A synthesized sphalerite standard for in situ analysis of sulfur isotopes and trace elements by LA-MC-ICP–MS and LA-ICP–MS

Zhi-hui Dai[a], Peng Liao[b], Dengjun Wang[c], Sen Lin[d*], He-ping Li[d], Zhi-an Bao[e], Ke-jun Hou[f], Lie-meng Chen[a], Ting-guang Lan[a] and Can Cui[g]

[a]State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China

[b]State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China

[c]School of Fisheries, Aquaculture and Aquatic Sciences, Auburn University, Auburn, AL 36849, USA

[d]Key Laboratory for High Temperature & High Pressure Study of the Earth's Interior, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang, 550081, China

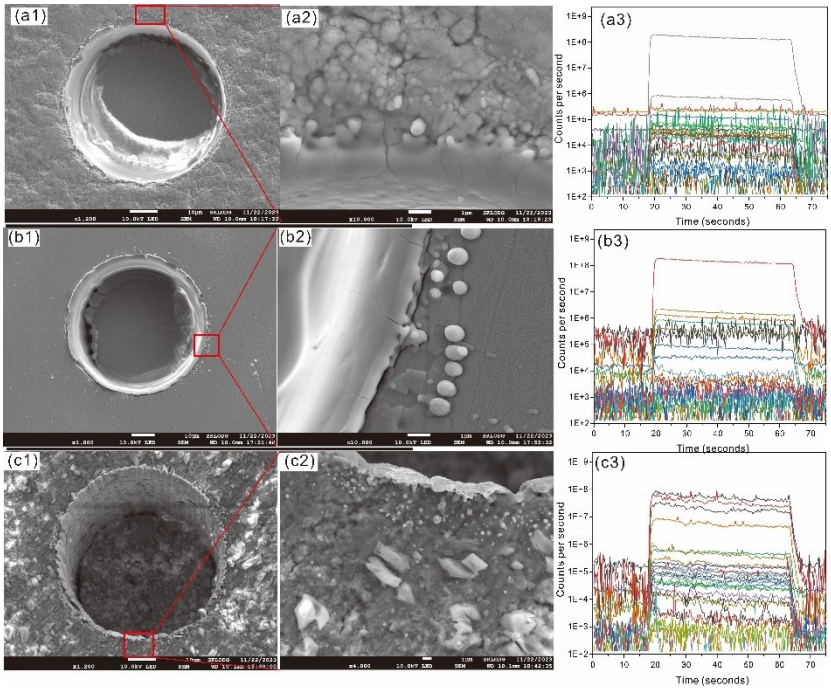
[e]State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China

[f]Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China

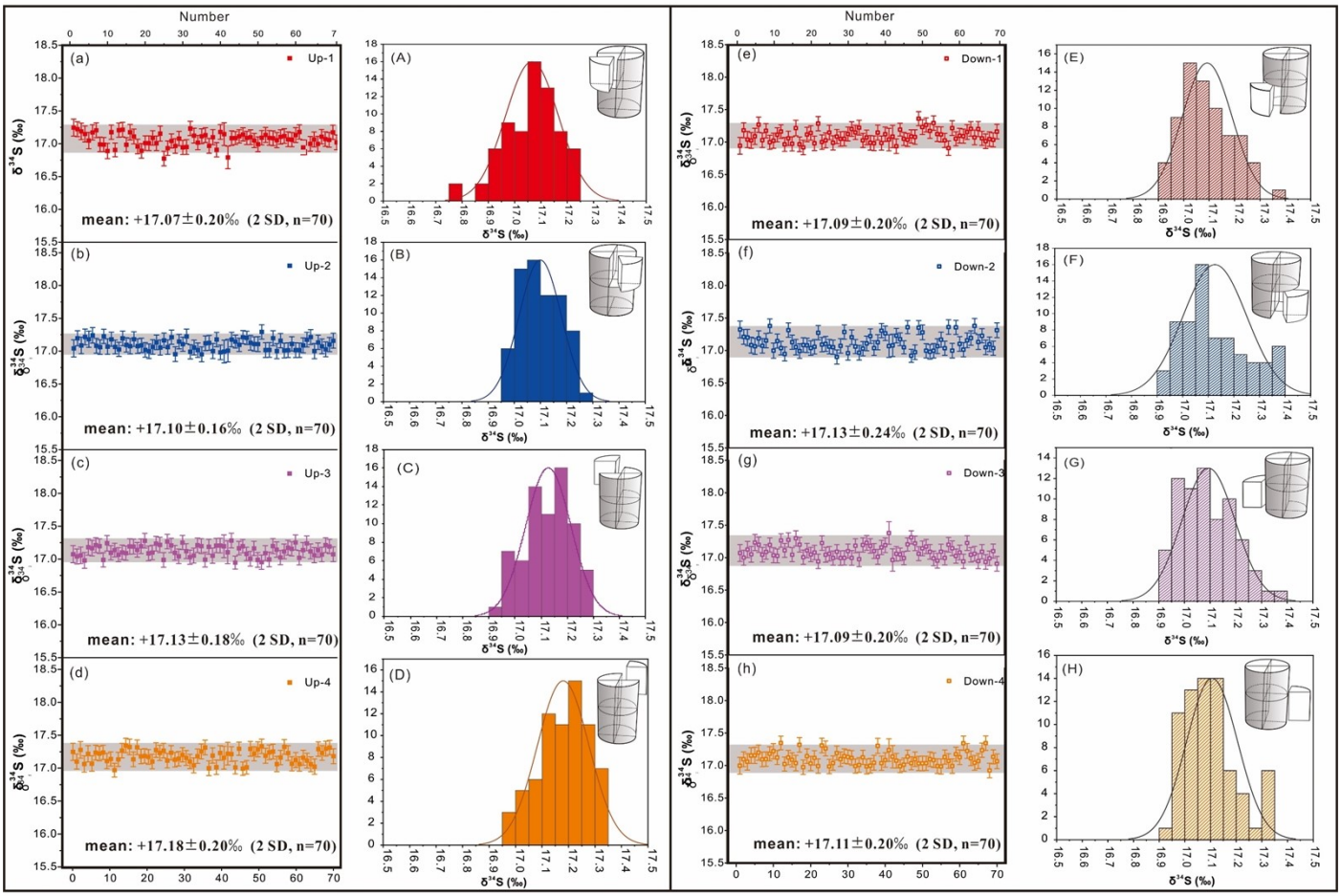
[g]School of Chemical Engineering, Guizhou Minzu University, Guiyang 550025, China

* Corresponding author, email address: linsen@mail.gyig.ac.cn

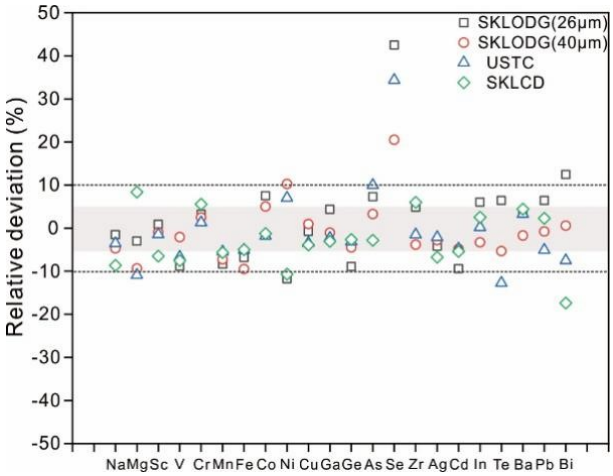
Supplementary Fig. 1. Scanning electron microscope (SEM) images of laser ablation craters on different materials. (a1), (b1) and (c1) are laser ablation craters, (a2), (b2) and (c2) are the detail around the edge of crater, and (a3), (b3) and (c3) are signals of representative elements of Sph-LD (a), NBS123 (b) and MASS-1 (c)



Supplementary Fig. 2. Mean values and histograms of $\delta^{34}S$ values for eight fragments. (a-h) $\delta^{34}S$ values of eight fragments of the ZnS material. Range bars represent 2s. (A-H) Frequency histograms and probability density curves. Inset: schematic diagram of eight fragments.



Supplementary Fig. 3. The relative deviation (%) of the bulk elemental compositions of Sph-LD between LA-ICP–MS and solution ICP–MS. The dotted line represents the RD values as ±10%. The grey area shows the RD value was less than ±5%.



Supplementary Fig. 4. Assessment of homogeneity of Sph-LD based on LA-ICP-MS analyses