 0.824          | 3.726          |
| DF2 <sub>(CA-CR+OI-Col)mtacid</sub>                          | (50)                      | -0.341                                           | -1.110         | -0.754         | —              | —              | 0.271          | -0.377         | -5.425         |