

| Site                             | Item              | Mg   | Al   | Si   | P    | S    | Cl   | K    | Ca    | Ti   | V  | Cr | Mn   | Fe   | Ni    | Cu    | Zn    | Rb    | Sr    | Zr    |
|----------------------------------|-------------------|------|------|------|------|------|------|------|-------|------|----|----|------|------|-------|-------|-------|-------|-------|-------|
| Casa da Moura                    | CMR-436           | ND   | 2.02 | 2.80 | 0.44 | 0.18 | 0.73 | ND   | 55.98 | 0.06 | ND | ND | ND   | 0.35 | ND    | 0.006 | 0.006 | ND    | 0.002 | ND    |
| Leceia                           | LC-93-TA-C3       | ND   | 1.11 | 1.56 | 0.18 | 0.29 | 0.79 | ND   | 59.28 | 0.07 | ND | ND | ND   | 0.25 | ND    | 0.003 | 0.003 | 0.003 | 0.003 | ND    |
| Vila Nova de São Pedro           | ARQ-VNSP-964-0046 | ND   | 1.51 | 1.66 | 0.35 | 0.18 | 1.20 | ND   | 58.15 | 0.09 | ND | ND | ND   | 0.10 | ND    | ND    | 0.003 | ND    | 0.197 | ND    |
| Lapa do Bugio                    | LB-0011-3         | ND   | 1.27 | 1.14 | 0.17 | 0.41 | 0.46 | 0.00 | 59.85 | 0.03 | ND | ND | ND   | 0.26 | ND    | ND    | 0.005 | ND    | ND    | 0.004 |
|                                  | LB-0011-4         | ND   | 1.27 | 1.14 | 0.17 | 0.41 | 0.46 | 0.00 | 59.85 | 0.03 | ND | ND | ND   | 0.26 | ND    | ND    | 0.005 | ND    | ND    | 0.004 |
| São Paulo 2                      | MMA-5743          | ND   | 0.71 | 0.42 | 0.07 | 0.11 | 0.43 | ND   | 62.23 | ND   | ND | ND | ND   | 0.03 | 0.004 | ND    | ND    | 0.002 | 0.002 | ND    |
| Olival da Pega 1                 | 21815A            | 1.87 | 0.86 | 0.90 | 0.13 | 0.17 | 0.70 | ND   | 59.83 | 0.05 | ND | ND | ND   | 0.11 | 0.005 | ND    | 0.003 | 0.003 | ND    | ND    |
|                                  | 21815B            | 1.88 | 1.44 | 1.39 | 0.53 | 0.25 | 0.78 | ND   | 56.65 | 0.09 | ND | ND | ND   | 0.18 | 0.004 | 0.003 | 0.003 | 0.003 | 0.003 | ND    |
| Anta Grande da Comenda da Igreja | AGCI-2011.54.278  | 2.98 | 4.86 | 7.07 | 0.72 | 0.22 | 0.94 | 0.88 | 40.69 | 0.13 | ND | ND | ND   | 0.46 | ND    | ND    | 0.002 | 0.002 | ND    | ND    |
|                                  | AGCI-985.51.617   | 1.90 | 0.71 | 0.63 | 0.09 | 0.16 | 0.66 | ND   | 60.50 | 0.06 | ND | ND | ND   | 0.08 | 0.005 | ND    | 0.003 | 0.003 | 0.005 | ND    |
|                                  | AGCI-985.51.670   | ND   | 1.29 | 1.43 | 0.15 | 0.25 | 0.71 | ND   | 59.41 | 0.04 | ND | ND | ND   | 0.17 | ND    | 0.004 | ND    | 0.003 | 0.004 | ND    |
| Tituaria                         | 998.16.42         | 2.31 | 5.63 | 5.67 | 1.03 | 0.41 | 0.58 | 0.70 | 41.98 | 0.28 | ND | ND | 0.01 | 0.90 | ND    | 0.033 | 0.003 | ND    | 0.002 | ND    |
| Gruta da Marmota                 | MRO/S-25          | ND   | 0.98 | 1.01 | ND   | 0.10 | 1.16 | ND   | 60.37 | 0.02 | ND | ND | ND   | 0.20 | 0.004 | 0.007 | ND    | ND    | ND    | ND    |
|                                  | GTM-T26           | ND   | 2.72 | 2.54 | 0.21 | 0.22 | 0.59 | ND   | 55.72 | 0.07 | ND | ND | ND   | 0.26 | ND    | 0.036 | 0.004 | ND    | 0.003 | ND    |
| Cabeço da Ministra               | 25992-1           | 1.85 | 3.13 | 4.26 | 0.15 | 0.11 | 0.54 | ND   | 48.81 | 0.05 | ND | ND | ND   | 0.24 | ND    | 0.041 | 0.015 | ND    | 0.002 | ND    |
|                                  | 25992-2           | 3.29 | 3.99 | 1.54 | 0.50 | 0.61 | ND   | ND   | 51.49 | 0.06 | ND | ND | ND   | 0.29 | ND    | 0.056 | 0.011 | ND    | 0.003 | ND    |
| El Pozuelo 1                     | IG-313/51         | ND   | 2.11 | 2.54 | 0.22 | 0.27 | 0.54 | 0.55 | 56.12 | 0.07 | ND | ND | ND   | 0.41 | ND    | 0.012 | 0.012 | ND    | 0.004 | ND    |
| El Pozuelo 5                     | P5-1              | 1.97 | 2.32 | 1.88 | 0.32 | 0.31 | 0.94 | ND   | 54.29 | 0.07 | ND | ND | ND   | 0.46 | ND    | 0.023 | 0.006 | ND    | 0.008 | ND    |
| El Pozuelo 7                     | IG-1848           | 1.77 | 2.26 | 1.99 | 0.24 | 0.44 | 0.72 | ND   | 54.65 | 0.06 | ND | ND | ND   | 0.42 | ND    | 0.025 | 0.003 | 0.003 | 0.007 | ND    |
| Gabrieles 6                      | IG-3486/22        | 0.00 | 2.08 | 2.55 | 0.32 | 0.37 | 0.98 | ND   | 55.69 | 0.35 | ND | ND | ND   | 0.37 | 0.004 | 0.009 | 0.007 | 0.002 | ND    | ND    |
| Cueva del Vaquero                | Vaquero-1         | 2.70 | 1.14 | 0.65 | 0.15 | 0.59 | 0.57 | ND   | 57.55 | ND   | ND | ND | ND   | 0.12 | 0.004 | 0.007 | 0.003 | ND    | ND    | ND    |

|                              |                |      |      |      |      |      |      |      |       |      |    |      |    |      |       |       |       |       |       |       |
|------------------------------|----------------|------|------|------|------|------|------|------|-------|------|----|------|----|------|-------|-------|-------|-------|-------|-------|
| Los Millares 12              | Millares 12- 1 | 0.00 | 5.04 | 6.19 | 0.14 | 0.71 | 0.68 | 1.02 | 40.72 | 0.35 | ND | 0.05 | ND | 4.69 | ND    | ND    | 0.006 | 0.010 | 0.010 | 0.007 |
|                              | Millares 12- 2 | 0.00 | 3.74 | 3.66 | 0.27 | 0.56 | 0.82 | 0.64 | 49.78 | 0.17 | ND | 0.55 | ND | 1.33 | 0.032 | ND    | ND    | ND    | 0.010 | ND    |
|                              | Millares 12- 3 | 2.66 | 2.79 | 2.26 | 0.26 | 0.60 | 0.54 | ND   | 52.12 | 0.03 | ND | 0.23 | ND | 0.57 | 0.012 | ND    | ND    | ND    | 0.012 | ND    |
|                              | Millares 12- 4 | 2.79 | 4.35 | 4.76 | 0.34 | 0.92 | 0.89 | 0.65 | 44.87 | 0.06 | ND | 0.13 | ND | 0.55 | 0.007 | ND    | ND    | 0.008 | 0.062 | 0.006 |
| Fuente Álamo T-111           | FA-T111-12     | ND   | 0.75 | 0.23 | 0.08 | 0.12 | 0.65 | ND   | 62.21 | 0.02 | ND | ND   | ND | 0.08 | ND    | ND    | ND    | ND    | ND    | 0.007 |
| Anta Grande do Zambujeiro    | ME-3760        | ND   | 1.11 | 0.99 | 0.36 | 0.24 | 0.75 | ND   | 60.07 | 0.05 | ND | ND   | ND | 0.24 | ND    | ND    | ND    | 0.001 | 0.007 | 0.000 |
| Cau de l'Olivar d'en Margall | 16477-7        | ND   | 1.24 | 1.62 | 0.51 | 0.35 | 1.06 | ND   | 58.38 | 0.04 | ND | 0.03 | ND | 0.35 | ND    | 0.007 | 0.008 | ND    | 0.005 | ND    |
|                              | 16477-17       | ND   | 1.13 | 1.01 | 0.52 | 0.47 | 0.74 | ND   | 59.68 | 0.05 | ND | ND   |    | 0.28 | ND    | 0.011 | 0.004 | ND    | 0.003 | ND    |

Supplementary 2. p-XRF recorded chemical composition of the fluorite beads here studied (element %). ND: Not determined.