

# **YOU THINK YOU'RE ON FIRE? HA, YOU WISH.**

Hydrogen is extremely flammable. Hydrogen burns with a nearly invisible flame and in some situations could explode.

**THE REAL CHEM**



# LIAR, LIAR

The balloon boy hoax of October 15, 2009 led people to believe that a six year old boy had floated away on a helium balloon when he was hiding at home the entire time.

**THE REAL CHEM**



# I'VE GOT THE POWER!

Lithium is used in batteries, specifically lithium-ion batteries which are known for its ability to recharge. These batteries are most commonly found in phones and other portable electronic devices.

**THE REAL CHEM**



# WHAT DOROTHY DIDN'T TELL YOU ABOUT THE EMERALD CITY

Beryllium's name comes from the mineral beryl and both beryl and beryllium are found in gems such as emeralds.

**THE REAL CHEM**



# GO AHEAD, GET SICK.

Boron is a key ingredient in some powdered hand soaps. By simply washing your hands, you reduce the chances of getting the common cold by about 40%.

**THE REAL CHEM**



# SHARING IS CARING.

Carbon can make FOUR covalent bonds with other atoms. This ability to share with other elements makes carbon the most important element in organic chemistry.

**THE REAL CHEM**



# LEGUMES AND LIGHTNING... VERY, VERY FRIGHTENING

Only lightning strikes and the bacterial symbiotes found in the roots of some legumes can crack diatomic nitrogen's strong triple bond.

**THE REAL CHEM**



# THE OXYGEN APOCALYPSE

When oxygen was first injected into the atmosphere in large quantities 200 million years ago, it caused a mass extinction.

**THE REAL CHEM**





# **YOU DON'T WANT TO RUN INTO THIS IN A DARK ALLEY.**

If you ever encounter fluorine gas your next trip might be to a hospital! It can cause serious damage to your skin, kidney, teeth and could even lead to death!

**THE REAL CHEM**



# SIGNS HAVE BEEN LYING.

Neon lights only come in one color: red.  
If it is any other color, then it isn't neon.

**THE REAL CHEM**



# TOO MUCH OF A GOOD THING

Excess sodium in your body increases blood pressure, which can lead to stroke, heart failure, and stomach cancer.

**THE REAL CHEM**



# THE ANSWER TO GLOBAL WARMING?

Magnesium is used in many different lightweight alloys that are crucial to help fight climate change. The development of these new alloys will make cars and planes more efficient and lower carbon emissions.

**THE REAL CHEM**



# OUR SECRET DAY-TO-DAY HERO

Aluminum is the most common mineral naturally found on Earth and as well as a big part of what we use in our daily lives. It is used in kitchenware, metal frames on houses, vehicles, and so much more.

**THE REAL CHEM**



# **ALERT! THE BEACH IS CONTAMINATED WITH SILICON!**

Silicon is the second most abundant element found in the Earth's crust. It is primarily found in compounds, such as silicon dioxide (aka sand).

**THE REAL CHEM**



# IT'S IN YOUR DNA.

Phosphorus is a major part of each molecule of DNA and RNA. It is the P in ADP and ATP, these molecules are responsible for energy transport in the cell.

**THE REAL CHEM**



# WHY ARE YOU CRYING?

Have you ever wondered why cutting onions makes people cry? Well, when an onion is cut it can release compounds which react with the water in your eyes to form small amounts of sulfuric acid.

**THE REAL CHEM**





# WOULD YOU LIKE SOME CHLORINE ON YOUR STEAK?

Sodium chloride (more commonly known as table salt) is one of the most common compounds of the element chlorine.

**THE REAL CHEM**



# **ROSES ARE RED THIS ELEMENT IS BLUE DON'T MISTAKE THIS FOR ANOTHER ONE'S HUE**

Argon atoms emit a blue light when excited. The Noble gases such as helium, neon, argon, and krypton are frequently used achieve the different colors seen in decorative lights.

**THE REAL CHEM**



# HOW MANY BANANAS DID YOU EAT TODAY?

An average banana contains about 0.4 grams of potassium. Eating 42 bananas in one sitting could put you at an acute risk for hyperkalemia, a condition caused by too much potassium in your blood.

**THE REAL CHEM**



# DO YOU WANT TO BE IN THE LIMELIGHT?

Because until the 1800's, Lime, or known as calcium oxide, was used for stage lights, hence the term, 'limelight.'

**THE REAL CHEM**



# HIT A HOME RUN WITH SCANDIUM.

Scandium is also used in alloys to make specialty sporting equipment, including bicycle frames and baseball bats.

**THE REAL CHEM**



# WANT TO OSSEOINTEGRATE?

Need an implant because you broke a bone?  
Go for titanium. Titanium and bone  
osseointegrate (bind together) making it  
stronger than before. Try not to break any  
more bones though, it's unhealthy.

**THE REAL CHEM**



# AND YOU THOUGHT SMOKING WAS BAD.

Elemental vanadium, if inhaled, can cause irritation, nausea, vomiting, abdominal pain, kidney damage, asthma-like symptoms.

It can also turn your tongue green.

**THE REAL CHEM**



# CAN'T TAKE THE HEAT?

Chromium's boiling point is 4840°F.  
That is 22 times higher than water's boiling point!

**THE REAL CHEM**





# STEEL HAS A SECRET.

Manganese is one of the main elements found in steel, along with iron, nickel, carbon, chromium and more.

**THE REAL CHEM**



# YOU ARE LOOKING A BIT RUSTY TODAY.

The average person has between 3 and 4 grams of iron in their body. Iron is an essential element for blood production. About 70% of the iron in your body is found in hemoglobin and myoglobin.

**THE REAL CHEM**



# THE GOBLINS ARE HERE!

'Kobalt' means 'Goblin' in German. Miners gave this name to the element we know now as cobalt because they were superstitious. Today, cobalt is commonly used in batteries.

**THE REAL CHEM**



# A NICKEL IS NOT A NICKEL.

A nickel is only 25% nickel and 75% copper.  
A nickel isn't even made mostly of nickel!

**THE REAL CHEM**



# YOU GOT YOUR METAL IN MY CHOCOLATE.

Copper is an essential trace mineral found in many of the foods we eat: oysters, nuts, seeds, shiitake mushrooms, lobster, liver, leafy greens and, yes, dark chocolate.

**THE REAL CHEM**



# I GOT YOUR BACK... AND THE REST OF YOUR BODY TOO.

Zinc oxide is a common component in sunscreen. This mineral helps protect us from the dangerous ionizing effects of ultraviolet radiation from the sun.

**THE REAL CHEM**



# HOW OFTEN DO YOU USE YOUR PHONE?

Gallium is one of the most important elements used in the making of mobile phones. If we did not have gallium, how would you talk to your family or friends?

**THE REAL CHEM**



# PICTURE PERFECT.

Germanium oxide has a high rate of dispersion and refraction, so it is used in camera lenses to help refract the light.

**THE REAL CHEM**





# SCARE OFF VAMPIRES.

A notorious poison, arsenic emits a garlic aroma when heated. Although highly toxic in its inorganic form, arsenic is currently being used to treat some forms of leukaemia.

**THE REAL CHEM**



# HOW MUCH FUNGUS IS IN YOUR HAIR?

Selenium is toxic to the fungus  
that causes dandruff, and is used  
in anti-dandruff shampoos.

**THE REAL CHEM**



# THAT IS NOT MARINARA SAUCE.

Bromine is a fuming red-brown poisonous liquid at room temperature. It can cause serious respiratory problems, nausea, vomiting and skin damage.

**THE REAL CHEM**



# LOOK UP... SEE THOSE LIGHTS ON THE CEILING?

Some fluorescent light bulbs are filled with a mixture of krypton and argon gases. So, chances are, the lights above you contain some amount of krypton in them!

**THE REAL CHEM**



# YOU EVER JUST... SPONTANEOUSLY COMBUSTED?

When exposed to air, rubidium will ignite.  
In order to avoid that, rubidium must be  
kept in inert gas areas or mineral oil.

**THE REAL CHEM**



# YOU GIVE OFF SOME STRONG SIGNALS.

Strontium salts are used in flares and fireworks to give off the red colors seen in the flame.

**THE REAL CHEM**



# STATUS? IN A RELATIONSHIP.

The rare earth element yttrium has no known uses in its elemental form. Instead, yttrium is used to increase the strength of aluminum and magnesium alloys.

**THE REAL CHEM**



# YOU DON'T REALLY LOOK LIKE A ZIRCON.

Zirconium was first discovered in a colorful gemstone called 'zircon' which means 'gold-like'. Zirconium itself, however, is greyish-white.

**THE REAL CHEM**





# THE BEN AND JERRY OF SCIENCE?

When niobium is found in nature,  
it is almost always found  
side-by-side with the element  
tantalum. Friends for life.

**THE REAL CHEM**



# **KIM JONG UN WANTS “MO” OF THIS.**

Molybdenum (elemental symbol “Mo”) is an element that is vital to the production of nuclear missiles and other nuclear weapons.

**THE REAL CHEM**



# I GOT A BLANK SPACE, BABY... AND I'LL WRITE YOUR SYMBOL.

There was a gap at # 43 in the periodic table until 1937. This unstable, radioactive element was produced artificially, hence the name technetium (Greek for 'craft').

**THE REAL CHEM**



# GET RICH!

Ruthenium is pretty rare. Only twenty tons are produced annually and it costs about \$8,000 per kilogram.

**THE REAL CHEM**



# THE NOBLEST OF METALS

Rhodium is very non reactive for a metal. In fact, it is called a 'noble metal' and has only has one naturally occurring isotope.

**THE REAL CHEM**



# DO NOT CONFUSE IT WITH A BASEBALL.

A pure sample of palladium is prone to spontaneous combustion. So try not to throw at your friends since it might set them on fire.

**THE REAL CHEM**



# HAVE YOU EVER WANTED TO MAKE YOUR OWN MIRROR?

Well, there is one element that can help you out with that. Silver reflects over 95% of all visible light, so it makes a great mirror.

**THE REAL CHEM**



# **THIS ELEMENT WAS USED BY VINCENT VAN GOGH.**

Cadmium was often used as a pigment in red, orange, and yellow paints during the time when the painter Vincent van Gogh lived.

**THE REAL CHEM**





# IMAGINE A WORLD WITHOUT COMPUTERS.

Indium is used to make various electrical components such as rectifiers, thermistors, and photoconductors. Without indium, you would still be stuck in the stone age.

**THE REAL CHEM**



# THIRD PLACE, FIRST ALLOY.

First and second place medals are pure elements - gold and silver. But third place medals are made of bronze: a mixture of copper and tin (and a smattering of other elements too).

**THE REAL CHEM**



# MUSIC TO MY EARS

During the 16th century, antimony was added to the metal mixture used to make bells in order to achieve a more pleasing tone.

**THE REAL CHEM**



# THINK TWICE ABOUT BEING A VEGETARIAN!

Some plants have taken up tellurium from the soil; a toxic element that can cause damage to your lungs and throat.

**THE REAL CHEM**



# IF YOU DON'T GET YOUR IODINE, YOU MIGHT *IODIE*.

Iodine is used as an antiseptic, to treat goiter and thyroid conditions, and in some cancer treatments.

**THE REAL CHEM**



# YOU CAN'T SEE ME.

Xenon is a colorless and odorless noble gas that only gives off a blue glow when it is electrified in a vacuum tube.

**THE REAL CHEM**



# **NOT SO “HEAVENLY” WHEN IT EXPLODES.**

Cesium's name is derived from Latin word "Caesius" meaning "heavenly blue" thanks to the blue in its emission spectrum. The element, however, explodes instantaneously when it comes in contact with water.

**THE REAL CHEM**



# WOULD YOU EAT RAT POISON?

Barium carbonate is used in rat poison.  
You do not want that in your body.

**THE REAL CHEM**





# FEEL USELESS? WELL, YOU'RE NOT ALONE.

Lanthanum serves no biological role in humans or other animals. However, it is essential for some types of bacteria.

**THE REAL CHEM**



# COSMICALLY INSPIRED

In 1803, Swedish chemist Jöns Jakob Berzelius named cerium after the recently discovered dwarf planet, Ceres.

**THE REAL CHEM**



# HERE FOR A GOOD TIME NOT A LONG TIME

Most of praseodymium's radioactive isotopes  
have half lives of less than ten minutes.

**THE REAL CHEM**



# **DON'T BURY YOUR TV IN THE YARD.**

Neodymium is a part in making color televisions. When they are disposed of improperly the neodymium can leak into the ground and destroy cell membranes of organisms.

**THE REAL CHEM**



# STOLEN FROM THE GODS

Promethium was named after Prometheus, mankind's champion in Greek mythology. Prometheus stole fire from Zeus and gave it to the mortals, only to be eaten alive everyday as punishment. Sounds painful.

**THE REAL CHEM**



# MORE FAMOUS THAN MINECRAFT

Samarium was the first element to be named after a person: Vassili Samarsky-Bykhovets, a Russian mine official.

**THE REAL CHEM**



# FEND OFF FRAUD: USE EUROPIUM.

Euro banknotes contain special insignia inside of them to help differentiate between official and counterfeit bills. The production of these insignias is only possible with europium.

**THE REAL CHEM**



# A MAGNET FOR WINTER BUT NOT FOR SUMMER?

Gadolinium has a low 'Curie Point'. This means that at temperature higher than 20 °C, it will not stick to a magnet.

**THE REAL CHEM**





# FOOD ISN'T THE ONLY THING KNIVES CUT.

Knives can also cut soft metals like terbium. Terbium is also used to help make x-rays safer with the same quality image by making the exposure time much less.

**THE REAL CHEM**



# STOP PLAYING HARD TO GET.

That's a job for the element dysprosium, whose name is derived from the Greek word "dysprositos", meaning "hard to get". The demand for this element is growing quickly because of its use in motors and generators.

**THE REAL CHEM**



# MAGNETO? HE'S A LIGHTWEIGHT.

Holmium used to create the strongest artificially generated magnetic fields. It was also known as 'Element X' when discovered, which sounds like something straight out of a comic book.

**THE REAL CHEM**



# IT TAKES A VILLAGE.

Samples of the mineral gadolinite from the Swedish village Ytterby contained samples of erbium along with many other interesting elements like ytterbium, scandium, thulium, holmium, gadolinium, yttrium and terbium!

**THE REAL CHEM**



# **RADIOACTIVE: IT'S NOT JUST A SONG.**

One of thulium's isotopes is used as the source of radiation within portable X-rays and lasers. Thulium is not particularly toxic and serves no significant biological role.

**THE REAL CHEM**



# EDIBLE, BUT ONLY ONCE.

Compounds of ytterbium are considered highly toxic and can cause irritation to skin or eyes.

Ytterbium dust can also spontaneously combust.

**THE REAL CHEM**



# LIKE DATING OLD STUFF?

Lutetium's radioactive isotopes can be used to determine the ages of ancient minerals from meteorites.

**THE REAL CHEM**



# MAY THE INTERMOLECULAR FORCE BE WITH YOU.

The element hafnium forms a compound with Carbon to create hafnium carbide.  $\text{HfC}$  has the highest melting point of any 2-element compound, indicating extremely strong intermolecular forces.

**THE REAL CHEM**





# I AM YOUR FATHER, NIOBE.

Tantalus is the father of Niobe in Greek Mythology. The element niobium has very similar properties to another element. Because of this, the other element got its name tantalum.

**THE REAL CHEM**



# LIGHT BULBS: PUBLIC ENEMY#1

Incandescent light bulbs produce light by heating a wire made of tungsten. Unfortunately, a lot of that energy goes into unnecessary heat. There are more environmentally friendly ways of getting your light!

**THE REAL CHEM**



# NEED A JET ENGINE?

Choose rhenium. Rhenium is often used in jet engines and other areas of industry that entail exorbitantly high temperatures. Because of this, rhenium is quite useful.

**THE REAL CHEM**



# A BLOWTORCH WILL GET YOU HALFWAY THERE!

A blowtorch can reach temperatures of up to  $1,430\text{ }^{\circ}\text{C}$ , but the melting point of osmium is  $3,045\text{ }^{\circ}\text{C}$ . Osmium has the 5th highest boiling point and has the 4th highest melting point.

**THE REAL CHEM**



# NO POT OF GOLD AT THE END OF THIS RAINBOW.

The name iridium originates from the Latin word 'iris' which means 'rainbow'. The metal itself, while not rainbow colored, is found in many multi-colored compounds.

**THE REAL CHEM**



# THE MOON IS MADE OF MORE THAN CHEESE.

Entrepreneurs are considering expeditions to prospect for platinum and other valuable resources on the moon's surface.

**THE REAL CHEM**



# LOW ON CASH? PRAY FOR AN EARTHQUAKE!

During earthquakes, the water that is in the crust faults get vaporized due to the immense pressure. This steam forces out minerals like silica and gold and can deposit them onto nearby surfaces!

**THE REAL CHEM**



# CAUSE OF DEATH: LIGHTBULB?

Small amounts of mercury can be accidentally released if a compact fluorescent light bulbs (CLFs) is broken. Please dispose of them properly!

**THE REAL CHEM**





# THE GOVERNMENT DISAPPROVES.

Thallium sulfate was used as a pesticide in the United States. In 1974, the government banned household use of it due to its high level of toxicity.

**THE REAL CHEM**



# IS YOUR WATER POISONING YOU?

Unlike many toxins, lead does not have a safe exposure level, which means your old pipes might be exposing you to unsafe levels of lead.

**THE REAL CHEM**



# BE DIFFERENT.

Bismuth can be easily distinguished  
other other metals by its exotic crystal  
structure and beautiful iridescent  
colors produced by surface oxides.

**THE REAL CHEM**



# **WATCH OUT, JAMES BOND.**

In 2006, Russian assassins allegedly went to England to kill Alexander Litvinenko, a Russian defector, by lacing his tea with deadly polonium.

**THE REAL CHEM**



# WHERE'S SCOOPY DOO WHEN YOU NEED HIM?

Many properties of astatine are still a mystery. It is a rare, radioactive element. Much of what we know based solely by its place on the periodic table.

**THE REAL CHEM**



# THERE COULD BE A KILLER IN YOUR BASEMENT.

Radon is a colorless, odorless, radioactive gas. It can accumulate in some basements. It is estimated to cause almost 15% of lung cancer deaths worldwide even in people who have never smoked.

**THE REAL CHEM**



# FERRIS BUELLER WAS RIGHT. LIFE MOVES PRETTY FAST...

... especially if you're francium. Even its most stable isotopes has a half-life of just 22 minutes!

No more than one ounce of it exists on Earth at any given time so, "If you don't stop and look around once in a while, you could miss it."

**THE REAL CHEM**



# CLOCK UNWISE

Radium, a dangerous and highly radioactive element, was widely used to make glow-in-the-dark clock faces and watch hands.

**THE REAL CHEM**





# DISCOVERED FOR THE FIRST TIME TWICE.

Actinium was first discovered by a French chemist, Andre Debierne, in 1899. A German chemist named Friedrich Giesel, unaware of Debierne's work, independently discovered the element again in 1902.

**THE REAL CHEM**



# RADIOACTIVE TOOTHPASTE?

Thorium was used in a German toothpaste during WWII because its radioactivity was believed to have health benefits.

**THE REAL CHEM**



# **\$500,000 FOR 127 GRAMS**

From 1959 to 1961, the Great Britain Atomic Energy Authority spent half a million dollars to extract 127 grams of protactinium from 120,000 pounds of waste material.

**THE REAL CHEM**



# THE LITTLE BOY WHO SHOOK THE WORLD

Only about 2 pounds of the 140 pounds of uranium in the “Little Boy” atomic bomb underwent fission over Hiroshima. The resulting explosion destroyed everything in a 4.4 mile radius.

**THE REAL CHEM**



# THAT MAKES A LOT OF SENSE, ACTUALLY.

Just as the planet Neptune follows the planet Uranus in our solar system, Neptunium follows Uranium as the next element in the periodic table.

**THE REAL CHEM**



# REALLY MATURE, GLENN

Glenn Seaborg thought it would be funny give plutonium the symbol 'Pu' so that the phrase 'P.U!' (uttered after smelling something stinky) would be forever enshrined on the periodic table.

**THE REAL CHEM**



# **BEEP BEEP BEEP!! DO YOU HEAR THAT??**

Americium is used in fire  
alarms and helps save  
thousands of lives everyday!

**THE REAL CHEM**



# TOXIC ASTRONAUTS

Curium is an artificially produced, expensive, radioactive element. One of its only uses is as a source of alpha particles for spectroscopy equipment on space probes.

**THE REAL CHEM**





# NOT MUCH TO SHOW FOR SIX DECADES...

Berkelium is an extremely rare radioactive metal not found in nature. The United States has barely produced a gram of it during the entirety of the last 60 years!

**THE REAL CHEM**



# **CALIFORNIUM GIRLS, WE'RE UNFORGETTABLE. GLENN THOMAS SEABORG ON TOP.**

Californium was discovered by Glenn Thomas Seaborg, Albert Ghiorso, and Kenneth Street Jr. in 1950. The name was a tribute to California, not Katy Perry.

**THE REAL CHEM**



# WHO'S SUDDENLY HUNGRY FOR A GYRO?

At the time of its discovery, einsteinium was originally called, "athenium", which alludes to Athens, the capital of Greece.

**THE REAL CHEM**



# THE MAD MAX OF ELEMENTS

Fermium is a radioactive element that was discovered in the post apocalyptic debris of the first hydrogen bomb explosion.

**THE REAL CHEM**



# ALL I GOT FOR FATHER'S DAY WAS A TIE.

The name mendelevium is a tribute to the father of the periodic table: Russian scientist, Dmitri Mendeleev. Not an easy name to get the U.S. government to sign off on during the Cold War of the 1950s!

**THE REAL CHEM**



# FUNDED BY DYNAMITE

Nobelium is named in honor of Alfred Nobel. Nobel used his wealth from the invention of dynamite to fund the Nobel Prize.

These honor some of the greatest achievements in science, literature and peace every year.

**THE REAL CHEM**



# ROCKY VS DRAGO. WITH SCIENTISTS.

American and Soviet scientists fought over credit for the discovery of this element. In 1971, the IUPAC credited the discovery of lawrencium to the Americans.

Twenty one years later, the Russian team was given credit as co-discoverers.

**THE REAL CHEM**



# I'VE JUST DUG MY LAST POTATO.

... is what Ernest Rutherford exclaimed when he found out he won a scholarship to Cambridge while working at his family farm.

Rutherfordium honors this pioneer in radioactivity and father of nuclear chemistry.

**THE REAL CHEM**





# ONE FOR YOU, FOUR FOR ME

American and Russian scientists had a 30 year feud over the discovery of element 105. The Americans grudgingly accepted the Russian's suggested name: dubnium.

In the meantime, the IUPAC used the American suggestions for another four disputed elements.

**THE REAL CHEM**



# A LIVING LEGEND

Seaborgium was the first element ever named after a living person.

Glenn Seaborg was directly involved with the discovery of ten elements and helped refine the layout of the modern periodic table.

**THE REAL CHEM**



# THE HONEYMOON IS OVER

Element 107 was named bohrium after the legendary quantum physicist, Niels Bohr. He notably delayed his honeymoon so he could work on his doctoral thesis.

**THE REAL CHEM**



# THE AYES HASS IT

When the IUPAC suggested the name hahnium for this element, the discoverers protested. They wanted to name it after the area in Germany where it was discovered.

The IUPAC eventually relented and element 108 was officially named hassium.

**THE REAL CHEM**



# THE ONLY ELEMENT NAMED AFTER ONE REAL WOMAN

... and it is not curium! That name honors the husband/wife team of Marie AND Pierre Curie.

Meitnerium, however, is a tribute to one extraordinary woman: Lise Meitner, an important pioneer in nuclear fission.

**THE REAL CHEM**



# CALL THE POLICIUM

'1-1-0' is the German equivalent of calling '9-1-1' so the German discoverers thought it would be funny to name element 110, policium.

Alas, it was eventually named darmstadtium instead to honor of the city of its discovery.

**THE REAL CHEM**



# 100 YEARS AND STILL WINNING

In 2004, element 111 was officially named roentgenium to honor the discoverer of X-rays, Wilhelm Röntgen.

A century earlier, Röntgen won the very first Physics Nobel Prize in 1901.

**THE REAL CHEM**



# TROLLING FLAT EARTH

The element Copernicium honors the 16th century mathematician and astronomer, Nicolaus Copernicus. He advocated a heliocentric view the solar system in which spherical planets orbit a central Sun.

(A spherical Earth wasn't anything new, by the way. The Greeks proposed it as early as 500 BC.)

**THE REAL CHEM**





# MADE IN JAPAN

Nihonium honors the fact that element 113 was discovered in Japan. 'Nihon' is one of the Japanese pronunciations for the name of their country.

**THE REAL CHEM**



# DOUBLY MAGIC

Scientists have theorized that certain 'magic' numbers of nuclear particles are more stable.

Flerovium-298 hits magic numbers for both protons AND neutrons. This rare isotope of an even rarer element might have an unusually long half-life!

**THE REAL CHEM**



# ZOMBIES AND ALIENS

Element 115 has enjoyed a role in UFO conspiracies, TV shows and video games such as 'The X-Files', 'X-COM' and 'Call of Duty: Black Ops Zombies'.

In reality, Moscovium is extremely rare and highly unstable. Only about 100 atoms have ever been observed. (Or so they want you to think.)

**THE REAL CHEM**



$$48 + 248 = 116$$

Element 116, Livermorium, was created when Calcium-48 and Curium-248 were fused together with a particle accelerator.

**THE REAL CHEM**



# WOW! FIRST DOLLYWOOD, THEN THIS!

The Volunteer State got another feather in its cap when element 117 was named Tennessine in recognition of Vanderbilt University where it was discovered.

**THE REAL CHEM**



# HERE'S TO YOU, GRANDPA

It is fitting that the heaviest of the elements, Oganesson, is named after Yuri Oganessian.

His techniques played a role in the discovery of almost a dozen elements and earned him the moniker, 'the grandfather of super-heavy elements.'

**THE REAL CHEM**

