



液化空气集团在中国

Air Liquide in China

全球工业与医疗保健气体、技术和服

务领域的领导者
The world leader in gases, technologies and services for Industry and Health



目录

Contents

液化空气集团	02	Air Liquide Group
液化空气集团在中国	04	Air Liquide in China
多种供气模式	06	Diverse Supply Modes
安全、健康与环境	07	Safety, Health and the Environment
通用工业	08	Industrial Merchant
大工业	10	Large Industries
电子气	12	Electronics
医疗保健	14	Healthcare
工程与制造业务	16	Engineering and Construction
创新	18	Innovation
可持续发展	19	Sustainable Development
环保技术	20	Technologies for Environmental Protection
中国主要联络方式	21	Major Contacts in China



液化空气集团——全球工业与医疗保健气体、技术和服 务领域的领导者，业务遍及80个国家，员工约68,000人，为超过300万名客户与患者提供服务⁽¹⁾。氧气、氮气和氢气是生命、物质及能源不可或缺的小分子。它们象征着液化空气的科学疆域，自集团1902年成立以来，始终位于其业务的核心。

液化空气集团的宏伟目标是领导所在行业，实现长期业绩，并致力于可持续发展。公司以客户为中心的转型战略旨在实现长期盈利性增长。这依托于全球范围内的卓越运营、选择性投资、开放式创新和网络化组织。通过员工的全心投入与不断创新，液化空气集团利用能源与环境转型、医疗保健及数字化领域的变革，为所有利益相关方创造更多价值。

2015年，液化空气集团的销售总额达164亿欧元，其中保护生命与环境的解决方案所占销售份额超过40%。2016年5月23日，液化空气完成对Airgas的收购，其上一财年（截至2016年3月31日）销售总额达53亿美元（约48亿欧元）。

液化空气集团在巴黎泛欧证券交易所上市（A类），同时是法国指股CAC 40指数及道琼斯欧元区斯托克50指数的成员企业。

The world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 68,000 employees and serves more than 3 million customers and patients⁽¹⁾. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide's scientific territory and have been at the core of the company's activities since its creation in 1902.

Air Liquide's ambition is to lead its industry, deliver long-term performance and contribute to sustainability. The company's customer-centric transformation strategy aims at profitable growth over the long term. It relies on operational excellence, selective investments, open innovation and a network organization implemented by the Group worldwide. Through the commitment and inventiveness of its people, Air Liquide leverages energy and environment transition, changes in healthcare and digitization, and delivers greater value to all its stakeholders.

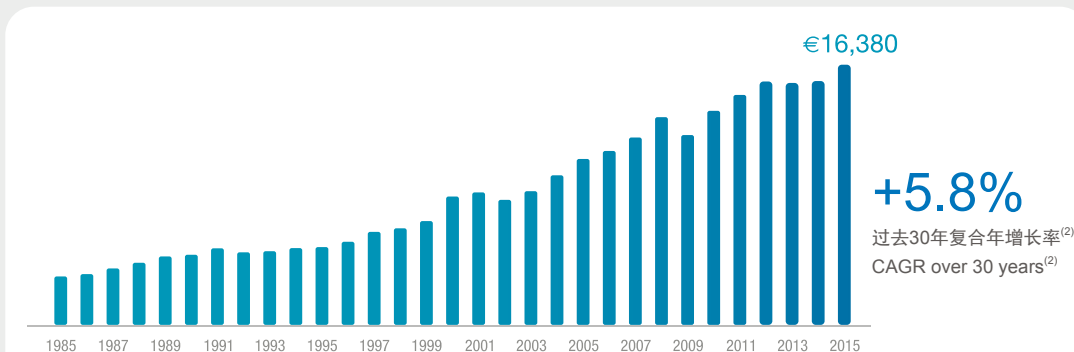
Air Liquide's revenues amounted to €16.4 billion in 2015, and its solutions that protect life and the environment represented more than 40% of sales. On 23 May 2016, Air Liquide completed its acquisition of Airgas, which had revenues amounting to \$5.3 billion (around €4.8 billion) for the fiscal year ending 31 March 2016.

Air Liquide is listed on the Paris Euronext stock exchange (compartment A) and belongs to the CAC 40 and Dow Jones Euro Stoxx 50 indexes.

近30年稳健与持续的业绩成长

Regular and sustained performance over 30 years

销售额(百万欧元)
Revenue (in € m)



⁽¹⁾ 2016年5月23日完成对Airgas的收购之后。⁽¹⁾ Following the acquisition of Airgas on 23 May 2016.

⁽²⁾ 根据过去30年的现行会计准则计算。⁽²⁾ Calculated according to prevailing accounting rules over 30 years.

液化空气集团在中国

Air Liquide in China



液化空气集团于1916年进入中国，目前在中国设有近90家工厂，遍布 40多个城市，拥有约4,500名员工。集团在华主要经营范围包括工业及医用气体的运营，由全球工程技术业务单元开展的工程技术业务，以及先进事业技术部和上海研发与技术中心从事的创新业务。公司业务已覆盖中国重要的沿海工业区域，并继续向中部、南部和西部地区拓展。

液化空气通过创造卓越绩效和履行责任追求盈利性增长和可持续的长期发展，并保持在中国的领先地位。依托卓越运营、选择性投资、开放式创新和网络化组织，公司聚焦能源、环境、高科技和医疗保健等领域，以迎接挑战并创造新的市场机遇。凭借专业团队的全力支持，公司致力于为客户提供可信赖的服务与高附加值解决方案，同时履行企业责任。

Entering China in 1916, Air Liquide operates nearly 90 plants in over 40 cities with about 4,500 employees nationwide today. Its main business includes industrial and medical gas operations, Engineering & Construction via Global E&C Solutions division, as well as innovation activities by advanced Business & Technologies and Shanghai Research & Technology Center. With a strong presence in the key coastal industrial areas, Air Liquide is further expanding into the center, south and west of China.

Air Liquide pursues profitable and sustainable growth over the long term through delivering excellent performance and acting responsibly, while maintaining a leading position in China. It relies on operational excellence, selective investments, open innovation and a network organization to meet today's challenges and to create new markets and opportunities with a focus on the energy, environment, high technology, and healthcare sectors. With dedicated support from its professional teams, Air Liquide China is committed to providing reliable services and value-added solutions to its customers while fulfilling its role as a responsible corporate citizen.



液化空气集团在中国的主要业务 Main business of Air Liquide in China

通用工业 Industrial Merchant

为中小气体用量的客户提供适用于众多应用领域的气体和服务
Supply of gases in small and medium quantities for diversified sectors

大工业 Large Industries

为化工、炼油、冶金及能源转化等领域大型工业用户提供大宗气体解决方案
Supply of large volumes of industrial gases for industries of chemical, refining, metallurgy, and energy conversion

电子气 Electronics

为半导体、平板显示器和光伏领域的客户提供载气、特种气、液态化学品、先进材料、生产和安装流体输送装置及相关服务
Supply of carrier gases, specialty gases, liquid chemicals, manufacturing and installation of fluid distribution equipment, and associated service for semi-conductor, flat panel display and photovoltaic industry

医疗保健 Healthcare

为医院、家庭护理和卫生消毒供应医用气体、呼吸设备和相关服务
Supply of medical gases, services and respiratory equipment to hospitals, home healthcare and hygiene

工程与制造 Engineering & Construction

专业从事先进的空分装置、合成气纯化装置、制一氧化碳装置、制氢装置及其它工业气体装置的设计、工程、制造和安装业务
Designing, engineering, manufacturing and constructing leading-edge air separation units, syngas purification units, carbon monoxide plants, hydrogen recovery plants, and other industrial gas plants

相关业务 Related Activities

焊接、研发、先进事业技术
Welding, research and development, advanced Business & Technologies

多种供气模式

Diverse Supply Modes

液化空气集团拥有先进的技术以及经验丰富的专家团队，根据您的需求提供完整的气体解决方案，并通过四种专业安全的方式进行配送：工业钢瓶、液态大宗气体、现场制气和管道输送。

We provide reliable and high-quality solutions through innovative gas applications, and our products are delivered to customers in a safe and professional way via cylinder, bulk, on-site and pipeline.



工业钢瓶

针对需要进行移动作业或用气量较小的用户，钢瓶气是一种极为实用的、能满足各种生产过程需要的供气模式。这些气体的供应既可以通过单个的气瓶，也可以用不同容量的集装箱，并由我们的运输车队进行快速配送。

液态大宗气体

针对用气量较大的客户，液化空气集团提供安全可靠的大宗液态气体供给。由大型工厂生产出的各类低温大宗液态气体以专用低温液体槽车运送到客户端，并将其存储在用户的低温储罐内供使用。

现场制气

针对用气量大的客户，我们根据客户生产过程的参数（纯度、流量、气压）设计并安装工艺先进的现场制气设备，提供现场生产即时所需的气体，并对客户现场的供气装置实施远程控制，帮助客户提高生产率与安全性。

管道输送

针对用气量巨大的工业气体用户和集中在工业区的群体客户，液化空气集团通过管道输送来实现氧气、氮气、氢气、一氧化碳以及蒸汽的大量供给。我们能保障供应的高度安全性与可靠性，并能帮助客户优化资源配置，降低生产成本，集中资源发展其自身核心业务。

Cylinders

For gas users who need mobility and/or with demand for small volume, gas cylinders can represent an extremely practical method of supplying gas to meet the needs of various manufacturing processes. The gases can be supplied in either individual cylinders or pallets of various capacities for your application and delivered promptly by our transport fleet.

Bulk gases

For users of relatively large volume of gas, we offer safe and reliable bulk products which are produced and liquefied in plants, and typically delivered directly to customers' cryogenic liquid storage vessel by insulated cryogenic trucks.

On-site production

For users of large volume gas, on the basis of customers' process (purity, flow rate, pressure), we design and install the on-site equipment with advanced technologies to produce the gases needed instantaneously for production. In addition, we also implement remote control on the gas supply equipment to help customers improve productivity and safety.

Pipelines

For large volume industrial gas users, and a group of customers concentrated in industrial zones, Air Liquide supplies industrial gases by pipelines for a large-scale use of O₂, N₂, H₂, CO or steam. Our offer ensures the highest reliability of supply, and helps customers focusing on their core business by saving their resources greatly.

安全、健康与环境

Safety, Health and the Environment

安全，贯穿始终

作为一家在工业与医疗保健气体、技术和服务领域具有高度责任心的企业，液化空气集团始终将安全作为重中之重，旨在确保其运行不会对员工、客户以及当地居民的安全造成危险。20年来，在所有管理人员和员工的共同努力下，液化空气中国始终保持着良好的安全业绩，损时事故率一直处于极低水平。

2005年，液化空气集团在全球推行工业管理系统IMS。IMS是集团为持续提升工业运行的安全性、可靠性和环保水平而推行的全球统一的管理系统，它包括了集团所有工业装置的技术程序和标准，并有相应的审计程序以强化对运行的控制。作为第一批实施IMS的成员之一，液化空气中国于同年在全国范围内实施了IMS，加强对遍布中国各区域的众多工厂的运行管理。同时，液化空气还大力推动基于个人责任意识的安全文化，因为只有将切实可行的规范与个人及集体的安全的意识结合起来，才能持续提升安全业绩。

保护健康与环境

确保人员安全、控制工业风险，推进节能减排是液化空气的一贯承诺。液化空气始终致力于持续改善员工工作环境，并制订相应的职业健康安全政策、工作程序和作业标准来不断加强劳动者的职业健康管理。

液化空气中国也十分注重保护环境。虽然液化空气的主要生产设施——空分装置在生产过程并不直接排放二氧化碳，但液化空气一直致力于节能减排。在遵守中国相关法规的基础上，液化空气建立了关键考核指标(KPI)来监控能耗状况，力求更加节能环保。此外，液化空气还积极倡导“碳中和”的概念，通过每年的“液化空气中国绿色行动”、“世界地球日”以及“液化空气环保生活”等各类活动，增强液化空气员工、客户、供应商及社区公众的环保意识，推行低碳生活方式。

Perpetual safety across all subsidiaries

As a responsible player in gases, technologies and services for Industry and Health, Air Liquide always takes safety as the top priority with the goal to constantly ensure that its operations do not place its employees, customers, or local populations in danger. Over 20 years, under the unremitting efforts of all employees, Air Liquide China has maintained an excellent safety performance, with extremely low lost-time accident rates.

In 2005, the Air Liquide Group implemented Industrial Management System (IMS) globally. This is the only management system promoted by the Group worldwide to continuously improve the safety, reliability and environmental friendliness of industrial operations. It consists of technical procedures and standards for all industrial units in the Group, along with corresponding audit procedures to reinforce its control on operations. As one of the first members in IMS implementation, Air Liquide China launched IMS throughout China in the same year to enhance the management on the operations of numerous plants nationwide. While IMS takes root throughout the Group, Air Liquide continues its effort in promoting a culture of safety based on personal responsibility, as it is believed that the combination of practical, effective rules with personal and collective awareness of the human stakes of safety will lead to the success in the lasting improvement of safety performance in this field.

Lasting commitment to health and the environment

Air Liquide is committed to ensuring personal safety, controlling industrial risk and promoting energy efficiency and environmental protection. Dedicated to improving the working environment for its employees, Air Liquide has set up comprehensive policies, working procedures and standards to constantly enhance its occupational health practice.

Air Liquide is committed to environmental protection. Though Air Liquide's main production units, ASUs, do not directly emit CO₂, Air Liquide always strives for energy efficiency and emission reduction. While adhering to related Chinese laws and regulations, Air Liquide sets up a number of Key Performance Indicators (KPIs) to monitor energy consumption and seek energy effectiveness and environmental protection. In addition, Air Liquide also holds a series of green activities such as Green Action, World Earth Day and Air Liquide Green Life, with the aim to strengthen the environment awareness as well as promote the low-carbon lifestyle among employees, customers, suppliers and communities.



通用工业

Industrial Merchant



工业气体在我们每个人的日常生活中起着不可或缺的作用，从食品的保鲜到汽车发动机部件的制造，各种各样的活动和制造工艺都会用到工业气体。

液化空气集团在逾百年的发展始终致力于创新、效率与安全。我们为各行各业的客户提供量身定制的解决方案，帮助客户提升其生产效率和产品价值，同时保护环境。

为通用工业客户提供的解决方案 Solutions for our customers

汽车与制造业

液化空气集团的解决方案适用于在制造业中被广泛使用的电弧焊与激光焊、热处理及激光切割工艺，可有效提高产品装配线的生产效率，改善操作人员的工作环境，同时满足节能减排及可持续发展的要求。例如在汽车制造方面，我们可提供从设计到生产线组装的各个环节所需的气体。

- 钢材生产、金属热处理
- 焊接与切割过程
- 玻璃与塑料件制造
- 安全气囊、照明和车窗
- 测试

食品与药品

在开发新工艺的同时为饮料、食品与药品的制造商及消费者提供值得信赖的品质保障。液化空气集团的解决方案能满足食品和药品在环境与卫生安全方面的需求，并能帮助客户优化工艺，降低成本，减少能耗。主要应用于冷冻与冷却、温度控制、气调包装、食品与饮料生产、反应釜冷却、以及制药行业所需的实验室气体。

- 二氧化碳和氮气用于包装食品的保鲜
- 氮气用于食品加工过程中的冷却、冷冻、温度控制
- 二氧化碳用于气泡饮料的制造
- 氮气和氩气用于创造原料药符合健康与安全所需的惰性气氛

Industrial gases play an integral part in the everyday life of each one of us. From preserving the freshness of food to cars engine parts manufacturing, a multitude of activities and processes require gases.

For more than a century, Air Liquide has been dedicated to innovation, efficiency and safety, and offers a wide variety of solutions tailored to different industries, with the aim to improve customers' process efficiency and product value, meanwhile with respect to environmental protection.

Automotive & fabrication

Improving the productivity of assembly line processes, and preserving the operators' working environment, our solutions are dedicated to energy saving and sustainable development, which apply to arc & laser welding, heat treatment, laser cutting for manufacturing industry such as vehicle, from its design to its assembly on production lines.

- Production of steel, metal heat treatment
- Welding and cutting process
- Glass and plastic components manufacturing
- Pneumatics, lighting, air bag
- Testing

Food & pharmaceuticals

Processing new development paths while offering producers and consumers of beverages, food products and medications the quality guarantee they are looking for, our solutions are dedicated to environmental and sanitary safety of food and medicines, process optimization in terms of cost reduction and energy savings, which apply to freezing & chilling, temperature control, MAP packaging, carbonation, food & beverage manufacturing, and reactor cooling, inerting, laboratory gas for pharmaceutical industry.

- Preserve the packed products: carbon dioxide, nitrogen
- Freezing, chilling & temperature control during food processing: nitrogen
- Make effervescent carbonated drinks: carbon dioxide
- Process inerting for HSE compliance of API manufacturing: nitrogen, argon

材料与能源

液化空气集团通过引入清洁技术帮助客户降低能耗，优化生产流程。我们的解决方案包括全氧燃烧、惰性气体保护，以及水处理，可以最大限度地满足节能减排、优化投资的需求。

- 氧气、氮气和氢气用于玻璃制造
- 氮气、氢气和氩气用于金属加工过程中的气氛控制
- 氩气和氦气用于双面抛光与金属提炼
- 氧气、臭氧及二氧化碳用于饮用水与污水处理

技术与研究

从研发中心到制造工厂，液化空气集团为工业、科研、太空以及电子通讯等高科技行业提供高可靠的解决方案，同时符合节能环保以及应用的要求。

- 用于光纤、光伏电池和发光二极管制造的气体
- 氮气用于创造装配电子元件焊接所需的惰性气氛
- 高纯气体及混合气用于仪器，设备校准和分析

技工与其他

我们的解决方案能随时随地提供使用方便且安全的产品，应用于焊接、切割、加热、铜焊，

- 为管工、汽车修理店、机修工等提供日常金属焊接或切割所需的钢瓶气
- 休闲娱乐所需的氦气

品牌气体解决方案

Our branded solutions

全方位的气体工艺流程品牌帮助优化客户工艺
Comprehensive gas solutions to optimize customers' operation

nexelia 工艺流程解决方案品牌
Process brands

汽车与制造 Automotive & metal fabrication	激光焊接解决方案 Nexelia for laser welding
电子产品及制造 Electronics manufacturing	波峰焊氮气应用解决方案 Nexelia for wave soldering
	回流焊氮气应用解决方案 Nexelia for reflow soldering
	液氮冷量回收解决方案 Nexelia for cooling systems
食品加工 Food processing	冷却与冷冻工艺解决方案 Nexelia for freezing and chilling
	温度控制解决方案 Nexelia for temperature control
玻璃制造 Glass manufacturing	玻璃氧气助熔解决方案 Nexelia for melting – oxy-boosting
	全氧燃烧解决方案 Nexelia for melting – oxy-combustion
	热态全氧燃烧解决方案 Nexelia for melting – heat oxy-combustion
	玻璃成型解决方案 Nexelia for forming
水处理 Water treatment	生物处理解决方案 Nexelia for biological treatment
	污泥减量化解解决方案 Nexelia for enhanced biological treatment
	臭氧高级氧化解决方案 Nexelia for advanced oxidation

Materials & energy

Reducing our customers' energy consumption and optimizing their manufacturing processes through the implementation of clean technologies, our solutions are dedicated to energy savings and optimization of investment needs, which include oxy-combustion, inerting and water treatment for

- Glass-making: oxygen, nitrogen and hydrogen
- Atmospheres control for metal processing: nitrogen, hydrogen, helium
- Double glazing and metal refining: argon, krypton
- Drinking and waste water treatment: oxygen, ozone and carbon dioxide

Technology & research

Contributing to the boom in the technologies of tomorrow from research centers to production units, our high-tech solutions apply to industry, research, space and telecommunication, which help you increase reliability and energy savings, meanwhile with respect to the environment and applications.

- Gases for the manufacturing of optic fibers, photovoltaic cells and luminescent diodes
- Inert atmosphere for soldering of assemblies of electronic components: nitrogen
- Pure gas and mixtures for instrumentation, equipment calibration and analysis

Craftsmen & others

Offering products, easy and safe to use, our solutions apply to welding, cutting, heating, brazing for

- Plumbers, car repairs shop, craftsmen that use cylinder gases for metals welding or cutting
- Helium for entertainment leisure

先进的气体产品满足不同客户应用的需求并符合相关法规
Advanced products to meet specific application requirements in compliance with associated regulations

气体产品品牌解决方案 Gas product premium brands

食品与药品 Food & pharmaceuticals	PHARGALIS™	针对医药行业的气体解决方案 A dedicated offer for pharmaceutical industry
	ALIGAL™	针对食品和饮料行业的专用气体解决方案 A full range of solutions for the food & beverage industry
光电行业 Photonics	ALUX™	发光二极管、光纤、单晶及多晶硅气体应用整体解决方案 Solutions for LED, fiber optic, polysilicon and ingot manufacturing
焊接与切割 Welding & cutting	ARCAL™	高效优质焊接保护气体解决方案 Solutions for arc welding
	LASAL™	专业的激光气解决方案 Solutions for laser cutting and welding

用于标定和分析的特种气体和混配气
Specialty gases and mixtures for calibration and analysis

实验室气体品牌解决方案 Lab gas product brands

实验室 Lab	ALPHAGAZ™	用于实验室分析的顶级气体解决方案 Solutions for analysis, calibration and quality control
	SCOTT™	尖端特气解决方案 Premium specialty gas solution



大工业

Large Industries

作为许多大型炼油、化工、冶金和能源转换企业的紧密合作伙伴，液化空气集团向他们提供气体和能源解决方案，以提高企业的生产效率，更好地保护环境。

自2005年起，我们在上海化学工业区成功实施了集群化供气模式，通过管道向诸多用户，如巴斯夫、科思创、赛科等企业供应工业气体。在天津，我们将多套空分装置和制氢装置用管网连接起来，向钢铁、化工和石油化工等企业供应氧气、氮气和氢气，极大改善了供气的可得率、可靠性和灵活性。

随着越来越多的工业用户专注于自身的核心业务，将工业气体需求外包成为一种趋势，这为液化空气集团带来了新的发展机遇。我们不断拓展在中国的服务地域，向更多大工业用户供应安全可靠、品质卓越的气体产品。在山东，我们通过管道向中石化青岛炼化提供氮气，并收购了日照钢厂的空分装置为其供气；在江苏，我们向浦项钢铁提供所需要的工业气体，并投资建造了两套日产量为2000吨的空分设备向沙钢集团供气；我们的淮安工厂拥有一套日产氧量为2000吨的空分装置和一套合成气净化装置，为实联化工供应工业气体。在天津，我们投资建造了两套日产量为2000吨的空分设备为天津碱厂供应氧气和氮气；我们与天津石化的合资企业建造了一套大型空分设备，为天津石化新的炼油厂和100万吨乙烯项目供应气体；同时我们还为荣程钢铁供应工业气体。在辽宁，液化空气为东北特钢供应工业气体。在山西，我们建造一套日产氧量为2000吨的空分设备，为同煤集团下属的同煤广发的甲醇项目供应氧气和氮气；在陕西，我们建造了一套日产量为2700吨的特大型空分设备，为榆天化煤制甲醇项目供应氧气和氮气；在广东，我们与茂名石化成立合资企业建造了一套日产量为3000吨的特大型空分，为茂名石化的煤制氢项目及现有炼油装置供应氧气和氮气。在内蒙古，我们建造了一套日产氧量为2660吨的特大型空分，为亿利能源提供工业气体。

As a privileged partner of large refining, chemical, metal and energy conversion companies in China, Air Liquide supplies gases and energy solutions to improve their productivity and make their processes more environments friendly.

Since 2005, Air Liquide has successfully implemented its basin approach to supply multi-customers, such as BASF, Covestro, and BP-Sinopec by pipeline in Shanghai Chemical Industrial Park (SCIP). In Tianjin, Air Liquide has connected several ASU and hydrogen plants through pipeline network to supply oxygen, nitrogen and hydrogen for multi-customers in the metallurgical, chemical, and petrochemical industries with improved reliability, availability and flexibility.

The trend of outsourcing the production of non-core products to professional companies has brought many opportunities to Air Liquide. We continuously expand into new regions, serving all kinds of large industry customers with gases of high quality and reliability. In Shandong, Air Liquide supplies nitrogen to Sinopec Refinery in Qingdao by pipeline, and took over the ASUs from Rizhao Steel and supplies gases for its steel production. In Jiangsu, Air Liquide supplies gases to ZPSS of POSCO and invested in 2 ASUs of 2,000 tonnes per day to supply to Shagang Group; our Huai'an Plant operates an ASU of 2000 tonnes per day and a Syngas Purification Unit to supply gases to Shilien. In Tianjin, Air Liquide invested in two ASUs (2,000 tonnes per day) to supply oxygen and nitrogen to Tianjin Soda; the joint venture with Tianjin Petroleum and Chemical Corporation operates a new large ASU for TPCC's new refinery and ethylene cracker; meanwhile, Air Liquide supplies industrial gases to Rockcheck. In Liaoning, Air Liquide supplies industrial gases to Dongbei Special Steel. In Shanxi, Air Liquide has invested in an ASU of 2,000 tonnes per day to supply oxygen and nitrogen to the methanol production project of Tongmei Group; In Shaanxi, Air Liquide built a large-scale ASU of 2,700 tonnes per day to supply Yutianhua Coal to Chemical (CTC) project; In Guangdong, our joint venture with Sinopec Maoming invested in a very large-scale ASU of 3,000 tonnes per day to supply oxygen and nitrogen to its coal-to-hydrogen project and exiting refinery. In Inner Mongolia, Air Liquide built a large-scale ASU of 2,660 tonnes per day to supply Elion Energy.

为大工业客户提供的解决方案 Solutions for our customers

金属

- 氧气作为冶金工艺中的主要原料，具有助燃及脱碳的作用。应用氧气，可提高生产效率和能源效率，同时降低氮氧化物和二氧化碳的排放。
- 氮气被用作钢铁及其它金属热处理过程的保护气和密封气；氮气也被运用于高炉喷煤工艺中以保证粉煤输送的安全。
- 作为保护气体，氩气被广泛地应用于冶金行业。氩气能够防止熔融的金属及合金被氧化，并被应用于熔融钢水脱气及脱硫。

石油与天然气

- 氢气用于去除原油中的硫和裂解重油。液化空气集团和鲁奇在氢气的生产和供应领域拥有世界先进技术和丰富经验。
- 氧气用于提高流化催化裂化装置的产能(富氧)；使石油焦化；将天然气或煤转化为燃油或甲醇。
- 氮气用于炼油吹扫工艺，作为罐体内气相空间或其他储存设备内的惰性介质确保安全性。

化工

- 氧气用于生产基础化学产品(如环氧乙烷)；煤气化工艺中也需要使用大量的氧气以生产氢气和合成气。
- 氮气在氮封、吹扫及压力输送环节作为惰性纯净介质以确保工艺的安全性及提高产品质量；在深冷反应中用作低温冷却介质。
- 氢气和一氧化碳用于众多日常生活用品，包括用于建材的聚氨酯(泡沫)和聚碳酸酯(CD, DVD)的生产。

Metals

- Oxygen is used as combustion supporting as well as decarburization in metallurgical process. The use of oxygen improves the productivity and energy performance of steelworks while reducing nitrous oxide and carbon dioxide emission in the atmosphere.
- Nitrogen is used to treat melt as shield gas and seal gas in the manufacture of steel and other metals. It also enables a safe carrying of pulverized coal in feeding blast furnaces.
- Argon is extensively employed in metallurgical industry as shield gas. It prevents the oxidation of molten metals and alloys; serves in degassing and desulfuration of molten steel and iron baths.

Oil & gas

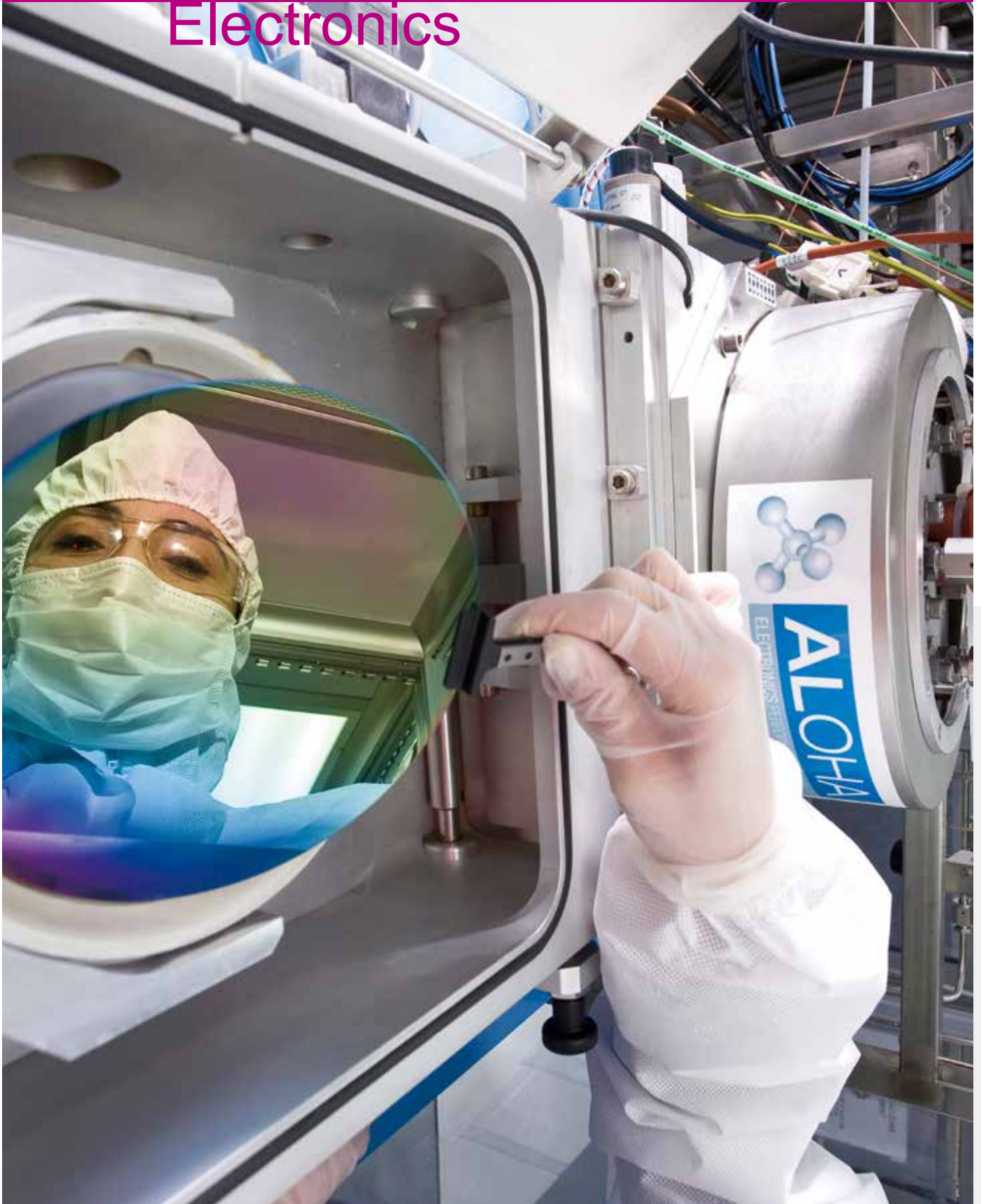
- Hydrogen is used to remove sulfur and crack heavy fuels to lighter components. Air Liquide and Lurgi have technology and worldwide experience in hydrogen manufacturing and supply.
- Oxygen is used to boost catalytic crackers' capacity by air enrichment, or to gasify petroleum coke; transform natural gas or coal into fuel or methanol.
- Nitrogen is needed by the refiner to purge process, inert tank vapor space or other storage devices.

Chemicals

- Oxygen is used in several basic chemical reactions for example for Ethylene Oxide production; it's also used in gasification of coal for the production of hydrogen and syngas.
- Nitrogen is used as an inert for blanketing, purging and pressurizing to ensure safety and quality; as a cooling media in cryogenic process.
- Hydrogen and carbon monoxide are used for making a variety of everyday life products, including polyurethanes (foams) for construction materials and polycarbonates (CD, DVD).



电子气 Electronics



在不断发展的半导体、平板显示和光伏领域，液化空气集团以卓越领先的科技和高附加值的服务为客户提供紧密的支持。

1990年，液化空气集团在上海漕河泾开发区建立液化空气（上海）有限公司，在中国开始电子气业务，以满足周边半导体制造企业的需求。如今，液化空气集团在电子客户的大宗气体、电子特种气体、特气设备及安装和全面气体与化学品管理服务等方面扮演着相当重要的角色，向中国的电子客户提供安全、高效的气体产品、设备与服务。

液化空气在张家港投资建造的中国电子材料中心（EMCC）于2008年7月正式开业，并于2014年完成二期扩建项目。作为液化空气集团在中国唯一的电子特种材料中心，EMCC主要经营电子特种气体和材料业务，全面供应国内高端电子客户，主要针对半导体集成电路行业，平板显示器行业 and 高端太阳能光伏行业。

液化空气在中国的主要客户包括先进半导体、海力士、中芯国际、京东方、华星光电、天马、乐金显示、中电熊猫、国电以及英利等。

主要业务

Main business activities

高纯大宗气体

包括氮气、氢气、氧气、氩气、氦气以及干燥压缩空气，被广泛应用于电子制造，可用于工艺生产和保护气；同时提供持续气体纯化和在线持续质量控制服务。

高纯电子特种气体

提供各种高纯电子特种气体与混合气，以及激态原子激光气（KrF, Crf），在半导体、平板显示和光伏生产中用于蚀刻、清洁和沉积等工艺。

设备与安装

提供电子特气和化学品的输送系统、超高纯管道、地面监控系统等设备的设计、生产和安装的交钥匙解决方案。

全面气体与化学品管理服务

提供专业的现场服务，保障客户使用电子特种气体与化学品的安全性、可靠性和持续性。

先进材料

运用尖端技术为客户量身定制的创新解决方案，产品涵盖：先进硅氧/氮化物，High-k/Low-k，金属及金属化合物等沉积材料，以及各类先进外延材料等。广泛应用于半导体、平板显示和光伏产业。

In the continuously evolving areas of semi-conductors, flat panel display (FPD) and photovoltaic (PV) industry, Air Liquide closely supports its customers with leading-edge technologies and high value-added services.

Air Liquide Electronics started its activity in Caohejing Development Zone in Shanghai in 1990 to meet the needs of manufacturers of semiconductors. Today, Air Liquide Electronics plays an active role in supply of carrier gases, electronics specialty gases (ESG), equipment & installation (E&I) and total gas chemical management (TGCM), and provide safe and efficient products, equipment and service for electronics customers in China.

Air Liquide Electronics Materials Center China (EMCC) was opened in July, 2008 in Zhangjiagang, Jiangsu Province, with the Phase-II project completed in 2014. As Air Liquide's only electronics specialty materials center in China, EMCC specializes in electronic specialty gases and materials dedicated to domestic high-end electronic customers, particularly in semiconductor, flat panel display and high-end photovoltaic industries.

Our main customers include ASMC, Hynix, SMIC, BOE, Chinastar, Tianma, LG Display, Nanjing CEC-Panda, Guodian, and Yingli Group, etc.

High-purity carrier gases

N₂, H₂, O₂, Ar, He and compressed dry air (CDA) are applied in a variety of ways for electronics manufacturers in terms of process and protection; in addition, continuous gas purification and on-line continuous quality control (CQC) are also provided.

High-purity electronics specialty gases (ESG)

High-purity electronics specialty gases (ESG), gas mixtures, and excimer laser gases (Krf, Crf) are used for etching, cleaning, and material deposition during the manufacturing processes of semiconductor, FPD and PV.

Equipment & installation

The turn-key solution includes design, manufacture and installation of electronics specialty gases and chemical distribution systems, ultra-pure pipeline, ground monitoring system (GMS), etc.

Total gas and chemical management

Air Liquide provides professional on-site service to support customers to use electronics specialty gases and chemical in the way that is safe, reliable and sustainable.

Advanced materials

Innovative solutions tailored with cutting edge technologies for the customers, including silicon oxide/nitride precursors; High-k/Low-k precursors, metals and metallides, and various types of advanced epitaxial materials, which are widely used in Semiconductor, Flat Panel Display and Photovoltaic industries.

医疗保健

Healthcare



作为医用气体、医院呼吸治疗和家庭护理领域的专家，液化空气医疗保健自成立之初就致力于各类疾病的相关研究，旨在改善病患身体状况并提升其生活质量。液化空气医疗保健的研究领域包括急性或慢性呼吸机能不全、疼痛以及神经障碍的治疗方法、卫生消毒及特种化学品，以及慢性病患者的家庭护理。液化空气医疗在全世界拥有超过13,500名员工，为全球逾7,500家医院、诊所和130多万家庭患者提供服务。

在中国，液化空气集团多年来一直为上海、北京、天津、河北、青岛、江苏和浙江的客户供应医用气体，并将其产品和服务向更多地区扩展；同时，液化空气集团还通过其子公司以维新康为品牌拓展在中国地区的家庭护理业务；自2001年起，液化空气集团通过其子公司液化空气医疗设备公司在中国拓展呼吸设备业务；另一家液化空气集团的子公司赛彼科则从1996年起在中国的动物疫苗佐剂领域奠定了重要的位置。

液化空气医疗保健正与中国的医院、科研机构和政府部门进行密切合作，以推广液化空气集团先进的产品和服务。

主要产品和业务 Main products and business activities

医用气体

为医院提供各种医用气体，包括医用氧、二氧化碳、麻醉气、医疗设备用气以及医院实验室气体。

家庭护理（维新康）

专注于呼吸治疗和输注治疗领域的医疗保健服务解决方案提供者，提供连续性的全程服务，包括促进出院治疗和提供患者支援项目。

呼吸治疗设备（液化空气医疗系统公司）

为医院提供各类型呼吸机等呼吸治疗设备，用于对急性和危重病患者进行全面的呼吸治疗和生命支持。

公共卫生（舒美）

提供优质的消毒防腐产品及服务，让病菌感染和微生物污染远离人类和产品。

特种化学品（赛彼科）

为化妆品、制药、营养、疫苗以及工业市场开发并供应创新的特种化学品，致力于促进健康、保护生命。

As the expert in the field of medical gases, hospital respiratory care and home healthcare, Air Liquide Healthcare, since its establishment, has been dedicated to the researches aiming at improving the health conditions of patients, which include treatment of acute and chronic respiratory dysfunction, pain and neurological disorder, hygiene and disinfection, as well as specialty chemical products. With 13,500 employees worldwide, Air Liquide Healthcare has been serving more than 7,500 hospitals and clinics and over 1,300,000 home patients globally.

In China, Air Liquide has been supplying medical gases for many years in Shanghai, Beijing, Tianjin, Hebei, Qingdao, Jiangsu and Zhejiang province, and is expanding its products and services to new areas. Meanwhile, Air Liquide has been promoting in China its home healthcare service through its subsidiary VitalAire, and respiratory equipment through the subsidiary Air Liquide Medical System since 2001. Air Liquide's another subsidiary Seppic, has established itself in the market of veterinary adjuvant for vaccine in China since 1996.

Air Liquide Healthcare is working closely with hospitals, scientific communities and Chinese Authorities to promote our new products and services.

Medical gases

Providing hospitals with various kinds of medical gases, including medical oxygen, carbon dioxide, anesthetic gas, medical equipment gas, hospital laboratory gas.

Home healthcare (VitalAire)

Providing continuous integrated medical services focusing on caring for chronic patients at home whose treatment requires the use of medical equipment for respiratory assistance and infusion therapy.

Respiratory care equipment (Air Liquide Medical Systems)

Providing hospitals with such respiratory care equipment as a series of ventilator on respiratory treatment and life support for emergency and critical care patients.

Hygiene (Schülke)

Providing high-quality disinfection and antisepsis products and services to protect human beings and products against bacteria infection and microorganism pollution.

High-tech chemicals (Seppic)

Developing and supplying innovative specialty chemical products for the cosmetics, pharmaceutical, nutrition, vaccine and industrial markets with the aim to advance health and well-being.



安全可靠的医用气体，从制造到运输全程保障

Safe and reliable medical gases, guarantee from production to delivery

医用气体属于药品范畴，主要用于供氧、麻醉、缓解某些治疗中可能引起的疼痛，甚至还可治疗急性呼吸窘迫。液化空气集团在气体领域拥有领先的生产和运输能力，能为医院和家庭护理提供各种医用气体，如医用氧、二氧化碳、呼吸治疗气、镇痛气体、麻醉气体以及医疗设备和医院实验室使用的气体。

Medical gases are considered as drugs which are used for oxygen supply, anesthesia, alleviation of pain during certain treatments, or even for curing acute respiratory distress. With competence in the field of gas production and delivery, Air Liquide Healthcare provides hospitals and home healthcare with various kinds of medical gases, including medical oxygen, carbon dioxide, respiratory therapy gas, analgesics gas, anesthetic gas and gases for medical devices and hospital laboratories.

医用氧

广泛应用于医院的各个部门：从急救室、手术室、重症监护室，直至病房。医用氧借助高安全性管网输送至整个医院，以保证医用氧的纯度和及时供给。医用氧可以通过安装在各个病房内墙面上的设备带，或者通过管路直接连接高压气瓶来获取。所有医用氧的生产和流通过程必须获得国家药监局的GMP认证。

Medical oxygen

Widely used in various sectors in the hospital: from the first aid room, operation room, intensive care unit to the ward. Medical oxygen flows through the hospital by means of a highly-safe distribution pipeline. This is to ensure the purity and timely supply of medical oxygen. It can be obtained through a wall interface device installed in each ward, or through a pipeline directly connected to a pressurized gas cylinder. The production and distribution process of all medical oxygen must be Good Manufacturing Practice (GMP) certificated by State Food and Drug Administration (SFDA).

二氧化碳

用于腹腔镜检查。

Carbon dioxide

For celioscopy procedures.

麻醉气

氧化亚氮，俗称笑气。常用作麻醉辅助剂，配合各种吸入性麻醉剂使用。产品呈液态。

Anesthetic gas

Nitrous oxide, commonly known as laughing gas: anesthetic adjuvant, used in conjunction with a variety of inhalation anesthetic agents, liquid.

医疗设备用气

液态氦气：用于超导磁共振设备，高纯度的液氦作为制冷介质为设备创造并保持超导环境。

Medical equipment gas

Liquid helium: for superconducting MRI equipment; high purity liquid helium as a cooling medium, establishing and maintaining superconducting device environment.

医院实验室气体

- 为实验室提供各种标准气体和校验气体。
- 干冰还用于样品的冷冻保存运输。

Hospital laboratory gas

- Provide a variety of standard laboratory gases and calibration gases.
- Dry ice is also used for cryopreservation, storage and transport of samples.



工程与制造业务

Engineering & Construction

液化空气全球工程技术是液化空气集团的工程与制造事业部。凭借本地工程资源，结合众多的前沿创新以及集团丰富的专利技术，我们长期致力于为客户提供低排放、低能耗和高性价比的产品和服务，助力客户实现安全、可靠和有竞争力的运营。

Air Liquide Global E&C Solutions is in charge of the engineering and construction activity of Air Liquide Group. Synergizing local engineering resources, frontier innovation and a comprehensive portfolio of proprietary technologies, Air Liquide Global E&C Solutions is committed to meeting the customers' growing needs for safe, reliable and competitive operations by supplying products and services of low emissions, low energy consumption and high price-performance ratio.

液化空气全球工程技术杭州中心 Air Liquide Global E&C Solutions Hangzhou

液化空气全球工程技术杭州中心，即液化空气（杭州）有限公司（液空杭州），成立于1995年，目前拥有约700名员工，是液化空气集团主要的工程与制造中心之一。公司主要从事设计、制造和安装空气分离装置和提纯装置、制一氧化碳装置、氢气提取装置、以及合成气净化装置。公司目前能够设计并制造制氧量为150,000标立/小时的超大型空分设备。

Established in China since 1995, Air Liquide Global E&C Solutions Hangzhou is one of the main Engineering and Manufacturing centers of Air Liquide Group, with nearly 700 employees. Air Liquide Global E&C Solutions Hangzhou's portfolio ranges from air separation plants to carbon monoxide plants, hydrogen recovery plants and syngas purification units. The company is able to design and manufacture air separation units with oxygen production capacity up to 150,000 Nm³/h.

多年来，液空杭州在项目执行方面积累了丰富的经验，开发了一系列成熟的项目管理流程和工具，可提供覆盖多种项目类型的解决方案，包括交钥匙项目或EPC类型的总包项目、设备销售项目以及涉及多种技术的大型复杂项目。无论是标准项目还是客户定制项目，我们确保每一个项目均能按时交付并实现预算目标，满足客户需求。

Over the years, Air Liquide Global E&C Solutions Hangzhou has accumulated rich experiences in project management. It can offer solutions to different types of project, from turn-key project, "EPC type" project, sales of equipment project, to complex project involving multiple technologies. Through its comprehensive project management processes, the company ensures that every project is completed on time, on budget and to customers' satisfaction, regardless of whether the project is a standard build or customer-specific.

截至2015年，液空杭州累计销售大中型空分装置100逾套，各类标准装置近200套，业务足迹遍及海内外市场。公司已成为众多企业的首选技术合作伙伴，产品主要应用在冶金、化工、石油化工、煤化工、能源转换等行业。

As of 2015, more than 100 air separation units and nearly 200 standard plants have been delivered, with footprints in numerous cities in China and abroad. Air Liquide Global E&C Solutions Hangzhou has been recognized as a technology partner of choice for a number of corporations of the metallurgy, chemicals, petrochemicals, coal-to-chemicals, and energy conversion industries.

近年空分项目

Reference of air separation units (ASU) in recent years

钢铁行业

- 为宝钢集团提供4套2000吨/天空分设备
- 为鞍山钢铁集团提供8套1200吨/天及1套2000吨/天空分设备
- 为首钢集团提供5套1200吨/天、2套1400吨/天及1套800吨/天空分设备
- 为液化空气中国沙钢项目提供2套2000吨/天空分设备
- 为液化空气中国中铁项目提供1套2000吨/天空分设备
- 为液化空气中国日照项目提供1套2000吨/天空分设备

化工和煤化工行业

- 为山东华鲁恒升化工有限公司提供2套2200吨/天及2套3500吨/天的空分设备
- 为河南晋开化工投资控股集团提供1套2200吨/天及1套2000吨/天的空分设备
- 为液化空气中国茂名（MPCC）项目提供1套3300吨/天及1套800吨/天的空分设备
- 为内蒙古汇能煤化工有限公司提供1套3000吨/天的空分设备
- 为兖矿集团提供2套2000吨/天的空分设备
- 为液化空气中国永利项目提供2套2000吨/天空分设备
- 为液化空气中国ENN达拉特旗项目提供1套2800吨/天空分设备
- 为液化空气中国榆天化项目提供1套2700吨/天空分设备
- 为液化空气中国Elion项目提供1套2600吨/天空分设备
- 为鹤壁煤电集团提供1套2300吨/天的空分设备
- 为液化空气中国福建气化项目提供1套2000吨/天空分设备
- 为液化空气中国大同项目提供1套2000吨/天空分设备
- 为液化空气（淮安）有限公司提供1套2000吨/天空分设备

能源转换行业

- 为内蒙古伊泰集团提供4套3800吨/天空分设备
- 为神华宁夏煤业集团提供2套3100吨/天空分设备
- 为神华新疆提供3套2800吨/天空分设备
- 为中天合创能源有限公司提供6套2800吨/天空分设备

Iron and steel

- 4 × 2000t/d ASU for Baosteel Group
- 8 × 1200t/d and 1 × 2000t/d for Anshan Iron and Steel Group
- 5 × 1200t/d, 2 × 1400t/d and 1 × 800t/d ASU for Shougang Group
- 2 × 2000t/d ASU for Shagang project of Air Liquide China
- 1 × 2000t/d ASU for Zhongtie project of Air Liquide China
- 1 × 2000t/d ASU for Rizhao project of Air Liquide China

Chemical and coal chemical

- 2 × 2000t/d and 2 × 3500t/d ASU for Shandong Hualu-Hengsheng Chemical Co., Ltd.
- 1 × 2200t/d and 1 × 2000t/d ASU for Henan Jinkai Investment Holding Co., Ltd.
- 1 × 3300t/d and 1 × 800t/d ASU for MPCC project of Air Liquide China
- 1 × 3000t/d ASU for Inner Mongolia Huineng Coal Chemical Co., Ltd.
- 2 × 2000t/d ASU for Yankuang Group
- 2 × 2000t/d ASU for Yongli project for Air Liquide China
- 1 × 2800t/d ASU for ENN Dalateqi project for Air Liquide China
- 1 × 2700t/d ASU for Yutianhua project for Air Liquide China
- 1 × 2600t/d ASU for Elion project for Air Liquide China
- 1 × 2300t/d ASU for Hebi Meidian Group
- 1 × 2000t/d ASU for Fujian Gasification project for Air Liquide China
- 1 × 2000t/d ASU for Datong project of Air Liquide China
- 1 × 2000t/d ASU for Air Liquide (Huaian) Co., Ltd.

Energy conversion

- 4 × 3800t/d ASU for Yitai Group of Inner Mongolia
- 2 × 3100t/d ASU for Shenhua Ningxia Coal Industry Group
- 3 × 2800t/d ASU for Shenhua Xinjiang
- 6 × 2800t/d ASU for Zhongtian Synergetic Energy Company Limited

液化空气全球工程技术上海中心 Air Liquide Global E&C Solutions Shanghai

与液化空气全球工程技术杭州中心并行，液化空气全球工程技术上海中心，即液化空气工程咨询（上海）有限公司，主要开发和执行合成气项目（蒸汽甲烷裂解装置/煤气化装置），包括气体净化和下游产品。

作为一个成熟且本地化的执行中心，液化空气全球工程技术上海中心专注于解决方案的开发以及集成了液化空气和鲁奇技术的EPC项目的执行，如蒸汽甲烷裂解、低温甲醇洗、液氮洗、硫回收、固定床煤气化、甲醇和替代天然气技术以及第三方技术。

液化空气全球工程技术上海中心能覆盖完整的项目周期，从提供许可工程服务/专利设备、高端工程与设计服务，到项目的管理和执行。其独有的创新技术为能源行业贡献良多。

Parallel to Air Liquide Global E&C Solutions Hangzhou, Air Liquide Global E&C Solutions Shanghai specializes in the development and execution of syngas projects (SMR/Gasification), including gas cleaning and downstream products.

As a full-fledged execution center, Air Liquide Global E&C Solutions Shanghai focuses on solution development and EPC project execution riding on Air Liquide and Lurgi technologies such as Steam methane Reformer (SMR), Rectisol purification, Nitrogen Wash Unit (NWU), Sulfur Removal Unit (SRU), FBDB gasification, Methanol and Substitute Natural Gas (SNG) as well as third party technologies.

Air Liquide Global E&C Solutions Shanghai covers the entire project lifecycle: license engineering services / proprietary equipment, high end engineering & design capabilities, as well as project management & execution services. Its exclusive and innovative technologies are making a contribution to the transition of the energy sector.



创新是液化空气的核心战略，自集团1902年创立以来，就始终植根于其基因之中。凭借一流的创新人才和先进设施，液化空气致力于探求气体的新用途，开发尖端技术与解决方案，通过减少污染、提高效能、优化自然资源应用、开发可替代能源，以应对未来世界在环境、能源、健康、城市化和高科技领域将面临的巨大挑战。

Innovation is at the heart of Air Liquide's strategy and has been part of the Group's DNA since its founding in 1902. Relying on its first-class creative talents and advanced facilities, Air Liquide has always been committed to finding new gas applications and developing cutting-edge technologies and solutions to address the world's significant challenges in the environment, energy, health, urbanization and high-tech by reducing pollution, increasing energy efficiency, optimizing the use of natural resources and developing alternative sources.

研发 Research and development

液化空气拥有来自35个国家的1100名科研人员，通过全球9个研发中心开展研发活动。集团每年对创新、研发和技术的投入近3亿欧元，每年新增约300项专利。此外，液化空气与国际著名大学和领先的工业伙伴紧密合作，不断改进现有的气体生产技术，开发新的应用和服务。

2016年，液化空气集团在中国揭幕上海研发与技术中心。该中心拥有经验丰富的研究员与专家，并配备了先进的设备，将助力液化空气进一步在中国开展创新研发工作、加强同中国知名大学及公共机构的合作。该中心将帮助中国客户和消费者从液化空气的创新解决方案和全球创新网络中获益，以应对环境和社会挑战。

Boasting 1,100 researchers of 35 nationalities, Air Liquide carries out its R&D in 9 centers around the world. With an annual budget of nearly 300 million euro for innovation, R&D and technology, the Group files around 300 new patents every year. Furthermore, by working closely with prestigious universities and leading industrial partners, Air Liquide continuously improves its gas production technologies and develops new applications and services.

In 2016, Air Liquide opened Shanghai Research & Technology Center (SRTC) in China. With experienced researchers and experts as well as advanced equipment, SRTC enables Air Liquide to enhance innovative R&D work in China and foster its collaborations with local renowned universities and public institutes in China. It helps Chinese customers and consumers benefit from Air Liquide's innovative solutions and global innovation network to tackle environmental and societal challenges.

先进事业技术部 aB&T (advanced Business & Technologies)

液化空气先进事业技术部 (aB&T) 通过在先进科技领域强有力的技术经验为液化空气集团开拓新市场。它在高科技领域（航空航天与科研市场）与能源转型升级领域（氢能与清洁能源市场）开发以用户为导向，富于创新和竞争力的解决方案：

- **沼气提纯设备与生物甲烷液化技术**
高效的膜法提纯技术助力循环经济 —— 从废污到能源
- **氢能**
通过加氢站建设与“蓝色氢能”计划（去碳化氢能生产工艺），推动氢能作为清洁能源在交通运输领域的应用
- **极低温**
依托在该领域50多年的经验积累，为客户提供机械制冷、液化、低温液化气体的储存及配送的定制化解决方案
- **高纯气体纯化设备与气体连续质量监控系统**
满足电子行业客户对高纯气体的要求

Air Liquide aB&T (advanced Business & Technologies) opens new business frontiers for the Group with a strong expertise in cutting-edge technologies. From High Tech (Space, Aerospace, Scientific Research) to Energy Transition (Hydrogen Energy, Clean Transportation), aB&T develops user-focused, innovative and competitive solutions.

- **Biogas upgrading and bio-methane liquefaction** - efficient membrane based technology to purify biogas, supporting the circular economy, from waste to clean transportation
- **Hydrogen energy** - Hydrogen Recharging Station and Blue Hydrogen which is produced from renewable resources, as a clean energy
- **Extreme cryogenics** - over 50 years of expertise in mechanical cold production, liquefaction, storage and distribution of cryogenic fluids at very low temperatures
- **High purity gas purification equipment and Continuous Quality Control systems (CQC)** - to meet the very stringent specifications of the electronics industry

可持续发展 Sustainable Development

液化空气集团一直致力于长期发展。集团自成立以来，始终以统一的公司形象从事多种业务，稳健成长，定期分红，与客户建立长期关系，并拥有忠诚的员工和个人股东。由此，液化空气集团形成了自己的可持续发展模式，它包含以下四个方面：

Since its creation, Air Liquide has had a long-term approach to its activities. One business, one name, steady growth, regular dividends, long-lasting relations with its major customers, and the loyalty of employees and individual shareholders demonstrate this commitment. Air Liquide has therefore developed a sustainable development model that is specific to the company with four dimensions:

为股东创造价值，实现公司业务与业绩的长远发展并保持沟通的透明度

一个多世纪以来，液化空气集团与其股东们一直保持着信任关系。集团将股东利益置于集团战略的中心，其目标是：通过股票收益的持续增长和定期分红使股东的投资增值。股东们的长期忠诚是液化空气发展战略得以延续的源泉。

发展男性和女性员工的潜能以实现其共同的目标

遍及80个国家的68,000名男女员工，组成了融合了多元文化和各种技能的团队。液化空气集团十分重视促进多元化发展，推动和促进知识的传播，调动员工的积极性和参与度，鼓励在社会和人文领域有所作为。液化空气基金的创设和2008年宣布成立的液化空气大学起到了有力的推动作用。

在集团内部运行及客户现场都注重保障生命安全和保护环境

确保人员安全、控制工业风险、推进节能环保是液化空气集团的一贯承诺。液化空气集团在全球每时每地都在实践着这一诺言。

为未来而创新以保障公司及其客户的不断进步

液化空气集团的创立始于创新的空气液化和分离技术。100多年来，创新始终是液化空气的核心价值。集团每年提交约300项专利申请。创新与可持续发展是密不可分的。集团60%的研发预算用于可持续发展领域，如液化空气集团与客户现场的能效、清洁生产工艺以及新能源，如氢能的应用。

Creating value for shareholders by developing the company's activity and performance over the long term and communicating this performance in a transparent manner.

Air Liquide and its shareholders have maintained, for over a century, a relationship of trust and the Group places its shareholders at the heart of its strategy with one objective: increasing the value of their investments through a sustained and regular growth of earnings and dividends over the long term. The loyalty of shareholders in the long term is a source of continuity of Air Liquide's strategy.

Developing the potential of the company's men and women in their commitment to common objectives.

Around 68,000 men and women, in over 80 countries, make up multicultural teams with a host of competencies. Air Liquide considers it vital to promote diversity, facilitate and accelerate knowledge transfer, motivate and involve its employees and encourage social and human commitment, especially through the creation of the Air Liquide Foundation and the announcement of the Air Liquide University creation in 2008.

Preserving life and the environment in the Group's operations and at its customers' sites.

Ensuring people's safety, controlling industrial risks, helping preserve the environment by saving energy: these are concrete commitments made by Air Liquide and demonstrated each day throughout the world.

Innovating for tomorrow to guarantee the growth of the company and its customers.

Air Liquide was created in 1902 as a result of an innovation, a new liquefaction and air separation technology. Innovation continues to be an essential value for the Company. Air Liquide files about 300 patents a year. Innovation and sustainable development are inseparable. Some 60% of the Research and Development budget is directly related to the sustainable development question, mainly dedicated to energy efficiency at Air Liquide and its customers' sites, cleaner production, and use of new energies like hydrogen.



环保技术

Technologies for Environmental Protection

当今社会面临着两大主要挑战：气候变化和不断增长的能源需求。液化空气集团正以积极的行动迎接这一挑战。

Today's society faces two major challenges: climate change and the growing demand for energy. Air Liquide intends to play an active role in meeting the challenges.

氢能源

液化空气集团拥有超过40年的氢气业务的专业技能，从生产到各种应用领域，为人类早日用上这种洁净的、面向未来的能源作出了许多贡献。在注重氢能源的研究与创新的同时，液化空气集团还参加了数个大型国际性的示范项目，比如欧洲氢气链微型运输项目、欧盟H2E氢能源项目和氢能汽车“车行道计划”等。

全氧燃烧技术

液化空气集团拥有先进的全氧燃烧技术（采用氧气代替空气助燃），通过在工业炉中应用该技术可极大地减少氮氧化物和二氧化碳的排放。液化空气集团已经成功帮助多家中国客户实现节能减排的目标。

光伏行业

作为环保能源解决方案，到2020年，太阳能发电量预计将占到全球发电总量的5%。太阳能电池的生产需要大量的超纯气体。液化空气集团的产品和服务被广泛地应用于蓬勃发展的太阳能工业，并在该领域取得了的领导地位。

第二代生物燃料技术

液化空气集团正在研发第二代生物燃料技术，使用植物的非食用部分生产生物燃料，不会对粮食供给形成不利影响。

水处理技术

液化空气集团拥有创新的水处理技术，在污水处理的过程中，能帮助从源头减少污泥量，有效地消化可生物降解的污染物。液化空气集团的水处理技术在全球范围内已应用于多家工业污水厂以及市政污水厂，帮助其提升运营效率。该技术已经成功引入中国，并将帮助更多中国客户实现环保高效的运行。

燃油除硫

使用氢气进行碳氢化合物脱硫有利于减少向大气中排放二氧化硫。这些二氧化硫会引发严重呼吸道疾病，造成城市烟雾污染，引发酸雨导致森林退化及水源酸化。液化空气集团向世界各地炼油设备提供的氢气，每年可减少78万吨二氧化硫排放，这超过了一个国家的年排放量（如法国一年的排放量是45万吨）。



Hydrogen energy

Air Liquide has over 40 years of experience in hydrogen, a promising clean energy, covering its entire chain from production to application. While continuing to channel its efforts into hydrogen research and innovation, Air Liquide is taking part in several large international demonstration projects, such as European HyChain Minitrans Project, Horizon Hydrogen Energy Program, Driveway Project, etc.

Oxy-combustion

Air Liquide has advanced oxy-combustion technology, which uses oxygen instead of air for combustion in industrial furnaces, thus reducing nitrous oxide emissions into the atmosphere and facilitating the capture of CO₂. Air Liquide has successfully helped many Chinese customers to save energy and reduce emissions.

The photovoltaic industry

Combined photovoltaic installations are expected to contribute approximately 5% of the worldwide electricity generation by 2020. The production of solar cells requires large quantities of ultra-pure gases. Air Liquide is number one gas supplier to this fast-growing industry, and its products and services are widely used by the photovoltaic industry.

Second generation biofuels

Air Liquide is working on developing so-called “second-generation” biofuels. These biofuels are produced using the inedible part of plants, leaving the edible part for use as a food source.

Water treatment

The innovative water treatment solution from Air Liquide is able to help customers reduce sludge and biodegradable pollution effectively. The advanced technology has already been applied to many industrial and municipal waste water plants to improve their operation efficiency. Successfully introduced into China, this solution aims to help more Chinese customers to realize environmental friendly operations with high efficiency.

Removal of sulphur from fuels

The de-sulphurisation of hydrocarbons using hydrogen is necessary to reduce the sulphur dioxides emissions into the atmosphere. In fact, these sulphur dioxides can cause serious respiratory problems in humans. They are not only responsible for the smog pollution of certain built-up areas, but also for acid rain that causes deforestation and the acidification of water. Hydrogen is supplied by Air Liquide to refineries all over the world to avoid discharging 780,000 tons of Sulphur Dioxide per year into the atmosphere. In comparison, France discharges 450,000 tons every year in total.

中国主要联络方式

Major Contacts in China

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