

Cobalt Exports May Be Carrying Hidden Uranium

A new study says a key mineral supply chain may also be moving unreported uranium, raising questions about oversight and responsibility.



A radiation detector sits near sacks of mineral ore and shipping containers in an industrial warehouse.

Researchers say large amounts of **uranium** may be leaving the Democratic Republic of Congo inside **cobalt** exports, according to an article published by Phys.org describing recent geological research. The finding matters because cobalt is used in everyday technologies such as smartphones and laptops, while uranium is a radioactive element that can be used as nuclear **reactor** fuel and, after processing, in nuclear weapons.

The Democratic Republic of Congo, often called the DRC, is central to the global cobalt market. Its southern Copperbelt region produces most of the world's cobalt, and the article says southern DRC is the source of 70% of global supply. The same region has a long nuclear history: uranium ore from the Shinkolobwe mine there was a main source for the Manhattan Project, the U.S. program that built the first nuclear weapons during World War II. That mine has been officially closed to **excavation** since 2004, and the DRC has not officially reported uranium exports in decades.

The new research does not describe secret mining trucks or a smuggling plot. It points to a more complicated problem: uranium and cobalt occur together in the same rocks, and they can behave similarly during chemical processing. In other words, when cobalt ore is dug up and turned into a form ready for export, uranium that was present in the

ore can stay with the cobalt product unless specific steps remove it.

The researchers estimate that, between 2000 and 2024, 2,000 to 5,000 tonnes of natural uranium may have been exported from the DRC in cobalt-**hydroxide shipments**. Natural uranium means uranium as it occurs in nature, before special processing changes the share of its different atomic forms. Cobalt hydroxide is a processed cobalt product shipped for further **refining**. According to the article, less than 10% of the uranium in question appears to have been publicly declared to the International Atomic Energy Agency, the United Nations-linked organization that tracks nuclear materials and promotes **safeguards** against their misuse.

Those numbers are striking, but they are also estimates. The article says very few public data points exist about uranium concentrations in the ores or the exact chemical steps used at processing facilities. To make their estimate, the researchers used **geologic** maps, modeled likely uranium levels in cobalt ores, considered how much ore was processed at each facility, and modeled what would happen to uranium during processing. That makes the study serious but not the same as measuring every shipment directly.

The scale is what turns a technical mining issue into an international one. The researchers calculate that the estimated uranium could be processed into enough material for roughly 600 to 1,500 nuclear weapons, or could fuel a standard light-water nuclear reactor for 10 to 25 years. A light-water reactor is a common type of nuclear power plant that uses ordinary water to cool the reactor and help control the nuclear reaction. The point is not that cobalt shipments are nuclear weapons. The point is that an important nuclear material may be moving through a civilian mineral supply chain without being fully counted.

The trade-off is difficult because cobalt itself is not an optional luxury in the modern economy. Phones, computers, and other devices depend on materials that come from complex global supply chains. If governments make cobalt exports slower, more expensive, or harder to approve, that could affect workers, companies, consumers, and the DRC's economy. If they do not improve checks, a radioactive material with nuclear significance may keep moving with too little public accounting.

The article says refineries can use processes to remove uranium from cobalt, but discussion of those techniques began only in recent years, around 2020, and they are not common. The researchers looked at DRC import records for chemicals need-

ed to remove uranium and found that only three of 31 operations they investigated appeared to be consistently using uranium-removal measures. That creates another dispute: who should pay for better testing and removal? Mining companies may point to costs and technical limits. Importing countries and international agencies may point to safety, environmental oversight, and nuclear safeguards. Consumers rarely see any of those decisions when they buy a device.

Existing checks are supposed to help. The article says shipments should be tested for radioactivity when they enter ports or cross borders, and a Geiger counter, an instrument that detects radioactive energy, should flag shipments if readings are too high. But the researchers warn that such a system depends on consistent use of sensitive instruments, and high-uranium shipments have been known to escape **regulatory** control.

The DRC has already responded. In the weeks after the study was published in July 2026, the country launched a probe to test outgoing cobalt shipments for uranium content and said it would consult with the International Atomic Energy Agency. That response suggests the issue is not just a scientific claim; it is becoming a policy question. The world wants the benefits of cobalt, but it also needs a way to know what else is traveling with it.

Written from reporting by Phys.org.

THINK IT THROUGH

1. When evidence of a risk is based on modeling rather than direct measurement of every shipment, how quickly should governments act, and what kind of action is justified?

2. Who should bear the cost of testing and removing uranium from cobalt exports: the DRC, mining companies, importing countries, technology companies, or consumers?

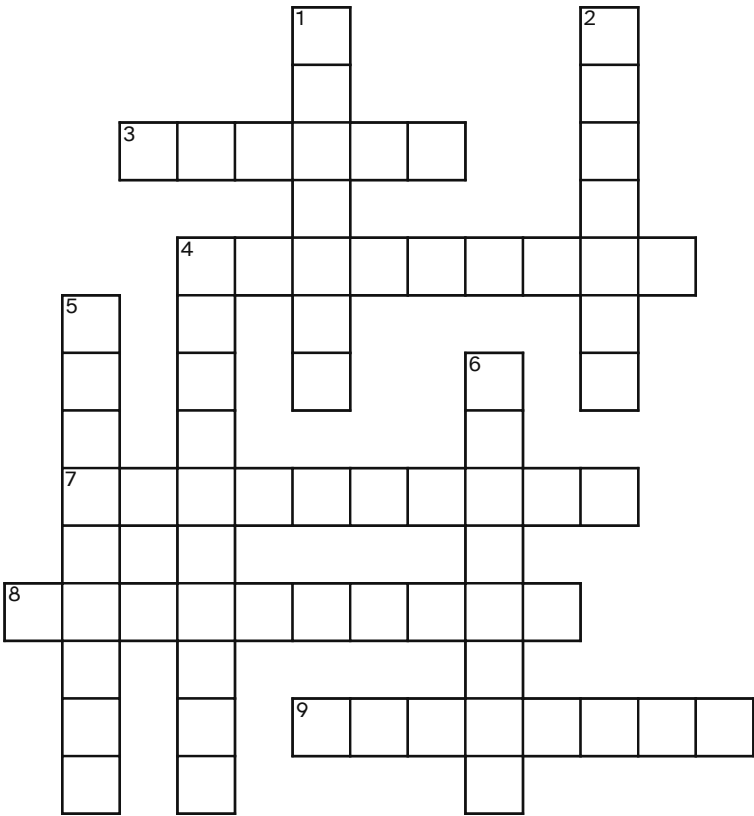
3. Does this story change how people should judge the hidden costs of everyday technology, or is it mainly a problem for governments and industry?

Cobalt Exports May Be Carrying Hidden Uranium

S L T A D I G A U I U O R T R D L N
H S M I O H G A I N E S D G N I M N
I A T A H I A H H Y I K U A N L T A
P M S E U Y E N T E R R T I G N O U
M E A U X D D E D Y O F E C M T O T
E R F N J C I R W N I M M G A G E A
N R E G U L A T O R Y A Y S E G G P
T I G F S O M V C X O I D E N M I E
S A U E I H U R A N I U M N I A G I
O Y A L O N Z D G T R D R E R O I E
O E R T R L I R A S I I E U G C E A
L R D E A S O N O T H O D G N S G O
G G S E A R T G G I X C N E L O R R
U J E U P C U N I I A N E R R L M E
N B N C B M T S O C O B A L T R C O
D A A R G E L O N H G U I F N L E S
D R R S I S D I R C H X T A E O S N
O P M U R E E S H T G O E Z A R R B

COBALT	EXCAVATION	GEOLOGIC	HYDROXIDE	REACTOR
REFINING	REGULATORY	SAFEGUARDS	SHIPMENTS	URANIUM

Cobalt Exports May Be Carrying Hidden Uranium



ACROSS

- 3 Metal used in batteries, smartphones, and laptops
- 4 Loads of goods moved between places or countries
- 7 Connected to official rules and their enforcement
- 8 Digging earth or rock to remove minerals or uncover buried items
- 9 Industrial process of purifying mined material for use or sale

DOWN

- 1 Radioactive element used as fuel or, after treatment, in weapons
- 2 Machine that controls a nuclear chain process to produce energy
- 4 Protections and monitoring systems that prevent misuse of dangerous materials
- 5 A chemical compound containing oxygen and _____ that can be produced during mineral processing.
- 6 Related to rocks, minerals, and Earth's physical history

Where this came from

This article was written for 3andB from the reporting below. It is not a reprint — the wording is ours and the facts are theirs.

Phys.org

“DRC's cobalt exports contain unreported uranium—our study estimates the global nuclear risk”

Published Thursday, September 10, 2026

Read by us on Friday, September 11, 2026

<https://phys.org/news/2026-09-drc-cobalt-exports-unreported-uranium.html>

WHAT IS IN THIS PACKET

The article and its discussion questions, a word search, and a crossword.

COPYING AND REUSE

Free to print, copy and hand out for classroom use. Please keep this page with the packet, so the next teacher can see where the story came from.

More where this came from

If this short lesson worked for your class, our full workbooks go further with the same care:

- Complete units with student and teacher editions
- Worked solutions for every exercise
- Standards-aligned, classroom-tested, print-ready

See the full lessons at 3andB.com