

Guillermou

One of the applications of helium is vacuum leak testing which is the most accurate and efficient of all tracer gas leak detection systems and is used to test parts with extremely small leak rates. Regular demand for helium leak detection equipment has been experienced as different industries introduce new products that have stricter testing specifications or are replacing older leak detectors that have reached the end of their useful life. With the shift to electric vehicles, the demand for leak testing for new components is increasing dramatically. "The price of helium has increased more than tenfold in the last two decades," adds Kornbluth.

"The price of helium at the source increased an average of 11 percent annually between 2006 and 2022. "Most of this shortage is due to supply failures rather than demand growth," Kornbluth says. "The latest price increase is because major helium suppliers have been rationing supply due to the war in Ukraine. "A recent Gazprom project in Siberia, which was to convert shortages into oversupply, was delayed due to the war, causing a lot of uncertainty in the market," explains Kornbluth. "Another major helium project underway in Qatar, due to come online in a few years, should address the shortage.

This will undoubtedly lead to an oversupply of helium." Ironically, the United States is home to the largest helium deposits in the world. The U.S. Bureau of Land Management operates a federal reserve near Amarillo, Texas, and a pipeline system that supplies raw helium as feed gas to four privately owned plants in Kansas and Oklahoma. The recent helium situation has forced some of our customers to look for and evaluate alternatives," said Jacques Hoffmann, president of InterTech Development Co.

www.assemblymag.com/articles/97839-dealing-with-the-helium-shortage

Posted On 02/14/2024

DocTwinkle

AH... brings back memories. I worked with superfluid helium for my MS work in low-temperature acoustics back in the late 1980's and so I had to build helium-leak-tight systems and yes, we had a helium leak detector we used for that. We had a double-dewar setup. A Dewar is like a giant glass insulated test-tube. The outer one - nearly 5 feet long and about a foot in diameter - contained liquid nitrogen to act as a first layer thermal jacket to protect the inner Dewar into which we condensed the He-gas -- we evacuated the dewar to very low pressures and backfilled with the ^4He , continuing to pump on it, which condenses to liquid at a temperatures of 4 degrees Kelvin; and by continually evacuating the vapors, we could get the condensed liquid down to 1 degree Kelvin, at which point it's in a supefluid state and we used this for measuring what is called fourth sound - the way sound propagates in a superfluid confined to a tortuous medium (a silica aerogel, in this case).

All esoteric, if you ask me. I am more interested these days in learning about Heliox therapies which a heluim shortage would likely impact, so I hope you are right that this present "shortage" is temporary at best.

Posted On 02/14/2024

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Good memories in your scientific dedication. Researchers from Oxford University's Department of Earth Sciences and Durham University, working with Norwegian helium exploration company Helium-One, have developed a brand new exploration approach. The first use of this method has resulted in the discovery of a world-class helium gas field in Tanzania. Their research shows that volcanic activity provides the intense heat necessary to release the gas from ancient, helium-bearing rocks. Within the Tanzanian East African Rift Valley, volcanoes have released helium from ancient deep rocks and have trapped this helium in shallower gas fields.

The research was presented today by PhD student Diveena Danabalan at the Goldschmidt geochemistry conference in Yokohama, Japan. Diveena Danabalan said: We show that volcanoes in the rift play an important role in the formation of viable helium reserves. Volcanic activity likely provides the heat necessary to release the helium accumulated in ancient crustal rocks. However, if gas traps are located too close to a given volcano, they run the risk of helium being heavily diluted by volcanic gases such as carbon dioxide, just as we see in thermal springs from the region. We are now working to identify the 'goldilocks-zone' between the ancient crust and the modern volcanoes where the balance between helium release and volcanic dilution is just right'. Professor Chris Ballentine said: We sampled helium gas (and nitrogen) just bubbling out of the ground in the Tanzanian East African Rift valley.

By combining our understanding of helium geochemistry with seismic images of gas trapping structures, independent experts have calculated a probable resource of 54 Billion Cubic Feet (BCf) in just one part of the rift valley. This is enough to fill over 1.2 million medical MRI scanners.

www.earth.ox.ac.uk/2016/06/huge-helium-discovery-a-life-saving-find/

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Yes, Gui. I was in charge of a Helium Tester at a company that made food-grade containers (55 gal drums) that had to be leak proof. These containers were used mostly for shipping rice to 3rd world countries. I had to build an air tight "clean room" for the tester, and install all the support systems like strict climate controls that used hepa filtration and very strict humidity control. It was a high maintenance operation that I prided myself in putting into operation. That was 2001. Since then the company has had to stop Helium testing due to the Helium shortages and pricing.

I believe the local supplier there is now catering to only the hospitals nearby. It's a scary situation. Another unfortunate outcome of this is that branch of the corporation was permanently closed as a result of this Helium shortage. Out of the 50+ branches around the world, we were the only one with a Helium Leak Detection Machine. That was was in Arkansas, of all places!! That was strategic in itself. At the time, Arkansas was the largest rice producer in the USA and maybe the world. Our containers were used to supply the world with RICE!! I made that happen.

The machine was originally a manually operated machine. It's vacuum chamber was approximately 28"dia x 40"lg. You would fill whatever container you needed to leak test with Helium and seal the container. Then you loaded the container into the test chamber and pulled a vacuum in the chamber. Helium, being so small, will leak out of the container and into the test chamber. Then a Helium sensor would register if there was a leak and the severity of the leak. I semi-automated this operation so it was self-feeding. All the operator had to do is monitor for hangups.continued

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..... Any misalignment with the 55gal drums could result in a crash. Sensors were installed to detect any misalignment and an operator would have to intervene and realign the drum before continuing. All of that is gone and that branch of the corporation closed Nov-2021. I went there to wish everyone farewell their last week of production. It's a sad day in the USA. I had practically built that entire operation with my own bare hands between the years of 1998 and 2003. Now it's all gone.

Posted On 02/15/2024

Kevin_Lee

I did read some basics about high temperature superconducting wires over 10 yrs ago. High temperature means it becomes superconducting at liquid Nitrogen temperature at -196 Centigrade or even higher! But to achieve very high fields of 10 Tesla or more, these wires still need temperatures near liquid Hydrogen or liquid Helium. For today's MRI machines running at 3 Tesla, maybe the new wires can achieve similar fields without going to the liquid Helium temperature. However, the old wires made of alloy Niobium-Tin is probably lower costs than the new types. Unlike the malleable wires, the new wires are still evolving and some are encased in between steel tapes that there will be technical challenge of redesigning magnets.

Posted On 02/15/2024

Lou321

The way I see it, the government of the US is destroying their own country from within and from without with the help of both political parties.

Posted On 02/14/2024

idruid

Selling the goose that lays the golden eggs instead of just the eggs, very smart. No doubt the buyers are owned by Blackrock and Vanguard, as well as those who made the decisions to sell. National debt will never be allowed to be paid off. It is designed that way, to be a control mechanism. Apart from that, our planet is huge! There are bound to be pockets such as the dome in many other places; or are they keeping supplies low in order to keep the price high? We already know how these people operate.

Posted On 02/14/2024

robinlillian

MRI's did not exist when I was young. At one time, X-rays were the latest high tech item humans were lucky to have. People managed then, and they will manage in the future without MRI's if they have to. We're lucky we have modern sanitation and so many other high tech luxuries (electricity, computers, air conditioning, antibiotics--so far etc.) that were beyond the wildest dreams of even Kings & Queens centuries ago. Be grateful for what you have. It could always be worse.

Posted On 02/14/2024

pecanroll

Maybe this would help STOP the USE of the heavy metal GADOLINIUM. Would you take an IV infusion of LEAD? Would you take an IV infusion of MERCURY? Why would anyone let them inject you with GADOLINIUM for a more "elegant" picture?

Posted On 02/14/2024

har1272

Agreed. After being poisoned myself with gadolinium and still retaining it after 6 years, getting rid of MRIs may not be such a bad thing. Heck, we don't even know if our bodies being microwaved is such a safe thing. It's not like we aren't being lied to before about drug/medical devices safety.

Posted On 02/14/2024

Stephjask

"While scientists explore alternatives to hydrogen". Is this a typo, or is something missing in the final paragraph?

Posted On 02/14/2024

mer4090

Prolly '...exploring alternatives such as hydrogen'. (NP) Hydrogen, along with Helium and Neon are gases that heat up when they expand and cool when compressed, look up Joule-Thompson effect. (NP) Keep in mind aerospace too, NASA awarded contracts in late 2022 for 33 million liters of liquid and 87.7 million cubic feet of gaseous helium, potentially \$1 billion USD. Give that some thought.

Posted On 02/15/2024

Ima31439

And so it continues.....what else is not wrong or maybe the right word is diabolical in America?

Posted On 02/14/2024

jgeorge33

LATE LAST YEAR GENE THERAPY MAKER PFIZER FINALISED ITS \$43 BILLION ACQUISITION OF CANCER DRUG MAKER SEAGEN. In case anyone wonders where their cash stream will go after vaccination acceptance tanks...

Posted On 02/15/2024

pjucla

Excellent article, thank u .

Posted On 02/14/2024

Ronald_H

I've greatly enjoyed hydrogen balloons (some 300 cubic feet and more) for balloons with a spectacular advantage when the flame on the string reaches the balloons at a half mile up! It just makes a huge orange fireball. But with a torch flame adjusted just right with pure oxygen, and then snuffing out the flame to fill balloons with the perfect mixture, it makes a nice explosion. It's also much less expensive than helium and better than fireworks at a much lower cost with clean emissions.

Posted On 02/14/2024

Arlen1

Ha?? Over my head! No pun intended

Posted On 02/15/2024
