

The world is running out of helium: Nobel prize winner

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Image of a helium filled discharge tube shaped like the element's atomic symbol. Image: Pslawinski/ Wikipedia.

(PhysOrg.com) -- A renowned expert on helium says we are wasting our supplies of the inert gas helium and will run out within 25 to 30 years, which will have disastrous consequences for hospitals and industry.

Professor of physics, Robert Richardson from Cornell University in Ithaca, New York, won the 1996 [Nobel prize](#) for his work on [superfluidity](#) in [helium](#), and has issued a warning the supplies of helium are being used at an unprecedented rate and could be depleted within a generation.

Liquid helium is vital for its use in cooling the [superconducting magnets](#) in magnetic resonance imaging (MRI) scanners. There is no substitute because no other substance has a lower boiling point. Helium is also vital in the manufacture of liquid crystal displays (LCDs) and fiber optics.

In MRI scanners the helium is recycled, but often the [gas](#) is wasted since it is thought of as a cheap gas, and as such is often used to fill party balloons and as a party trick distorting people's voices when it is inhaled.

Professor Richardson warned the gas is not cheap because the supply is inexhaustible, but because

of the Helium Privatisation Act passed in 1996 by the US Congress. The Act required the helium stores held underground near Amarillo in Texas to be sold off at a fixed rate by 2015 regardless of the market value, to pay off the original cost of the reserve. The Amarillo storage facility holds around half the Earth's stocks of helium: around a billion cubic meters of the gas. The US currently supplies around 80 percent of the world's helium supplies.

Richardson said it has taken 4.7 billion years for the Earth to accumulate our helium reserves, which we will have exhausted within about a hundred years of the US's National Helium Reserve having been established in 1925. The reserve is a collection of disused underground mines, pipes and vats extending over 300 km from north of Amarillo into Kansas. He warned that when helium is released to the atmosphere, in helium balloons for example, it is lost forever.

There is no chemical way of manufacturing helium, and the supplies we have originated in the very slow radioactive alpha decay that occurs in rocks. It costs around 10,000 times more to extract helium from air than it does from rocks and natural gas reserves.

Helium is the second-lightest element in the Universe. Among helium's other uses include airships, air mixtures used in deep-sea diving, cooling nuclear reactors and infrared detectors, and in satellite and spacecraft equipment, and solar telescopes. NASA also uses massive amounts of helium to clean fuel from its rockets, and because the helium is so cheap, it makes no effort to recycle the gas. As the isotope helium-3, helium is also used in nuclear fusion research.

Professor Richardson was co-chair of a US National Research Council inquiry into the coming helium shortage. The report recommends the US reconsider its policy regarding selling off the helium.

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