M E T A D A T A

Dataset: **EuroPeg_PetroDB_v3.zip**
Version: 3.0

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Creation date: 22.11.2024

Summary
EuroPeg_PetroDB: A petrophysical database of European pegmatite ores and wall rocks. Samples currently comprise LCT- and NYF-type pegmatites and wall rocks from pegmatite locations in Austria, Ireland, Norway, Portugal, and Spain.

Tags   Petrophysics; Geophysical logging; Density; Susceptibility; Remanence; Resistivity; Gamma ray; Database; Pegmatite; LCT; NYF; H2020; GREENPEG; FAIR

Description
A petrophysical database of European pegmatite ores and wall rocks. In the current version, samples include LCT- and NYF-type pegmatites, their wall rocks, and country rocks from pegmatite locations in Austria, Ireland, Norway, Portugal, and Spain. The database contains petrophysical properties derived from laboratory measurements on rock samples and from geophysical borehole logging. The petrophysical sample analysis was carried out at the laboratory of the Geological Survey of Norway (NGU). Borehole logging was carried out by terratec Geophysical Services. A detailed description of the database, its content, the measuring instruments, and uncertainties is found in the NGU Report 2022.017 (Version 1.0) and in Haase & Pohl (2022). The database is a product of the GREENPEG project: New Exploration Tools for European Pegmatite Green-Tech Resources. The project was funded by European Commission's Horizon 2020 innovation programme under grant agreement No 869274 and ended in October 2024. It is planned to extend the database beyond project data and add more samples also from other pegmatite locations. Contact the authors if you would like to contribute with additional data.
For more information on the project, please visit the project website: https://www.greenpeg.eu/

Changes since previous version
The previous version was 2.0, released in November 2022. Version 3.0. is a moderate update. New parameters were added to the database. In addition, more sample data was added to the database in the "Petrophysics logging" tab.

- New information in the "Petrophysics samples" tab, four additional columns
    o "Laboratory" contains information about which laboratory carried out the analysis.
    o "Last update" contains the date of the last update if sample data required correction.
    o "Latitude" and "Longitude" contain geographical coordinates in WGS1984
- New information in the "Petrophysics logging" tab
    o "Latitude" and "Longitude" contain geographical coordinates in WGS1984
    o "Hole casing" containing information if a casing was used and which type (e.g. PVC, sPVC) or if the borehole was open (OH). Borehole logging methods are affected by borehole casings.

Instructions for full access of the content
1) Download the zip-file, 2) extract files, 3) save files before opening the Excel file. Otherwise, the linked database content will not be available.

License

References

Haase, C.; Brönner, M.; Pohl, C.M.; Osinska, M.; Gellein, J. EuroPeg_PetroDB: A petrophysical database of European pegmatite ores and wall rocks, NGU Report 2022.017, Geological Survey of Norway, 2022, 15p.

Haase, C.; Pohl, C.M. Petrophysical Database for European Pegmatite Exploration—EuroPeg. *Minerals* **2022**, 12(12), 1498. https://doi.org/10.3390/min12121498.

Credits

Haase, C., Brönner, M., Pohl, C.M., Osinska, M. and Gellein, J. (2024): EuroPeg_PetroDB: A petrophysical database of European pegmatite ores and wall rocks. (3.0) [Data set]. Zenodo. DOI: 10.5281/zenodo.14203353

Disclaimer

The database content is processed, analysed, and compiled according to best of the author's knowledge. A guarantee for the correctness or accuracy of the data cannot be given and the use and further interpretation of the data is at own risk.

Content of the database in brief

<u>Sheet 1: Petrophysics samples</u>

Field	Description
Lab nr.	Distinct sample ID from laboratory (here: NGU)
Sample ID	Sample ID (e.g., from the project or field campaign)
Location	Origin location of the sample (local scale location) (with drillhole ID)
Area	Origin area of the sample (regional scale location)
Country	Origin country of the sample
Sample type	Core sample or hand specimen
Photo	Link to photograph of the sample incl. scale and ID
Laboratory	Abbreviation of the laboratory that performed the measurements
Reporting date	Date of the laboratory report, or entry into database (yyyy-mm-dd)
Last update	Date of the latest update of the entry (yyyy-mm-dd)
UTM zone	UTM zone
UTM X	x-coordinate in UTM (Easting)
UTM Y	y-coordinate in UTM (Northing)
Longitude	x-coordinate (longitude) in geographical coordinates (WGS1984)
Latitude	y-coordinate (latitude) in geographical coordinates (WGS1984)
Elevation	Elevation above sea level (for hand specimen)
Drillhole onset elevation	Elevation above sea level of the start of the drillhole
Drillhole from	Depth location of the sample in the drillhole (top of sample)
Drillhole to	Depth location of the sample in the drillhole (bottom of sample)
Description	Sample description
Lithology (general)	General lithology classification (see Legend)
Lithology (detailed)	Detailed geology classification incl. mineralization (see Legend)
Pegmatite family, zoning	Pegmatite type (LCT or NYF), wall rock, halo, core, intermediate zone
Volume	Sample volume in cm^3
Density	Sample density in g/cm^3
Pore volume	Pore volume in cm^3
Open porosity	Open porosity in %
Susceptibility	Magnetic susceptibility in 10^{-6} SI
Remanence	Magnetic remanence in mA/m
Thermal conductivity, k	in W/mK
Specific heat capacity, c_p	in J/kgK
Dose rate*	Radiation dose rate in nS/h
Potassium*	Potassium concentration in %
Uranium*	Uranium concentration in ppm
Thorium*	Thorium concentration in ppm
Nat. Gamma Ray**	Total natural Gamma Ray in API
Conductivity LS**	Long space conductivity of the borehole formation in mmho
Resistivity**	Formation resistivity in Ohm*m
Chargeability**	Chargeability in %
Magnetic Susceptibility**	Magnetic susceptibility in 10^{-5} cgs
K_2O**	K_2O content in % calculated with Gamman Software from full spectrum
U_3O_8**	U_3O_8 content in ppm calculated with Gamman Software from full spectrum
ThO_2**	ThO_2 content in ppm calculated with Gamman Software from full spectrum
Vp**	P-wave velocity in m/s
Vs**	S-wave velocity in m/s
Vp/Vs-Ratio**	Without unit
Poisson's Ratio**	Without unit

Sub-optimal measurement setup; data should be used for qualitative analysis only.

**Mean value over the interval.*

Sheet 2: Petrophysics logging

Field	Description
Location/BH ID	Origin location of the sample (local scale location) (with drillhole ID)
Area	Origin area of the sample (regional scale location)
Country	Origin country of the sample
Sample type	Core sample or hand specimen
UTM zone	UTM zone
UTM X	x-coordinate in UTM (Easting)
UTM Y	y-coordinate in UTM (Northing)
Longitude	x-coordinate (longitude) in geographical coordinates (WGS1984)
Latitude	y-coordinate (latitude) in geographical coordinates (WGS1984)
Drillhole onset elevation	Elevation above sea level of the start of the drillhole
Drillhole from	Depth location of the sample in the drillhole (top of sample)
Drillhole to	Depth location of the sample in the drillhole (bottom of sample)
Thickness	Interval thickness in m
N	Number of samples per given interval depending on sample rate of the borehole logging probe (1 cm, 5 cm, 10 cm sampling)
Hole casing	Casing type (e.g. PVC, SPVC) or Open Hole with no casing (OH)
Description	Sample description
Lithology (general)	General lithology classification (see Legend)
Lithology (detailed)	Detailed geology classification incl. mineralization (see Legend)
Pegmatite family, zoning	Pegmatite type (LCT or NYF), wall rock, halo, core, intermediate zone
Nat. Gamma Ray	Total natural Gamma Ray in API
Conductivity LS	Long space conductivity of the borehole formation in mmho
Resistivity	Formation resistivity in Ohm*m
Chargeability	Chargeability in %
Magnetic Susceptibility**	Magnetic susceptibility in 10^{-5} cgs
K_2O*	K_2O content in % calculated with Gamman Software from full spectrum
U_3O_8*	U_3O_8 content in ppm calculated with Gamman Software from full spectrum
ThO_2*	ThO_2 content in ppm calculated with Gamman Software from full spectrum
Vp*	P-wave velocity in m/s
Vs*	S-wave velocity in m/s
Vp/Vs-Ratio*	Without unit
Poisson's Ratio*	Without unit
Shear Modulus*	Shear modulus in MPa
Young's Modulus*	Young's modulus in MPa
Bulk Modulus*	Bulk modulus in MPa

*All parameters are given as Maximum (*_mx), Mean (*_av), and Standard Deviation (*_sd) over the interval. Minimum values are omitted due to measurement and processing conditions.*
*** See below for specific explanations of the Magnetic Susceptibility values.*

Remarks on the magnetic susceptibility values

The given magnetic susceptibility values are relative values that indicate changes over the borehole.

The calibration of the probes was checked before the measurements using the calibration jig of the manufacturer. The wall and country rocks show in general very low magnetic susceptibilities with the pegmatites being even lower and therefore detectable. The measured values are at the lower limit of the probe's resolution but with repeatable measurements. Various corrections could not be carried out in a meaningful way. Therefore, the given values cannot be used absolutely/quantitatively.

Sheet 3: Legend

Lithology codes for general and detailed classifications. The detailed codes are sub-categories of the general lithology, considering e.g., mineralization or other characteristics. The detailed codes include in addition the origin deposit or location of the samples, to allow for their separation during analysis and to avoid misleading generalizations across deposits.