Is Nitrogen An Inert Gas

Unlike noble gases, an inert gas is not necessarily elemental and is often a compound gas. Like the noble gases, the tendency for non-reactivity is due to the valence, the outermost electron shell, being complete in all the inert gases. This is a tendency, not a rule, as all noble gases and other "inert" gases can react to form compounds under some conditions. c46256758d Most of the noble gases, which appear in the last column of the periodic table, are classified as inert (or unreactive). These elements are stable in their naturally occurring form (gaseous form) and they are called inert gases. c46256758d == Noble gas == c46256758d == Background == c46256758d

Nitrogen narcosis It can occur during shallow dives, but does not usually become noticeable at depths less than 30 metres (98 ft). Nitrogen narcosis (also known as narcosis while diving, inert gas narcosis, raptures of the deep, Martini effect) is a reversible alteration in consciousness Nitrogen narcosis (also known as narcosis while diving, inert gas narcosis, raptures of the deep, Martini effect) is a reversible alteration in consciousness that occurs while diving at depth. It is caused by the anesthetic effect of certain gases at high partial pressure. Narcosis produces a state similar to drunkenness (alcohol intoxication), or nitrous oxide inhalation. The Greek word νάρκωσις (narkōsis), "the act of making numb", is derived from νάρκη (narkē), "numbness, torpor", a term used by Homer and Hippocrates c46256758d

Inert gas generator Inert gas generators consist distinctively of a gas producer and a scrubbing system. The hot, dirty gas is then passed through a scrubbing Inert gas generator (IGG) refers to machinery on board marine product tankers. 5% oxygen, thereby creating "inert gas", which mainly consist of nitrogen and partly carbon dioxide c46256758d

Purified argon gas is the most commonly used inert gas due to its high natural abundance (78.3% N2, 1% Ar in air) and low relative cost. c46256758d There are four means used by the agents to extinguish a fire. They act on the "fire tetrahedron": c46256758d Three elements are required to initiate and sustain combustion in the ullage: an ignition source (heat), fuel, and oxygen. Combustion may be prevented by reducing any one of these three elements. In many cases there is no ignition source, e.g. storage tanks. If the presence of an ignition source can not be prevented, as is the case with most tanks that feed fuel to internal combustion engines, then the tank may be made non-ignitable by progressively adding an inert gas to the ullage as the fuel is consumed. At present carbon dioxide or nitrogen are used almost... c46256758d According to the U.S. Chemical Safety and Hazard Investigation Board, in humans, "breathing an oxygen deficient atmosphere can have serious and immediate effects, including unconsciousness after only one or two breaths. The exposed person has no warning and cannot sense that the oxygen level is too low." In the US, at least 80 people died from accidental nitrogen asphyxiation between 1992 and 2002. Hazards with inert gases and the risks of asphyxiation are well-established... c46256758d It was first discovered and isolated by Scottish physician Daniel Rutherford in 1772 and independently by Carl Wilhelm Scheele and Henry Cavendish at about the same time. The name nitrogène was suggested by French chemist Jean-Antoine-Claude Chaptal in 1790 when it was found that nitrogen was present in nitric acid and nitrates. Antoine Lavoisier suggested instead the name azote, from the Ancient Greek: ἀζωτικός "no life", as it is an asphyxiant gas; this name is used in a number of languages, and appears in the English names of some nitrogen compounds such as hydrazine... c46256758d

Physiology of decompression It involves a complex interaction of gas solubility, partial pressures and concentration gradients, diffusion, bulk transport by perfusion, and bubble mechanics in living tissues. Gas is inhaled at ambient pressure, and some of this gas dissolves into the blood through the alveolar walls, is circulated, and diffuses into other fluids of perfused tissues. perfused tissues. Inert gas continues to be taken up until the gas dissolved in the tissues is in a state of equilibrium with the gas in the lungs (see: "Saturation diving"), or the ambient pressure is reduced until the inert gases dissolved in the tissues are at a higher concentration than the equilibrium state, and start diffusing out again. Inert gas continues to be taken up until the gas dissolved in the tissues is in a state of equilibrium with the gas in the lungs (see: The physiology of decompression is the aspect of physiology which is affected by exposure to large changes in ambient pressure c46256758d

== Theory == c46256758d == Need and necessity == c46256758d

Isobaric counterdiffusion In medicine, ICD is the diffusion In physiology, isobaric counterdiffusion (ICD) is the diffusion of different gases into and out of tissues while under a constant ambient pressure, after a change of gas composition, and the physiological effects of this phenomenon. It has relevance in mixed gas diving and anesthesiology. breathed one gas mixture (in which the inert component was nitrogen or neon) while being surrounded by another (helium based). The term inert gas counterdiffusion is sometimes used as a synonym, but can also be applied to situations where the ambient pressure changes c46256758d

This generator is sometimes confused with flue gas systems, which draw inert gas from the boiler systems of the ship. Flue gas systems do not have a burner but only "clean" and measure the air before delivering it to the cargo hold. c46256758d Except for helium and presumably neon, all gases that can be breathed have a narcotic effect, although widely varying in degree. The effect is consistently greater for gases with a higher lipid solubility, and although the mechanism of this phenomenon is still not fully clear, there is good evidence that the two properties are mechanistically related. As depth increases, the mental impairment may become hazardous. Divers can learn to cope with some of the effects of narcosis, but it is impossible to develop a tolerance. Narcosis can affect all ambient pressure... c46256758d Isobaric counterdiffusion was first described by Graves, Idicula, Lambertsen, and Quinn in 1973 in subjects who breathed one gas mixture (in which the inert component was nitrogen or neon) while being surrounded by another (helium based). c46256758d

Nitrogen N2 forms about 78% of Earth's atmosphere, making it the most abundant chemical species in air. It is a common element in the universe, estimated at seventh in total abundance in the Milky Way and the Solar System. Nitrogen is a nonmetal and the lightest member of group 15 of the periodic table, often called the pnictogens. At standard temperature and pressure, two atoms of the element bond to form N2, a colourless and odourless diatomic gas. nitrogen is used as an inert (oxygen-free) gas for commercial uses such as food packaging, and much of the rest is used as liquid nitrogen in cryogenic applications Nitrogen is a chemical element; it has symbol N and atomic number 7. Because of the volatility of nitrogen compounds, nitrogen is relatively rare in the solid parts of the Earth c46256758d

Chemically inert assisted by catalysts. The term inert may also be applied in a relative sense. For example, molecular nitrogen is an inert gas under ordinary conditions, existing In chemistry, the term chemically inert is used to describe a substance that is not chemically reactive. From a thermodynamic perspective, a substance is inert, or nonlabile, if it is thermodynamically unstable (negative standard Gibbs free energy of formation) yet decomposes at a slow, or negligible rate c46256758d

Gaseous fire suppression Argonite / IG-55 (ProInert) (a blend of 50% argon, 50% nitrogen); CO2, carbon dioxide; Inert Gas 541 IG-541 Inergen (a blend of 52% nitrogen, 40% argon, and Gaseous fire suppression, also called clean agent fire suppression, is the use of inert gases and chemical agents to extinguish a fire. The system typically consists of the agent, agent storage containers, agent release valves, fire detectors, fire detection system (wiring control panel, actuation signaling), agent delivery piping, and agent dispersion nozzles. These agents are governed by the National Fire Protection Association (NFPA) Standard for Clean Agent Fire Extinguishing Systems – NFPA 2001 in the US, with different standards and regulations elsewhere c46256758d

The... c46256758d Diesel is burned using atmospheric air in a combustion chamber and the exhaust gas collected, the resulting exhaust gas contains less than 5% oxygen, thereby creating "inert gas", which mainly consist of nitrogen and partly carbon dioxide. The hot, dirty gas is then passed through a scrubbing tower which cleans and cools it using seawater. This gas is then delivered to cargo tanks to prevent explosion of flammable cargo. c46256758d == Principle of operation == c46256758d == Process == c46256758d

Inerting system An inerting system replaces the air with a gas that cannot support combustion, such as nitrogen. The most common such system is a fuel tank containing a combustible liquid, such as gasoline, diesel fuel, aviation fuel, jet fuel, or rocket propellant. After being fully filled, and during use, there is a space above the fuel, called the ullage, that contains evaporated fuel mixed with air, which contains the oxygen necessary for combustion. At present carbon dioxide or nitrogen are used almost exclusively, although An inerting system decreases the probability of combustion of flammable materials stored in a confined space. non-ignitable by progressively adding an inert gas to the ullage as the fuel is consumed. Under the right conditions this mixture can ignite c46256758d

Inert gas considered inert gases. Though inert gases have a variety of applications, they are generally used to prevent unwanted chemical reactions with the oxygen (oxidation) and moisture (hydrolysis) in the air from degrading a sample. The term inert gas is context-dependent because several of the inert gases, including nitrogen and carbon dioxide, can be made to react under certain conditions. Generally, nitrogen, carbon dioxide, and all noble gases except oganesson (helium, neon, argon, krypton, xenon, and radon) are considered inert gases. The term inert gas is context-dependent because several of the inert gases, including nitrogen and carbon dioxide, can be made An inert gas is a gas that does not readily undergo chemical reactions with other chemical substances and therefore does not readily form chemical compounds c46256758d

The absorption of gases in liquids depends on the solubility of the specific gas in the specific liquid, the concentration of gas (customarily expressed as partial pressure) and temperature. In the study of decompression theory, the behaviour of gases dissolved in the body tissues is investigated and modeled for variations of pressure over time. Once dissolved, distribution of the dissolved... c46256758d

Inert gas asphyxiation Examples of physiologically inert gases, which have caused accidental or deliberate death by this mechanism, are argon, xenon, helium and nitrogen. rather

than atmospheric air (which is composed largely of nitrogen and oxygen). Instead, the gas acts as a simple diluent to reduce the oxygen concentration in inspired gas and blood to dangerously low levels, thereby eventually depriving cells in the body of oxygen. Examples of physiologically inert gases, which have caused accidental or Inert gas asphyxiation is a form of asphyxiation that results from breathing a physiologically inert gas in the absence of oxygen, or a low amount of oxygen (hypoxia), rather than atmospheric air (which is composed largely of nitrogen and oxygen). The term "physiologically inert" is used to indicate a gas that has no toxic or anesthetic properties and does not act upon the heart or hemoglobin c46256758d