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<b>Commodity</b>	<b>Baryte (BaSO<sub>4</sub>)</b>	<b>Data source</b>
Significance for the EU (2023)	<i>Critical, not strategic</i>	
Uses of the commodity	<p><u>Main uses:</u> <i>Weighting agent in drilling muds (60 %), fillers (30 %)</i></p> <p><u>Minor uses:</u> <i>Chemicals (9 %), special concrete, glass, bricks, tiles and other ceramics, and electronics and capacitors.</i></p> <p><u>Future uses:</u> <i>Demand remains strongly linked to oil and gas exploration and exploitation, where expected to decrease in long term. Increasing demand in the construction, electronics, and the automotive industries.</i></p>	Latunussa et al. (2020), USGS (2023)
Resources and potential in Nordic countries	<p><u>Finland:</u> <i>Baryte has earlier been produced from the Pyhäsalmi Cu-Zn mine. The surrounding area also has potential for baryte in VMS deposits.</i></p> <p><u>Greenland:</u> <i>Known resources: 480,000 t baryte. The ‘Zebra Klint’, Bredehorn, has overall resources are probably in the order of several million tons.</i></p> <p><u>Iceland:</u> <i>Possible potential for deposits.</i></p> <p><u>Norway:</u> <i>Baryte is common in Pb-Zn VMS (Moffellet) and Ag vein deposits (Bamble, Kongsberg) and the iron-rich parts of the Fen carbonatite. Former test mining at hydrothermal Heskestad deposit in southernmost Norway.</i></p> <p><u>Sweden:</u> <i>Several deposits are known to contain baryte. The largest of these is the giant Aitik Cu-Au deposit. The others are small.</i></p>	Lauri et al. (2018), Eilu et al. (2022), Rosa et al. (2023)
Anthropogenic resources and potential in Nordic countries	<i>Tailings of the Pyhäsalmi and Aitik mines</i>	Lauri et al. (2018)
Main deposit types in Nordic countries	<i>Massive sulphide deposits, Ag and Pb-Zn vein deposits</i>	
Main global deposit types	<i>VMS, SEDEX, vein, evaporite, and residual deposits</i>	Warren (2016), USGS (2023)
Global production (2022)	<i>7.9 Mt baryte</i>	USGS (2023)
Nordic production (2021)	<i>None</i>	
Main producing countries (2022)	<i>India 38.6 %, China 28.2 %, Morocco 19.3 %, Kazakhstan 7.4 %, Mexico 4.8 %. The US</i>	Idoine et al. (2022), USGS (2023)

	<i>production is not known for 2022, but was estimated to 4.8 % in 2020.</i>	
Technological challenges in production	<i>Vein deposit mining often too expensive in industrial scale, due to small size and complex geometry, but supports ASM mining</i>	USGS (2023)
Recycling	<u>Present:</u> <i>End-of-life recycling &lt;1 %. Mostly lost is use.</i> <u>Future:</u> <i>End-of-Life products</i>	BRGM et al. (2017), USGS (2023)

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## References

- BRGM, BGS, TNO, Deloitte 2017. Sustainability Study on the review of the list of Critical Raw Materials, Critical Raw Materials Factsheets. European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Directorate Industrial Transformation and Advanced Value Chains, Unit C.2 – Resource Efficiency and Raw Materials, Brussels. 515 p. doi:10.2873/398823
- Eilu, P., Hallberg, A., Bergman, T., Bjerkgård, T., Reginiussen, H., Sandstad, J.S. 2022. Nordic Ore Deposit Database. Annual update (end-2021 data). <https://gtkdata.gtk.fi/fmd/>
- Idoine, N.E., Raycraft, E.R., Shaw, R.A., Hobbs, S.F., Deady, E.A., Everett, P., Evans, E.J. & Mills, A.J. 2022. World mineral production 2016–2020. British Geological Survey, Nottingham. 88 p. Online: [https://www2.bgs.ac.uk/mineralsuk/download/world\\_statistics/2010s/WMP\\_2016\\_2020.pdf](https://www2.bgs.ac.uk/mineralsuk/download/world_statistics/2010s/WMP_2016_2020.pdf)
- Latunussa, C.E.L., Georgitzikis, K., Torres de Matos, C., Grohol, M., Eynard, U., Wittmer, D., Mancini, L., Unguru, M., Pavel, C., Carrara, S., Mathieux, F., Pennington, D. & Blengini, G.A. 2020. European Commission, Study on the EU's list of Critical Raw Materials, Factsheets on Critical Raw Materials. 819 p. Online: [https://rmis.jrc.ec.europa.eu/uploads/CRM\\_2020\\_Factsheets\\_critical\\_Final.pdf](https://rmis.jrc.ec.europa.eu/uploads/CRM_2020_Factsheets_critical_Final.pdf); doi: 10.2873/92480
- Lauri, L.S., Eilu, P., Brown, T., Gunn, G., Kalvig, P. & Sievers, H. 2018. Identification and quantification of primary CRM resources in Europe. Deliverable 3.1 of the H2020 project SCRREEN. 63 p. Online at: <http://screen.eu/wp-content/uploads/2018/03/SCRREEN-D3.1-Identification-and-quantification-of-primary-CRM-resources-in-Europe.pdf>.
- Rosa, D., Kalvig, P., Stendal, H. & Keiding, J.K. 2023. Review of critical raw material resource potential in Greenland. MiMa rapport 2023/1. 121 p. <https://doi.org/10.22008/gpub/32049>
- USGS 2023. Mineral commodity summaries 2023. U.S. Geological Survey. 210 p. [pubs.usgs.gov/periodicals/mcs2023](https://pubs.usgs.gov/periodicals/mcs2023)
- Warren, J.K. 2016. Evaporites, a Geological Compendium. 2nd Edition. Springer, Switzerland. 1813 p.