

Guide to the Spectral Library

The spectral library is composed of field and laboratory spectra not only of lithium (Li)-minerals (spodumene, petalite, lepidolite) but also from the main outcropping lithologies (granitoid rocks, CXG metasediments, Li-pegmatite) of the Fregeneda-Almendra (Spain-Portugal) pegmatite field. Additionally, to investigate the potential to discriminate Li-minerals and Li-pegmatites from other lithologies, the spectra from areas misclassified as Li-pegmatites using machine learning algorithms (Cardoso-Fernandes, et al 2019) are also provided.

For each spectrum, complementary data are provided, namely:

- the sample location and coordinates (when available),
- degree of alteration of the sample,
- sample color,
- type of face measured,
- equipment used.

For the laboratory spectra, it is also available:

- sample photographs,
- respective continuum removed spectra files,
- details on the main absorption features automatically extracted.

The spectra were organized into categories within each subset according to their application purpose:

- Li – Li-mineral database
- TA – Training areas (main outcropping lithologies)
- SC – Spectral confusion (represents false positive areas)

Part of this spectral database was already the basis for some publications (Cardoso-Fernandes, et al 2020a; 2020b).