

COBALT

THE TECHNOLOGY ENABLER & CRITICAL TO FUTURE INNOVATION



KEY PROPERTIES



TEMPERATURE RESILIENCE

Co is very thermally stable for use in batteries



HARDNESS

Co is ideal for creating superalloys in technology



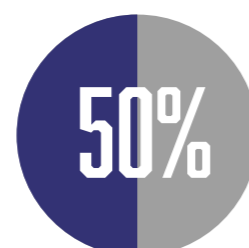
PROCESS EFFICIENCY

Co has high energy density that improves battery performance

TECH SPOTLIGHT



LITHIUM-ION BATTERIES



Nearly 1/2 of all cobalt produced globally is found in rechargeable batteries.

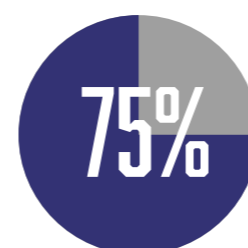


SUPPLY CHAIN

2019 TOP PRODUCERS

- 1. CONGO
- 2. RUSSIA
- 3. CUBA

2019 U.S. PRODUCTION



The U.S. relies on imports for up to 80% of it's cobalt consumption, the top supplier being China.

This increases potential for:

- PRICE VOLATILTY
- SUPPLY SHORTFALLS
- GEOPOLITICAL RISK

DEMAND OUTLOOK

ENERGY STORAGE GROWTH

50K METRIC TONS

Cobalt (Co) needed for battery markets in 2020.

- 5G INFRASTRUCTURE
- ELECTRIC VEHICLES
- STATIONARY STORAGE

Cobalt (Co) demand expected to increase at a rate of

35% ANNUAL GROWTH

to meet growing energy storage market.



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Sources: <https://www.cobaltinstitute.org/assets/files/Pages%20PDFs/Infographic-Cobalt-Batteries.pdf>
<https://www.reuters.com/article/us-cobalt-5g-electric/cobalt-demand-for-5g-technology-to-challenge-electric-vehicles-idUSKCN26C1EQ>
<https://www.visualcapitalist.com/lithium-cobalt-batteries-powering-the-electric-vehicle-revolution/>
Schulz, K.J., DeYoung, J.H., Jr., Seal, R.R., II, and Bradley, D.C., eds., 2017, Critical mineral resources of the United States—Economic and environmental geology and prospects for future supply. U.S. Geological Survey Professional Paper 1802, 797 p., <http://doi.org/10.3133/pp1802>.