

## CRITICAL RAW MATERIALS DEPOSITS IN MAINLAND PORTUGAL

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### PREAMBLE

The European Green Deal is a set of policy initiatives by the European Commission with the overarching aim of making Europe climate neutral by 2050.

To achieve the goals of the EU Green Deal, the call for additional mineral raw materials is a harsh reality, which requires a renewed search for EU-based sources of raw materials.

The search for new sources of raw materials, in particular, Critical Raw Materials, is conditioned by emergent technologies and economic factors. Raw Materials are considered "critical" when their supply risk and economic impact are considered high relative to others raw materials. The criticality of Critical Raw Materials depends on several geological, political, and technical factors.

They are commodities that have important uses and are essential for defense, renewable energy, and many other industries. A raw material that may have been considered critical years ago may not be critical now, and one considered critical now may be less so in the future.

As of September 2020, Europe has considered 30 resources as Critical Raw Materials, three more than in 2017. In this latest list, four more re-sources were added, namely bauxite, lithium, titanium and strontium, and for the first time and helium was removed from the list. Historically, the list of Critical Raw Materials in 2011 considered 14 resources while in 2014, 20 resources.

This "Critical Raw Materials Deposits in Mainland Portugal" map is a compilation of the known occurrences and deposits that contain some of the CRM according to the latest list published in September 2020.

### RESEARCH OBJECTIVES

The objectives of the Portuguese map of CRM focus on: 1) Promotion of European and worldwide Mineral intelligence, 2) Providing a basis for visualising the distribution of CRM in Portugal and relate it with other European counterparts; 3) Allowing for a pictorial depiction of the location of occurrence, morphology and type of deposits; 4) Augmenting pan European mineral data sets of CRM, e.g., EGDI (<https://rmis.jrc.ec.europa.eu/>) and RMIS (<http://www.europe-geology.eu/>) and improving data sharing; 5) Refine methods for validation and model exchange; 6) Improving models for conceptual mapping criteria; 7) Form the beginnings of a global database necessary to understand and refine the controls on critical mineral distribution; 8) increasing accuracy in mineral resource assessments; 9) Identify mineral potential areas for additional European sources for mineral supply; 10) Promote

**THE IMPORTANCE OF  
MINERALS AND KEY  
MESSAGES TO SOCIETY**

mineral deposit discovery; and 11) Promote communication and outreach.

Minerals are inextricably linked to the rise of mankind and civilisation. Today we take it for granted that we can travel, communicate, work and undertake leisure activities. However, it has taken years of research and countless innovations to create the equipment and means necessary to do this and the common factor behind all these are the necessity for mineral resources. But where do these come from and how do they become usable materials? Mineral resources are extracted from the earth's crust to produce products for a wide variety of uses. For example, during a lifetime, each one of us will have consumed on average nearly 500 kg of copper which, corresponds to 50 tons of ore and complicated electronic products require many chemical elements with different qualities - up to 50 different elements must be extracted from various deposits, to produce a modern mobile phone.

The key message is that: while societies strive for a energy transition in the coming years, notably, the energies we might be searching to use may be "green". However, the equipment and devices used to storage and transport that energy are not and require an ever increasing amount of mineral raw materials, many of them considered critical.

**RELATED PROJECTS**

**SIORMINP**

SIORMINP is the "Sistema de Informação de Ocorrências e Recursos Minerais Portugueses" (Information System of Portuguese Occurrences and Mineral Resources), which has been developed by LNEG as a national information system about the mineral occurrences and resources, as well the areas with mineral or mining potential.

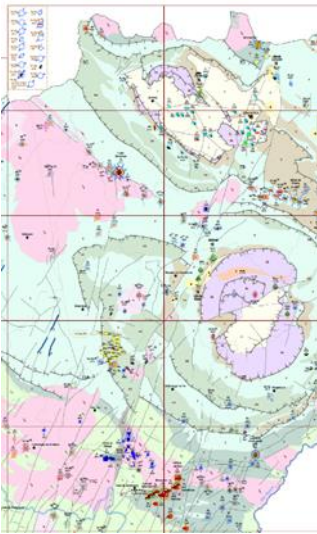
This Information System contains several types of information; general data, geographic data, geologic data, economic data, tonnage data, ore data, concentrate data and concessionaries data, in a total of 60 data fields.

The main objectives that led to the development of SIORMINP were to improve the geoscientific, technical and economic knowledge of the Portuguese mineral deposits; promote the mining development within the national territory by selecting and diffusing information to exploration companies for new target areas with possible mineral potential; and contribute to land use planning.

The SIORMINP is in constant update and development since 1997, and the initial inputs of this Information System were undertaken between 1997 and 2002, when all the territory was covered for all mainland Portugal with 2164 mineral deposits. Today the database contains 2292 entries, and more are planned.

+	A Quinta (1)	Estanho (Sn), Tungsténio (W)	VEISEU	VEISEU
+	A Quinta (2)	Estanho (Sn)	GUARDA	GOUVEIA
+	A Seara do Soito	Estanho (Sn), Tungsténio (W)	VEISEU	VEISEU
+	A-do-Cavalo	Urânio (U)	GUARDA	TRANCOSO
+	Abelhas	Urânio (U)	GUARDA	AGUIAR DA BEIRA

SIORMINP Database

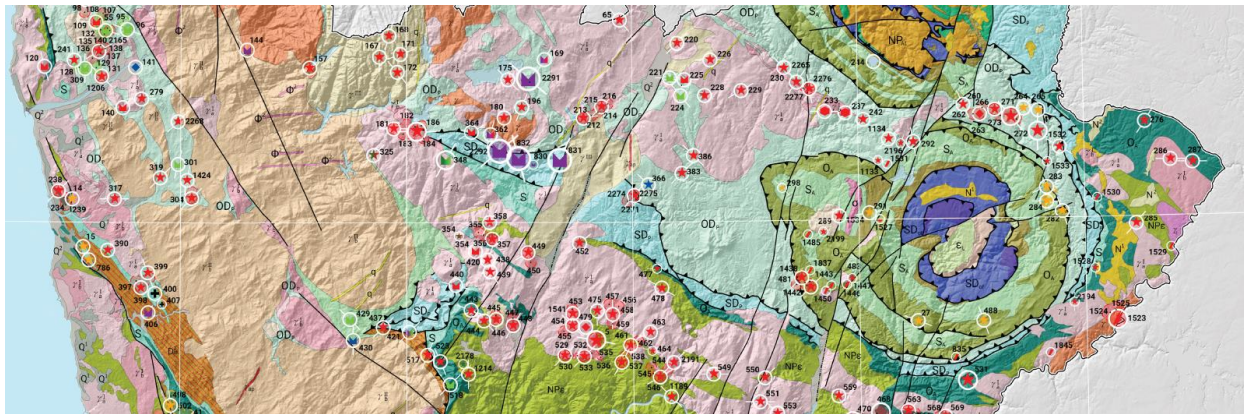


## Mineral Deposits Map of Portugal

Over the last three years the SIORMINP database was used to produce 8 1:200000 sheets of Mineral Deposits of Portugal.

The Map of Mineral Deposits of Portugal at the scales of 1: 200000 and 1: 500000 consisted of, in a first phase, the preparation and publication of the Map of Mineral Deposits of Portugal (North) at a scale of 1: 200000, together with the list of mineral deposits and their attributes and the respective Explanatory Note in April 2014. After an inventory and detailed classification of all 2470 mineral deposits in the country, in 2017, an almost final version of Sheet 3 of the Map of Mineral Deposits of Portugal was produced at a scale of 1: 200000. Mapping, consisting of all 8 sheets, was completed in 2020.

These 1: 200000 maps will serve as the basis for the production and publication of the Map of Mineral Deposits of Portugal at a scale of 1: 500000, the final objective of this project.



### MORE INFORMATION

#### LNEG

[www.lneg.pt](http://www.lneg.pt)

#### SIORMINP

<https://geoportall.lneg.pt/pt/bds/siorminp/>

#### GEOPORTAL

<https://geoportall.lneg.pt/>

What is the European Green Deal?

[https://ec.europa.eu/commission/presscorner/api/files/attachment/859152/What is the European Green Deal en.pdf.pdf](https://ec.europa.eu/commission/presscorner/api/files/attachment/859152/What%20is%20the%20European%20Green%20Deal%20en.pdf.pdf)

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[https://doi.org/10.1007/978-1-4613-2543-7\\_2](https://doi.org/10.1007/978-1-4613-2543-7_2)

**DOWNLOAD THE MAP**

Click [here](#).