

0.4.1 NITROGEN

Nitrogen is a colorless and odourless gas. Its chemical symbol is N, its atomic number is 7, its atomic mass 14.0067, at room temperature it is gaseous, non-flammable; it's a dry gas that does not promote corrosion.



0.4a

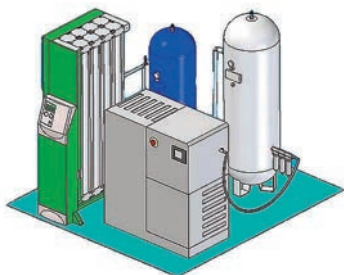
Nitrogen was discovered in Scotland in 1772 by Daniel Rutherford, uncle of Sir Walter Scott and simultaneously, but independently by Joseph Priestley and Henry Cavendish in England and by Carl W. Scheele in Sweden. The French chemist Antoine L. Lavoisier proved that it was a chemical element and named it "azote", in fact the French have used until recently the symbol Az. The symbol N derived by nitrogen, compound word from the Greek words Nitron and genes, meaning generator of saltpeter, because one of the most important compounds, known to the ancient Greeks, was the saltpeter. From what, all the oxygenated nitrogen compounds are named with the common origin nitro. The name "azote" also comes from the Greek and means lifeless, indicating that does not support the combustion and therefore breathing, but it's not a very appropriate term in view of the fact that nitrogen is one of the fundamental constituents of the living organisms.

0.4.2 NATURAL SOURCES

Nitrogen is the most abundant element that occurs naturally in a free state, in the form of diatomic molecules. The air contains 78.06% by volume of nitrogen (75.5% by weight) and it is also found in gases emitted from volcanoes, hot springs and mines.

The most important nitrogen's mineral is nitrate of Sodium, also known as Chile saltpetre or Chile's nitre.

Nitrogen is also found in seawater in the form of ions, such as the ammonia, nitrites, and nitrates. The nitrogen used in industry is usually obtained from the fractional distillation of air liquid.

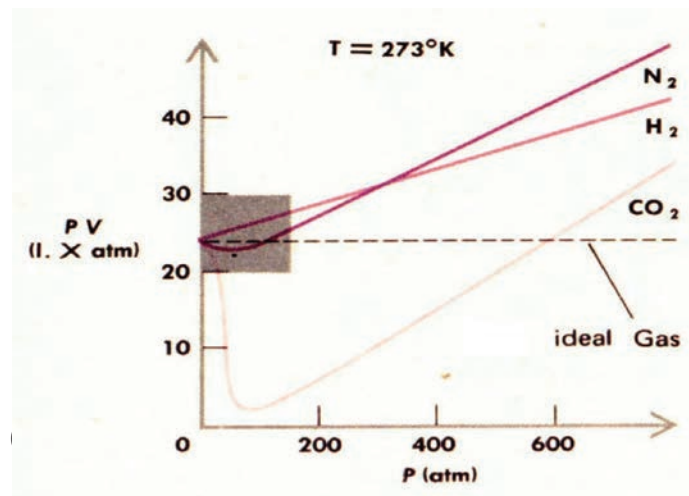


0.4b

If, however, are required only small amounts of nitrogen, it can be prepared by decomposing the compounds.

0.4.3 USE

Gaseous nitrogen is an inert gas due to the high stability of the triple bond that joins the two nitrogen atoms forming the molecule.



0.4c

Nitrogen is mainly used for the synthesis of ammonia, used in turn to produce fertilizers, nitric acid, urea, hydrazine and amines. The liquid nitrogen is used as a super cooling in cryogenics, as its temperature is about -196°C. Because of its low reactivity, gaseous nitrogen is used to form an inert atmosphere within which the substances with high reactivity may be stored or processed in a controlled situation. You can remove water from organic solvents by bubbling nitrogen. Nitrogen is also used to block the oxidation reactions, for example, when the coffee is roasted.

Because of its characteristics, the gas mainly used for the pre-charge of the accumulators is nitrogen. The choice of nitrogen is dictated by its properties of inert gas, in fact, the combination air-oil at high pressure and high temperature can trigger spontaneous combustion (detonation), while nitrogen is not flammable and is stable at the variation of the temperature.

In addition, another advantage of using nitrogen is to reduce the phenomenon of aging of elastomers (bladders, seals, diaphragms), which in contact with air or other gases, could lose or reduce their elasticity in a short time. Nitrogen is easy to find on the market, it is in shells, pressurized to about 200 bar and it is quite cheap.

The pure nitrogen, commercially available, is produced by the fractional distillation of air liquid. Nitrogen, more volatile than oxygen, moves to the head of the distillation column.

For security reasons it is absolutely forbidden to use oxygen or other gases to pre-charge the accumulators.

0.4.4 TECHNICAL DATA

ATOMIC NUMBER: 7

CHEMICAL NAME: nitrogen

CHEMICAL FORMULA: N₂

EC NUMBER: 231-783-9

HAZARDS IDENTIFICATION: not classified as dangerous according to Directive 67/548/EEC

COLOUR: colorless

ODOUR: none

PHYSICAL STATE: gas

PURITY: 99.6 ÷ 99.9 %

BOILING POINT: -195,79 °C

MELTING/FREEZING POINT: -209,99 °C

VAPOUR DENSITY at 0 °C: 0,97 (air = 1)

CRITICAL TEMPERATURE: -146,9 °C

DENSITY: 1,25 Kg/m³

ATOMIC MASS: 14,0067

0.4.5 SAFETY

Name: Compressed Gas

Non-flammable, non-toxic gas

Classification of the substance: product not classified as hazardous under current regulations.

Classification according to Directive 67/548/EEC: not listed

Classification EC 1272/2008: H280 compressed gas.

UN n°: 1066

H.I. n°: 20

ADR classe: 2

Classification code ADR/RID: 1 A

CAS n°: 07727-37-9

CEE n°: 231-783-9

Note: for use and transport of the pressure vessel containing nitrogen follow all relevant national and international regulations.

0.4.6 HANDLING AND STORAGE

Use only specified equipment suitable on the product, to the pressure and temperature work.

Store the accumulators and/or the shells at a temperature below 50° C in a ventilated environment.

The UNI EN 1089-3 provides a system of identification of commercial compressed gas bottles with color codes of ogives; for nitrogen the ogive is colored in black RAL 9005



0.4d

0.4.7 ECOLOGICAL INFORMATION

Toxicity: does not create any ecological damage

Disposal: Dispose in the atmosphere in a well ventilate area.

Reproduction is forbidden.

In the spirit of continuous improvement, our products may be changed.