

Anders Hallberg (Geological Survey of Sweden) 18 April 2012

Update by Pasi Eilu (Geological Survey of Finland), 6 April 2019

Update by Helge Reginiussen (Geological Survey of Sweden) 5 December 2022

Commodity	Tungsten (W)	Data source
Significance for the EU (2023)	<i>Critical and Strategic</i>	
Uses of the commodity	<p><u>Main uses:</u> <i>Tungsten carbide (67 %) for use in mill and cutting tools as well as mining and construction tools. Alloy steel and tungsten alloys (11 %).</i></p> <p><u>Minor uses:</u> <i>Chemical applications, catalysts and pigments, electronics and lightening, X-ray tubes, superalloys, radiation shielding, military applications, aeronautics, and energy.</i></p> <p><u>Future uses:</u> <i>Growing uses: automotive industry, industrial engineering, mining & construction, aviation, and energy.</i></p>	Latunussa et al. (2020), USGS (2022)
Resources and potential in Nordic countries	<p><u>Finland:</u> <i>Known resources 2,300 t W. The known resources and occurrences suggest a minor additional resource potential.</i></p> <p><u>Greenland:</u> <i>Known resources 26,200 t W. Assumed ('undiscovered') additional resources at regional scale estimated to 501,000 t W; several tungsten deposits in central East Greenland.</i></p> <p><u>Norway:</u> <i>Known resources 2,625 t W. Known resources suggest additional resource potential.</i></p> <p><u>Sweden:</u> <i>Known resources 1,770 t W. Large remaining potential in Bergslagen in central Sweden.</i></p>	Harpøth et al. (1986), Sørensen et al. (2014), Eilu et al. (2021, 2022), Rosa et al. (2023)
Anthropogenic resources and potential in Nordic countries	<i>Tailings at skarn iron ore mines</i>	
Main deposit types in Nordic countries	<i>Skarn, stockwork, and vein deposits</i>	Sørensen et al. (2014), Eilu et al. (2021), FODD (2022)
Main global deposit types	<i>Skarn, vein and stockwork, porphyry W</i>	SGU (2008), Goldfarb et al. (2017), Kelley & Spry (2017)
Global production (2022)	<i>84 000 t (mine production)</i>	USGS (2023)
Nordic production (2021)	<i>No production</i>	
Main producing countries (2022)	<i>China 84.5 %, Vietnam 5.7 %, Russia 2.7 %, Bolivia 1.7 %, Rwanda 1.3 % (mine production)</i>	USGS (2023)
Technological challenges in production	<i>None</i>	

Recycling

Present:

*Recycling of scrap and used tools. Estimated
global recycling is at 42 %.*

Latunussa et al. (2020)

References

- Eilu, P., Bjerkgård, T., Franzson, H., Gautneb, H., Häkkinen, T., Jonsson, E., Keiding, J.K., Pokki, J., Raaness, A., Reginiussen, H., Róbertsdóttir, B.G., Rosa, D., Sadeghi, M., Sandstad, J.S., Stendal, H., Þórhallsson, E.R. & Törmänen T. 2021. The Nordic supply potential of critical metals and minerals for a Green Energy Transition. Nordic Innovation Report. 93 p. <https://norden.diva-portal.org/smash/get/diva2:1593571/FULLTEXT02>
- Eilu, P., Hallberg, A., Bergman, T., Bjerkgård, T., Klyucharev, D., Lauri, L.S. & Sandstad, J.S. 2022. Fennoscandian Ore Deposit Database. Annual update (end-2021 data). Online: <http://en.gtk.fi/information/services/databases/fodd/index.html>
- Goldfarb, R.J., Hofstra, A.H. & Simmons, S.F. 2017. Critical Elements in Carlin, Epithermal, and Orogenic Gold Deposits. *Reviews in Economic Geology* 18, 217–244.
- Harpøth, O., Pedersen, J. L., Schönwandt, H. K. & Thomassen, B. 1986. The mineral occurrences of central East Greenland. *Meddr Grønland Geosci.* 17, 138 p.
- Kelley, K.D. & Spry, P.G. 2017. Critical Elements in Alkaline Igneous Rock-Related Epithermal Gold Deposits. *Reviews in Economic Geology* 18, 195–216.
- 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. https://rmis.jrc.ec.europa.eu/uploads/CRM_2020_Factsheets_critical_Final.pdf; doi: 10.2873/92480
- 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>
- Sørensen, L.L., Stensgaard, B.M. & Rosa D. 2014. Tungsten potential in Greenland. *Geology and Ore* 25/14.
- USGS 2022. Mineral commodity summaries 2022. U.S. Geological Survey. 202 p. <https://doi.org/10.3133/mcs2022>
- USGS 2023. Mineral commodity summaries 2023. U.S. Geological Survey. 210 p. pubs.usgs.gov/periodicals/mcs2023