

ALL ABOUT GASES

OKNAL[®]



Karbondioksit Carbon Dioxide CO_2

Oksijen Oxygen O_2

Argon Argon Ar

Azot Nitrogen N_2

Amonyak Ammonia NH_3

Azot Protoksit Nitrous Oxide N_2O

Helyum Helium He

Asetilen Acetylene C_2H_2

Kriyojenik Tanklar Cryogenic Tanks



ENDÜSTRİYEL - MEDİKAL - KİMYASAL GAZLAR
Industrial—Medical—Chemical Gases



Sınai ve Tıbbi Gazlar Gıda Petrol Taşımacılık
Madencilik İnşaat Sanayi ve Ticaret A.Ş.

FABRİKA (Factory)

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FİRMA PROFİLİ

Firmamız OKNAL Sınai ve Tıbbi Gazlar A.Ş, Azmi KAPTANOĞLU tarafından, 1991 yılında, %100 yerli sermaye ile Kahramanmaraş'ta kurulmuştur. Kuruluşundan sonra hedeflerini genişleterek Kahramanmaraş, İstanbul, Ankara, Adana, Almanya'da şubeler açmıştır.

İlk olarak oksijen dolum tesisleri ile işe başlayan kuruluşumuz; Karbondioksit, Azot, Asetilen, Amonyak, Helyum, Azot Prodoksit, Hidrojen, Likit Petrol Gazı (LPG) kısacası atmosferde bulunan tüm asal gazları kendi bünyesinde alım-dolum, satış ve satış sonrası müşteri hizmetlerini gerçekleştirmeye başlamıştır.

OKNAL Sınai ve Tıbbi Gazlar A.Ş, bu faaliyetler halkasına Doğal Karbondioksit üretimi yaparak, sıvılaştırma ve saflaştırma tesisini eklemiştir. Gıda ve temizlik sektöründe kullanılan Katı Karbondioksit KURUBUZ'u üreterek bu alanda öncülük yapmıştır.

Şu an Oknal A.Ş bünyesinde karbondioksit, azot, argon, helyum, oksijen, amonyak, narkoz, kurubuz üretimi ve satışı yapılmaktadır.

Kuruluşumuz faaliyetlerine ilave olarak, yangın söndürme sistemleri ve yangın söndürme cihazları; bakım, satış, satış sonrası hizmetlerini TS 862 kapsamında sürdürmektedir.

OKNAL, kendi bünyesinde kurubuz üretim makineleri, kriyojenik tanklar ve her ebatta basınçlı kaplar üretimini yaparak, Ortadoğu ve Avrupa ihracat faaliyetlerini her geçen gün geliştirmektedir. 50'den fazla tırdan oluşan Filosu ve Ortadoğu ülkelerine yaptığı ihracatlarla sektöre damgasına vurmuştur.

COMPANY PROFILE

OKNAL GAS Company was founded by Azmi KAPTANOĞLU with %100 national capital in Kahramanmaraş Industrial zone in 1991. After its foundation, having broadened its objectives, it opened branches in KAHRAMANMARAS, ISTANBUL, ANKARA, ADANA and GERMANY.

Firstly having started its business with oxygen filling station, our company then began to perform purchase-filling, sale and after sale customer services related to carbon dioxide, oxygen, nitrogen, acetylene, ammonia, helium, nitrous oxide liquid petroleum gas (LPG) briefly all noble gases that exist in the atmosphere within its own structure.

Oknal Gas Company added the liquefaction and purification plant for natural carbon dioxide production to these business activities. It pioneered in this field by producing solid carbon dioxide Dry Ice which is used in food and hygiene sectors.

Our company is manufacturing/Selling of Oxygen, Carbon Dioxide, Dry Ice, Nitrogen, Acetylene, Ammonia, Helium, Nitrous Oxide, Liquid Petroleum Gas at present. In addition to its business activities it continuous maintenance, sale and past saleservices of extinguishers within the context of 862

Company is manufacturing cryogenic tank and pressurized vessels in every dimension its own structure and has been successfully improving its exporting business to European and Middle East countries. Oknal, has put his mark on the sector by domestic exporting gas to Middle East countries via its Truck fleet consisting 50 more than vehicles.



OXYGEN

أوكسجين



Oxygen fundamental for all human . Oxygen or O₂, which comprises 21 percent of the earth's atmosphere. The oxygen is not burning but supports burning process. At standard temperature and pressure, oxygen is a colorless, Tasteless odorless gas with the molecular formula O₂. Solubility of oxygen in water at 0 ° C 14.6 mg / L. High-purity liquid O₂ is usually obtained by the fractional distillation of liquefied air.

Oxygen is used by many other industries in a variety of oxidation processes. Mixed with fuel gases, oxygen provides a heat source for many welding, cutting and metal making processes. The most important field used for heat and medical purpose. A fixed quantity of oxygen light blue and glare in both solid and liquid mode.

PHYSICAL PROPERTIES

Chemical formula	O ₂
Molecular Weight	31,9988
Density of the gas at (21.1 °C and 1atm.)	1,326 KG/M ³
Density of the Liquid	50.35 °K
Boiling Point	182,2 °C
Critical Temperature	-118,8 °C
Critical Pressure	49,7 Atm
OKNAL Oxygen purity	%99 ,99



APPLICATIONS



- ✓ Applications
- ✓ Iron and Steel Industry
- ✓ Welding and Cutting
- ✓ Plastic Production.
- ✓ Health Care
- ✓ Medical Use
- ✓ Paper
- ✓ Petrochemical Industry
- ✓ Waste Eater Treatment Plants.

NITROGEN

AZOT

نيتروجين

Nitrogen is a chemical element that has the symbol N. Elemental nitrogen is a colourless, odorless, tasteless. Constituting 78.08% by volume of Earth's atmosphere.

Many industrially important compounds, such as ammonia, nitric acid, organic nitrates (propellants and explosives), and cyanides, contain nitrogen. Liquid nitrogen is nitrogen in a liquid state at a very low temperature. (-196°C) It is produced industrially by fractional distillation of liquid air. Liquid nitrogen is a colourless clear liquid with density at its boiling point of 0.807 g/mL.



PHYSICAL PROPERTIES

Chemical Formula	N ₂
Molecular Weight	28,01
Density of the Gas (21°C 1 Atm)	1.153 kg/m ³
Density of Liquid (1 Atm)	808.5 kg/m ³
Critical Temperature	-146.9 °C
Critical Pressure	3399 KPa,abs
Critical density	314.9 kg/m ³
OKNAL Nitrogen Purity	%99,999



APPLICATIONS

- ✓ Chemical and petrochemical industry,
- ✓ Oil and gas industry,
- ✓ Beverage industry, (Fruit juice, beer, whisky, wine, etc.)
- ✓ Food industry,
- ✓ Iron and Steel Industry,
- ✓ Laser cutting,
- ✓ Pressure Transfer,
- ✓ Tyre industry,
- ✓ Machinery manufacturing and metal fabrication,
- ✓ Electronic production,
- ✓ Use in military aircraft fuel systems to reduce fire hazard,
- ✓ To preserve the freshness of packaged or bulk foods,





ثاني أوكسيد الكربون

CARBON DIOXIDE

It has no smell and color, it can easily liquefy at 152 °C and 36 atmospheric pressure, has a sour flavor. Its symbol is CO₂. . It is 1,53 times heavier than air. It can be present as liquid in a closed container at 4 bars. Carbon Dioxide : is name of the compound which has molecule consisting of covalent bounded one carbon and two oxygen atoms and exists as gaseous state in normal conditions. It has no color and smell. Carbon Dioxide has vital importance for animals and plants world.

Being original source of the Carbon Dioxide, the nature has been producing the purest Carbon Dioxide based especially on volcanic activities for millions of year. However, in this century Carbon Dioxide is manufacturing from waste gas Oknal Company obtain its natural raw material from its intagrated stations. Carbon Dioxide is required to be preserved in liquid state in order to transport it. We transport the product to the customer in time and a good manner by means of specially made transport tanks and tow trucks of latest model.

When the liquid Carbon Dioxide being under pressure is suddenly brought to the atmospheric conditions, some part of the carbon dioxide takes snowy shape. The other part becomes gas. Solid carbon dioxide namely dry ice is obtained in varios shapes by pressurizing the snow shaped carbon dioxide under presses. Natural carbon dioxide is used in most of the commercial field.



PROPERTHE PLACE OF CARBON DIOXIDE GAS IN OUR LIFE

- As an inert coverer in metal welding
- Iron packaging, hardening the crucible surfaces
- At organic agriculture and greenhouses
- At cement improvement
- As a fertilizer
- At air beds
- At swelling of lifeguard boats, as torpedo pusher
- At mines as exploder, at cooling of exploder materials
- In aerosols and fire extinguisher tubes, at fire extinguisher systems
- At transferring of dangerous liquids
- At extraction of petrol
- In drinks like barrel beer, cola and mineral water
- Storage and keeping of frozen food, fruits, vegetables and flowers
- To preserve the freshness in substances which can spoil easily
- At the production of ice cream, milk and butter
- Medicine Production

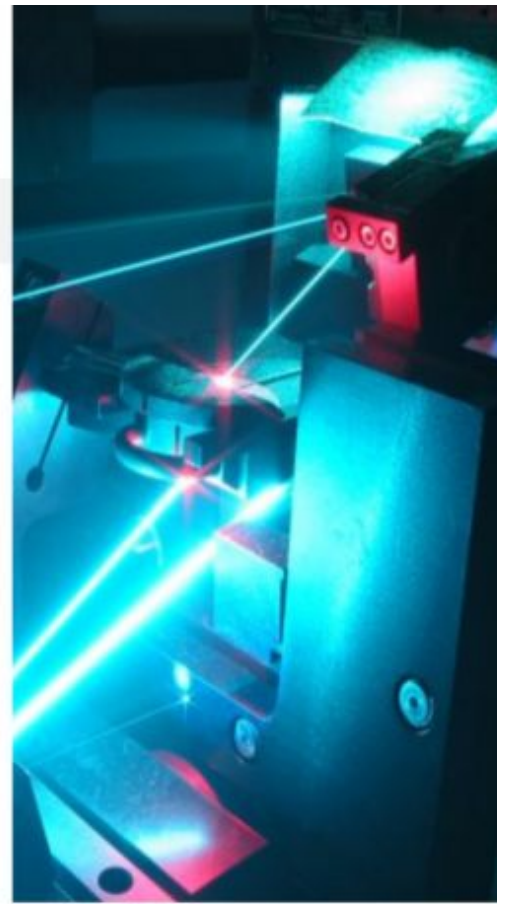


ARGON

أرغون

Argon is colorless, odorless, and nontoxic as a solid, liquid and gas. Argon a chemical element designated by the symbol Ar. Argon is the third most common gas in the Earth's atmosphere, at 0.93% Argon has approximately the same solubility in water as oxygen gas and is 2.5 times more soluble in water than nitrogen gas.

Argon is available as gas in cylinders and Tube as well as bulk liquid in Cryogenic tanks Argon is widely used by the Light Manufacturing Industry for filling bulbs. Argon is widely used by the Light Manufacturing Industry for filling bulbs Though, argon is more commonly used in gaseous state, it is commonly stored and transported as a liquid, affording a more cost effective way of providing product supply



PHYSICAL PROPERTIES

Chemical Formula	Ar
Molecular Weight	39.95
Density of the Gas	1.654 kg/m ³
Density of Liquid	1394 kg/m ³
Critical Temperature	-122.3°C
Critical Pressure	4905 kPa,abs
Critical density	535.6 kg/m ³
OKNAL Argon Purity	%99,999



APPLICATIONS

- Industrial processes
- Stainless steel and aluminum welding
- Laboratories
- Machine and metal Industries
- Iron and Steel Industries
- Lighting
- Fire-extinguishing systems
- Laser processes



AMMONIA

غاز الأمونيا

Ammonia is chemical element that has the symbol NH_3 . Ammonia, is the starting material for the production of many important nitrogen compounds. It is than air and colourless gas with a characteristic pungent odour. Ammonia, as used commercially, is often called anhydrous ammonia. This term emphasizes the absence of water in the material. But ammonia is dissolved easily in water.

Ammonia can be turned from a gas into a liquid by compression or by cooling to about -33 C . In returning to the gaseous state, it absorbs substantial amounts of heat from its surroundings. The major use of ammonia is as a fertilizer .It is either applied directly to the soil as liquid or as ammonium nitrate, ammonium phosphate, and other salts. Ammonia, either directly or indirectly, is also a building block for the synthesis of many pharmaceuticals.



PHYSICAL PROPERTIES

Chemical Formula	NH_3
Molecular Weight	17,031 g / mol
Density of the Gas (1.013 bar -15 °C)	0.73 kg/m ³
Density of Liquid (-33.3 °C)	681.9 kg/m ³
Critical Temperature	132,44 °C
Critical Pressure	113 bar
OKNAL Ammonia Purity	%99,99



APPLICATIONS

- Fertilizer Production
- Cleaner Production
- Refrigeration Gas (R 717)
- Ice Production
- Fuel of the rocket the X-15
- Textile Industry



OTHER GASES

Gaseous products including gases which liquify under high pressure such as delivered in high pressure cylinders. The cylinders are seamless and manufactured according to TS 11169/ISO 4705.



OKNAL ACETYLENE الأستيلين

Acetylene is a highly flammable gas. An acetylene/oxygen flame have a temperature over 3000°C. Acetylene is conventionally produced through a reaction between calcium carbide and water.

Applications

- Glass Industry
- Machine/Metal Construction
- Chemical Use
- Paper Industry
- Water purification, odor control, tea, fermentation



OKNAL HELIUM الهليوم

Helium (He) is a colourless, odourless inert gas and is present in the Earth's atmosphere to the extent of 5 ppm (0.0005 vol.-%). Helium is the second lightest element and the one with the lowest boiling point, -268,9°C. Helium is recovered most cost-effectively from natural gas. Due to its favourable physical and chemical properties, such as low density, small atom radius, high thermal conductivity and low boiling point, helium can be used for a multitude of applications.

Applications

- Balloons and Rocket Production
- Medical Use
- MRI Tests
- Electronics Industry



OKNAL NITROUS OXIDE أوكسيد النيتروز

Nitrous oxide (Narcosis), commonly known as laughing gas, is a chemical compound with the formula N₂O. It is an oxide of nitrogen. At room temperature, it is a colorless non-flammable gas, with a pleasant, slightly sweet odor and taste. It is used in surgery and dentistry for its anesthetic and analgesic effects. It is also used as an oxidizer in rocketry and in motor racing to increase the power output of engines.

Applications

- Health sector
- Medicine production
- Internal combustion engine
- Aerosol propellant
- Rocket motors



OKNAL MIXED GASES خليط الغازات

Gas mixtures are either mixed continuously on site from pure gases or supplied premixed. Our gases for the Metal Fabrication industry and for the Food industry, are often examples of different gas mixtures. Our company is manufacturing all mixed gases.

Applications

- Chemicals & Petrochemicals
- Oil & Gas Industry
- Laser Cuttings and Metal Weldings
- Electronics Industry
- R&D Labs

THE CRYOGENIC TANKS AND THE TRANSPORTATION OF PRODUCT

OKNAL is manufacturing cryogenic tank (Oxygen-Nitrogen-Argon Tanks), Carbon dioxide Tank, Transport Tanks and its own structure and has been successfully improving its country wide and exporting business to Middle East countries. Oknal, has put his mark on the sector by domestic exporting gas to Middle East countries via its Transport Tanks Truck fleet consisting 50 more than vehicles.

Cryogenic tanks are used for gases in liquid phase to be transported and stored. Tanks are produced to store the inert gas at $-196\text{ }^{\circ}\text{C}$ at less temperature, depending on different design parameters. The storage tanks assigned to usage are manufactured according to international standards and certified by third party inspection and controlling institutes. Storage tank capacities vary from 5,000 liters to 100,000 liters. Those except for liquid carbon dioxide, the tanks are cryogenic type. Liquid argon, oxygen, nitrogen and carbon dioxide is delivered to customers that have high consumption rates. Liquid products are transported by OKNAL's fleet of TIR-tankers to customer's site and delivered in the storage tank belonging to OKNAL which is assigned to usage of the customer.

OKNAL Technical Support Department and Logistical Department will determine the optimum storage tank size, select the suitable tank location. The department shall design, manufacture and install all the related gas controlling, regulating, monitoring equipment and the gas or liquid distribution lines needed for the application.



OKNAL



Oxygen

Helium

Carbon Dioxide

Nitrogen

Ammonia

Argon

Acetylene

ALL ABOUT GASES

OKNAL[®]

Karbondiyoksit	Carbon Dioxide	CO ₂	ثاني أكسيد الكربون
Oksijen	Oxygen	O ₂	أوكسجين
Argon	Argon	Ar	أرغون
Azot	Nitrogen	N ₂	نيتروجين
Amonyak	Ammonia	NH ₃	غاز الأمونيا
Azot Protoksit	Nitrous Oxide	N ₂ O	أوكسيد النيتروز
Helyum	Helium	HE	الهليوم
Asetilen	Acetylene	C ₂ H ₂	الأسيتيلين
Hidrojen	Hydrogen	H	هيدروجين
Karışım Gazları	Mixed Gases		خليط الغازات
Kriyojenik Tanklar	Cryogenic Tanks		

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Industrial—Medical—Chemical Gases



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