



#### SUMMARY \_\_\_\_

The	SOL group for sustainable development	1			
1.	THE SOL GROUP	4	5	PEOPLE AND THE COMMUNITY	54
•	SOL Group activities	5	٠.	Health and safety in the workplace	55
	New initiatives and acquisitions	6		Human resources management policies	60
	The supply flow scheme	8		Employment and the management	00
	Sectors of activity	9	٥.٥.	of diversity	62
1	Sections of declivity	3	5.4.	Remuneration and social benefits	63
2.	THE GOVERNANCE SYSTEM		5.5.	Personnel selection and talent attraction	65
	AND CUSTOMERS	20	5.6.	Training, development and communication	66
2.1.	The system of values	21	5.7.	Industrial relations	66
2.2.	Ethical principles	22	5.8.	Authorities and Public Administration	67
2.3.	Governance and sustainability	23	5.9.	The community	67
2.4.	Sustainability for customers and patients	30	5.10	. Associations	70
3.	THE ECONOMIC DIMENSION	36	6.	NOTE ON METHODOLOGY	72
3.1.	Financial data	37	6.1.	Reference guidelines	73
3.2.	The distribution of added value	39	6.2.	Determination of priorities and	
3.3.	Shareholders and investors	40		involvement of stakeholders	73
3.4.	The supply of goods and services	41	6.3.	Reporting period	76
			_		
4.	THE ENVIRONMENT	42	7.	GRI - G4 - CORRELATION TABLE	78
4.1.	Production activities, their environmental impact and the raw materials used	43	8.	GLOSSARY	82
4.2.	Energy and climate protection	46			
4.3.	Transport	48			
4.4.	Acoustic emissions	49			
4.5.	Waste and packaging	49			
4.6.	Water resources	51			
4.7.	Emissions and water discharges	52			
4.8.	Soil and groundwater	52			
4.9.	Biodiversity	53			

#### SOL Spα

#### Registered office

Via Borgazzi, 27 20900 Monza · Italy

#### Share Capital

Euro 47,164,000.00 fully paid up

C.F and company register of Monza e Brianza n° 04127270157 R.E.A. n° 991655 C.C.I.A.A. Monza e Brianza

#### Compiled by

SOL Group Industrial Risk Management Office SOL Group Quality, Safety and Environment Head Office

#### To know more contact:

sustainability@solgroup.com Comments and suggestions are particularly welcome

April 2017



**SOL** GROUP

# THE SOL GROUP FOR SUSTAINABLE DEVELOPMENT

In the following pages you will find the  $8^{th}$  edition of the SOL Group Sustainability Report.

For all of us this is a particularly important moment for collecting and processing the Group's data, monitoring of the commitments made and setting new goals in order to move forward on the path of continuous improvement in the field of intelligent management of resources and relations with the various stakeholders with whom we have dealings.

We are convinced that environmental friendliness and proper management of resources, together with an awareness of our social responsibility, enrich each of us as individuals but also enable our Company to be more competitive and innovative.

The SOL Group is now present in 28 countries worldwide, with over 100 plants and offices. In each of its units SOL has undertaken to meet the same standards of quality, safety, efficiency in the use of resources and in the management of the human factor and to respect each country's rules, laws and regulations that affect our business.

In the medium and long term, SOL continues to follow a plan of vigorous international growth in its two main business sectors of Technical Gases and Home Care, which increasingly complement those of Renewable Energy projects and investments in the field of Biotechnology.

Since the production of industrial gases is a highly energy intensive industry, the Group has always made every effort to contain and optimise energy consumption in its primary production plants. SOL also continues to invest in the optimisation of its logistics, as transport is one of the major cost items; this is done by constructing plants directly at its clients' premises or by connecting them via pipeline, and with investments in increasingly technological and efficient transportation and sales means.

The Group continued in 2016 to innovate in order to enable industrial technical gas customers to optimise their production processes, thanks to the products, plant and services provided by SOL, making them more sustainable, improving quality and safety standards, reducing energy consumption and environmental impacts.

In the health sector SOL has continued to operate as a specialist technological partner for its clientele of more than 500 hospitals and clinics, providing innovative services for more effective and efficient management of distribution and control of drugs, cryopreservation of organic materials and hospital services. With VIVISOL the Group provides services to more than 350,000 patients per day at home, contributing not only to the improvement of their quality of life and increasingly personalised care, but also to the sustainability of overall health spending, thus enabling a reduction in hospitalization. VIVISOL has also opened nursing homes both in Italy and abroad that host dependent persons who cannot be assisted home and who require specific medical treatment, more specialists and comprehensive health care.

2016 was a challenging year, with very limited growth in Europe which was particularly low in Italy, a slowdown in the Chinese economy with repercussions for the whole world and a continuing crisis in Brazil. Only in India did we see any strong growth in GDP, over 6%, but almost exclusively in services, while the figures for industry indicated only 1-2%.

The SOL Group managed to grow by 4.3% over the previous year, partly due to continuous investments of about 98.4 million during the year, mainly outside Italy and especially in the sector of Home Care, at the same time maintaining a good level of profitability.

In the last mentioned sector 70% of the Kompass company In Germany and 100% of the Sonocare company in Portugal was acquired.

In the sector of Hydroelectric Power 80% of the Mel Elektrik company in Bosnia Herzegovina was acquired. This company owns some small hydroelectric power stations and concessions for the construction of new power stations, one of which is currently under construction.

2017 should be a year with a better economic climate, at least outside of Italy, and the SOL Group is in good health and ready to face new challenges thanks to all its personnel of men and women who now number more than 3,100, a figure that is constantly growing.

The mix of cultures and sensibilities, of human and professional skills and experience that now work together in SOL, and that think, design and produce every day, are the guarantee of the ability to innovate, of a broad approach, and of versatility that enables the Group to satisfy its clients and its stakeholders, looking increasingly for personal and targeted approaches.

Aldo Fumagalli Romario

Chairman, SOL Group

Marco Annoni

Vice-chairman, SOL Group

Leaco Aument

# THE MAIN FIGURES FOR THE SOL GROUP

	2016	2015	2014	2013	2012
THE ECONOMIC DIMENSION (milion euro)					
Net sales	703.4	674.2	636.4	595.4	583.0
Net sales change	+4.3%	+5.9%	+6.9%	+2.1%	4.9%
EBITDA	167.6	148.4	142.9	131.8	132.2
EBIT	80.9	65.6	61.9	53.5	56.5
Net profit	44.1	32.4	29.2	21.6	29.0
Cash flow	127.5	112.9	106.2	92.4	98.5
Investments	103.7	89.8	98.0	92.0	85.4
Capitalisation	722.8	749.0	604.0	514.7	363.0
THE ENVIRONMENT					
Electrical energy consumption (MWh)	494.2	523.4	503.7	537.9	537.4
Specific consumption (ASU; 2012 base = 100)	118	121	112	102	100
Electrical energy produced (MWh)	108	77	83	43	ND
Greenhouse gas emissions (CO <sub>2</sub> tons)					
- Scope 1	26,350	29,426	27,932	26,352	19,979
- Scope 2	239,357	240,159	ND	ND	ND
- Scope 3	50,611	31,000	ND	ND	ND
Hazardous waste disposed of (tons)	2,273	1,757	582	2,421	2,209
Water consumption (mc x10³)	1,337	2,135	3,112	3,043	2,710
THE PEOPLE					
Number of employees at 31.12	3,127	2,995	2,806	2,580	2,479
- Italy	995	986	955	928	906
- other countries	2,132	2,009	1,851	1,652	1,575
Women on the total	34.3%	30.2%	28.5%	28.7%	27.0%
Turnover	9.7%	4.7%	5.6%	7.3%	5.0%
Part time	13%				
Average years of service	6.0	9.0	9.4	9.8	10.3
Employees of companies that adopted the Code of Ethics	90%	ND	ND	ND	ND
Training hours	38,700	30,000	ND	ND	ND
Injuries at work					
- Frequency rate (per million hours worked)	4.0	4.1	4.5	5.6	2.9
- Number of fatalities	0	0	0	0	0



The SOL Group operates in 28 countries, with more than 3,100 employees and a turnover of 703,4 million euro in the fiscal year 2016.

1.1. \_\_\_\_

#### SOL GROUP ACTIVITIES

The SOL Group operates in the **sector of technical gases** and of pure and very pure gases, providing, in addition to compressed and liquefied gases, equipment, plants and services, in order to be recognised as a qualified partner by customers in many industries: steel, chemicals, food, electronics, glass, environmental services, etc.

The commitment in health care is expressed through the two sectors of medical gases and of home care.

Business in the **medical gas sector** is aimed at public and private hospitals, providing medical gases and gases classified as medical devices, equipment, systems and services

Companies in the **home care sector** deliver comprehensive services to patients who receive medical care and assistance at home: oxygen therapy, treatment of sleep apnea, artificial nutrition, telemedicine, etc.

These sectors have more recently been joined by the **biotechnology sector** (diagnostics, conservation services and transport of biological samples, research and development of biological drugs, etc.) and by the **sector of the production of energy from renewable sources** (hydroelectric power stations).



Technical and Medical Gases



Home Care Services



Biotechnologies



Renewable Energy

#### 1.2. \_\_\_\_

### NEW INITIATIVES AND ACQUISITIONS

During 2016 the acquisitions comprised 70% of the share capital of "Intensivpflegedienst Kompass GmbH", established in Germany, 100% of the share capital of Sonocare, based in Portugal, and 80% of Mega Elektrik based in Bosnia.

The first two companies operate in the sector of home care while the third produces hydroelectric power.

The acquisition of 50.01% of the share capital of the Irish Oxygen Company Limited has enabled the Group to start operating in Ireland in the sector of industrial and medical gases.

"App4Health srl" was established in Italy. This company operates a portal through which you can make reservations for medical examinations and diagnostic tests, shop online and receive information on nutrition, prevention, wellness, sleep disturbances, respiratory and cardiovascular diseases, etc.

The most significant investments, particularly in terms of safety and environmental impact, were:

• In Italy: an air separation plant for the production of gas in southern Italy and an air separation

plant for the production of nitrogen in Piedmont were completed;

- In Italy Diatheva built a new cell-factory for the production of biopharmaceuticals.
- In Slovenia SPG began work on modernisation of the current air separation plant and expansion of its production capacity.
- In Bulgaria SOL Bulgaria finished the construction of a new technical gas filling plant in Devnja.
- In Macedonia the installation of a new plant for the production of hydrogen was completed.
- The improvement, modernisation and rationalisation programme in the secondary production plants in Europe continued. This activity concerned in particular the units of Mantua, Verona, Cremona, Catania, Pisa, Padua and Bologna in Italy, Saint Etienne in France, Tilburg and Emmen in the Netherlands, Wiener Neustadt in Austria and Bucharest in Romania.

For further details on new schemes please refer to the directors' report contained in financial statements



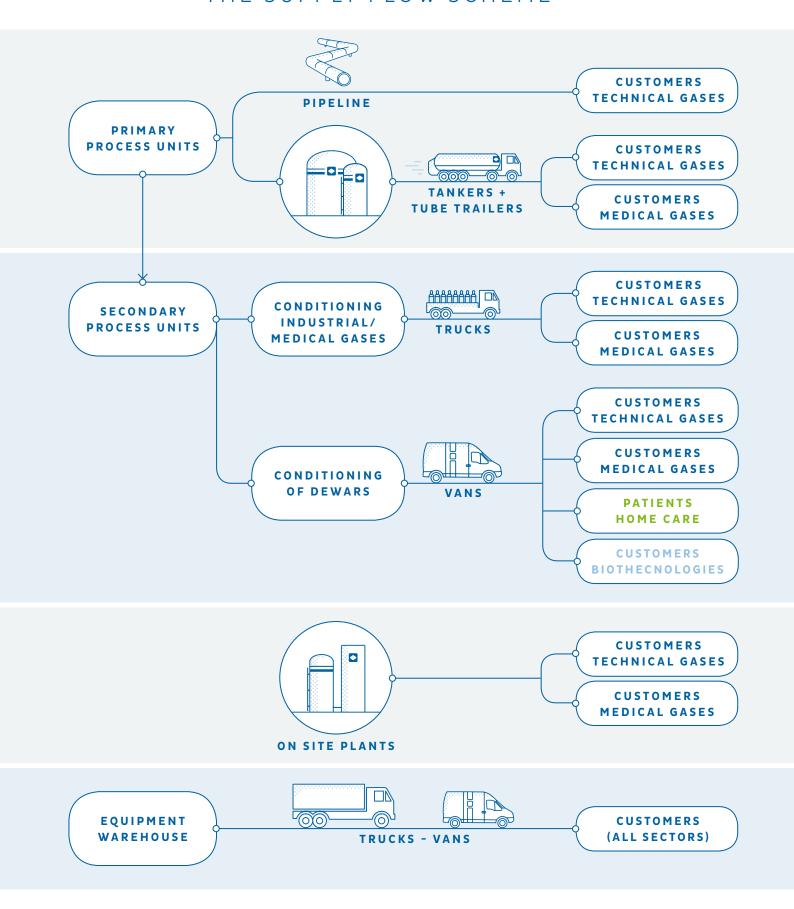
**SOL** GROUP - THE SOL GROUP







1.3. \_\_\_\_
THE SUPPLY FLOW SCHEME



### 1.4. \_\_\_\_

#### SECTORS OF ACTIVITY

**1.4.1.** THE TECHNICAL GASES SECTOR



27 countries

1.457 employees

more than
50.000

#### Gases produced and distributed:

Oxygen, Nitrogen, Argon, Hydrogen, Carbon dioxide, Acetylene, Nitrous oxide, Gas mixtures, High purity gases, Medical gases, Food gases, Gaseous helium, Liquid Helium, Gases for electronics, Ammoniac and Combustible gases for industrial use.



#### Activities:

- Production and marketing of industrial, medical, pure and high purity technical
  agses
- The design, construction and operation of on-site gas production plants, storage and distribution plants, apparatus and usage systems including, for example, apparatus for cryogenic applications, freezing tunnels, oxy-fuel burners, ozonisers, welding machines and apparatus.
- The supply of services related to the use of the gases produced.

#### Our range of products and services

The development plan of the SOL Group focuses on continual research of innovative technological solutions that, through the use of technical gases produced in its plants and marketed, enable customers to pursue energy efficiency and production targets, improvement in environmental compatibility and protection of health of their employees.

To achieve these objectives the proposed solutions not only concern the supply of technical gases but also the development of application technologies, the construction of the plants and the provision of the services necessary for using gases.

Products, technology and services have been developed with a focus on the clients' needs and are able to cover all the industries potentially concerned as shown in the following pages.

More details about the product and service range of SOL, viewed from the perspective of sustainable development, can be found later in Chapter 2.3.







#### **FOOD & BEVERAGE**

#### Industries served

- Agriculture
- Fish
- Red and white meat
- Fruit and vegetables
- Milk and derivatives
- Ready meals
- Bread and pastries
- Ice cream
- Beverages
- Wine and oil
- Catering

#### Technologies and solutions for:

- Carbonic fertilisation with CO<sub>2</sub>: increase in production and in quality and look of the product
- Fumigation and pest control with CO<sub>2</sub> of biological agricultural products for which no chemical products, such as phosphine, can be used
- Fish and mussle farming with O<sub>2</sub>: increase in production and quality of the finished product.
- Cooling, flash freezing, cryogenic freezing, IQF with Lin o LCO<sub>2</sub>: improved quality of frozen product, taste characteristics maintained, better aesthetic aspect, reduced freezing times and space saving.
- Packaging in atmosphere modified with N<sub>2</sub> and CO<sub>2</sub>: shelf life optimisation, improved aesthetic aspect, freshness maintained
- Transport at temperature controlled with Lin or dry ice: safeguarding of freezing chain to preserve quality of food and avoid spread of bacteria
- Gassing, pressing with nitrogen, water dosage: plastic bottle weight reduction.

#### **METAL PRODUCTION**

#### Industries served

- Carbon and stainless steel
- Aluminium
- Ferrous products and cast-iron
- Nonferrous products: zinc, lead, copper, magnesium
- Semifinished products and forges
- Mineral extraction
- Precious metal processing
- Glass and ceramics
- Cement and lime

#### Technologies and solutions for

- Oxy combustion and hyper oxygenation with oxygen: reduction of exhaust gas volumes and methane used for combustion, helping safeguard the environment and at the same time increasing productivity
- Wall and fall burners, with conforming flame, low NO<sub>x</sub>: plant designed to optimise emission reduction and limited environmental impact, adaptable to the various types of furnace present.
- Inertisation and degassing with argon, nitrogen and SF6: maintenance and improvement of quality of metals produced, reduced waste. Substitutes such toxic chemical compounds as chlorine
- Controlled protective and reactive atmospheres with nitrogen, hydrogen, Solmix: production of high-quality metal products in line with design specifications.
- After burners with oxygen: complete treatment of emissions, limiting quantity and environmental impact

#### **METAL FABRICATION**

#### Industries served

- Thermal treatments
- Carbon and stainless steel processing
- Aluminium and nonferrous metal processing
- Automotive industry
- Aeronautical and railway construction
- Shipyards
- Construction sites
- Boilers
- Tools

#### Technologies and solutions for:

- Controlled protective and reactive atmospheres with nitrogen and hydrogen
- Endothermic and exothermic atmospheres with solmix controlled carbon potential
- Keying with Lin: products made not using heat but cold, limiting fuel consumption.
- Lin soldering of electronic cards: reduced waste and manual elimination of defective cards, increasing production quality
- Cutting and laser welding with nitrogen and oxygen: increased productivity and product quality
- Oxy cutting and oxyacetylene welding, Mig/Mag, Tig and plasma welding and welders.
- Gas distribution automation and plant: reduced manual operations help reduce risk of accidents
- Pressure & fugitive tests with helium and nitrogen: guarantees tightness of components treated, reducing risks of leakage of products, also toxic products, from plant where they are used (e.g. offshore oil wellhead valves).







#### **CHEMISTRY & PHARMA**

#### **Industries served**

- Basic and inorganic chemistry
- Synthetic intermediates
- Polymers
- Fine chemistry
- Bulk pharmaceuticals
- Pharmaceutical specialities
- Cosmetics
- Herbalism
- Plastics and rubber

#### Technologies and solutions for:

- Inert and protective atmospheres with nitrogen: reduction of risk of accident from contact of products with oxygen, at the same time preserving their quality.
- Fluxing, pressurisation and stripping with nitrogen: plant cleaning with reduced use of polluting chemical additives.
- Grinding and micronisation with Lin and gaseous nitrogen: increased quality of ground product.
- Packaging in inert and sterile atmosphere
  of pharmaceutical products: preserving and
  guaranteeing product quality.
- VOC treatment and solvent recovery with Lin: reduced environmental emissions and at the same time recovery of the chemical products they contain
- Cryogenic cleaning with CO<sub>2</sub>: replaces cleaning methods using water, solvents or sandblasting, thus limiting the environmental impact of residues.

#### OIL & GAS

#### Industries served

- Extraction
- Transport and pipelines
- Refining
- Raw materials and finished products stocking
- Off-shore
- Components and equipment

#### Technologies and solutions for:

- EOR processes with nitrogen and CO<sub>2</sub>: increased extraction productivity avoiding the need for new wells
- Fluxing, pressurisation and stripping: plant cleaning with reduced use of polluting chemical additives.
- Controlled cooling with Lin: reduced plant maintenance times, faster cooling and less risk for operators.
- Inertisation and drying with nitrogen: plant maintained in controlled stand-by, limiting accident risks and permitting fast restart
- Cryogenic cooling with Lin: permits work on filled pipes without need for emptying.
- Claus processes with oxygen: improved and optimised recovery of sulphur from refinery flows and lower emissions.
- Control and regulation of technical and special gases, management and maintenance of emission control units: emission control units are kept efficient, reducing the risks of accidental emissions.

#### **ENERGY & ENVIRONMENT**

#### Industries served

- Multiutility
- Wastewater purification
- Purification
- Waste Management
- Special waste management
- Incineration
- Chemical, pharmaceutical, fabric and leather, food, paper, petrochemical and extraction industries.

#### Technologies and solutions for:

- Waste water treatment with O<sub>2</sub>: makes purification more effective and increases purification capacity, reducing environmental impact and giving better control.
- Waste water treatment with ozone: reduction of colour, micro contaminants, nitrates: optimization of treatments, with reduced environmental impact
- AOP processes with ozone: on-site environmental dean-up, less removal of terrain and combustion treatments having higher environmental impact.
- Deodorising waste water with oxygen: reduced environmental impact.
- Disinfection with ozone: watercourses receiving treated wastewater are protected from bacterial pollution without the use of chlorine compounds.
- Reduction of surplus sludge with oxygen: less sludge to send for disposal, reduced environmental impact.
- pH control with CO<sub>2</sub>: this substitutes mineral acids (sulphuric and hydrochloric) which leave pollutants in the water.
- Recarbonation and remineralisation of drinking water with CO<sub>2</sub>: makes water drinkable meeting legal requirements using a certified food additive.
- Oxy-combustion of waste with O<sub>2</sub>: reduction of aeriform emissions and increased control of incinerator plant with widely varying waste loads (tourist areas).
- Afterburners with O<sub>2</sub>: complete treatment of emissions, limiting quantity and environmental impact.
- VOC treatment and solvent recovery: reduced environmental emissions and recovery of the chemical products they contain.

### **1.4.2.** THE MEDICAL SECTOR



27

countries in which it operates through the same companies of the technical gas sector

more than
500
large customers

38 pharmaceutical plants

17

24

21

elsewhere in Europe

#### Gases produced and distributed:

Gases with Marketing Authorisation: Oxygen, Nitrous oxide, Synthetic and compressed air, Neophyr and Donopa mixtures.

Other gases Ph.Eu: Nitrogen, Carbon dioxide

Gases classified as medical devices

Mixtures for therapeutic use on prescription

Gases and certified mixtures for diagnostic and instrumental use

Special gases and mixtures to very high levels of purity



#### Activities:

- The production, distribution and sale of medical gases with Marketing Authorisation, other mono gases and gas mixtures classified as Active Pharmaceutical Ingredients (API), gases and therapeutical mixtures.
- The production, distribution and sale of gases and mixtures certified as Medical Devices.
- The design, manufacturing, management and operation of such Medical Devices as centralised medical gas distribution plant and plants for the endocavitary aspiration and the evacuation of anaesthetic gases; complementary materials, accessories and consumable materials for the administration of medical drugs and the use of fluids.
- The design, manufacturing, management and operation of on-site plant for producing medical air Ph.Eu, endocavitary aspiration and self-producers of very high purity gases for laboratories.
- The design, production and management of processes for supplies, services and materials for the sanitising of air, water, plants, environments, surfaces and devices, and for environmental monitoring; management services and accounting of consumption, costs and inventories.
- Gas quality control services with an EN17025 (Accredia n°1415) accredited laboratory and mobile analysis units with highly qualified operators.
- The design and management of integrated hospital services: Total Gas
  Management, Cryo-management, Cell-management, management of the entire
  process of distribution of pharmaceuticals and patient records in health structures.
- Construction and management of laboratories in environments classified for handling antineoplastic drugs.
- The management and maintenance of electro-medical apparatus resources (Clinical Engineering services), medical devices for diagnosis, spirometry and other specific applications.
- The design and operation of ECM accredited training services for staff, also on workplace safety topics, both residential and distance training with qualified instructors.

#### SOL for healthcare

The SOL Group is aware that new health and therapeutic protocols require scientifically and technologically updated products, services and devices, so that you get the best performance and the best possible therapeutic result.

SOL therefore offers the supply of products, services and equipment, as a partner, allowing the health care system to focus on its core business, which is to deliver the "health" product to a very particular customer, "the patient".

#### **Management services**

The **Total Gas Management Service** (TGM) offers health structures the possibility of reducing to a minimum the risks connected with handling of medical gas packages and containers and their supplying. TGM is planned case by case, so as to satisfy the requirements of different organisational models. The safety objectives of the TGM service are retained also by using InfoHealth software, for tracing drugs within the hospital and planning and accounting for the maintenance of plant and Medical and electro-medical Devices.

The focus on healthcare worker safety is a priority also in the design and construction of laboratories for handling antineoplastic drugs, where personal exposure to hazardous chemicals should be kept under strict critical thresholds.

Patient safety is instead the object of maintenance services for medicinal gas distribution in hospitals, and accredited analyses for verifying the quality of medicinal gases administered at the terminal distribution units.

In the biological samples management services sector, "Disaster Recovery" is an integrated organisational, logistic and plant service that guarantees customers the safety of the biological material stored in the structure in catastrophes or emergencies. The service can also put in motion special transport to remove the samples from the affected location quickly, ensuring safety and quality.

Through its subsidiary TESI Tecnologia & Sicurezza, SOL can today become a partner in the routine management, operation and emergency management for electromedical apparatus, from the simplest device to diagnostic machinery and life-saving therapy devices.

#### **Training services**

Training in the safe use of medical fluids, their containers and accessories is fundamental for correct product administration and handling.

Training is provided through ECM courses, which can be accredited at customer request. They can be held both residentially and at a distance, to satisfy the needs of structures and individual students.

All participants are encouraged to contribute their experiences and express their opinion on the effectiveness of the events. This data is then analysed and used to identify areas for improvement, following the evolution of technologies and procedures in the health sector.

#### Plant and accessories for gas usage

Plants for medical gas distribution are designed to meet the essential requirements of community legislation on medical devices and the related technical regulations, with the main aim of safety: the gas requested must be delivered with the right quality and in the right quantity to each patient for whom it has been prescribed.

All accessories needed for the use of gases are designed, manufactured and maintained to guarantee safe administration to the patient.

### Our commitment to the environment and safety

The safety of patients, operators and all those present for various reasons in the places where medical gases and services are supplied, managed and administered is a primary objective for us.

The experience gained and the continual feedback enables us to innovate products and services for the purpose, among others, of making them inherently safer: examples are the integrated reducing valves for compressed gas packages, safety and protective devices for handling cryogenic gases and sensors and devices for safety and monitoring for the rapid analysis of hazardous atmospheres.

The environmental impact of activities is reduced by optimising transport and stocks through the use of management systems that keep track of packages distributed within healthcare facilities, and the computerisation of accounting documents and reports. Reports are produced using verification and anticounterfeiting systems, digital signatures and validated software so as to ensure the security of private information.

### **1.4.3.** THE HOME CARE SECTOR



24
companies in
14
countries

**1,633** employees

more than 350,000 customers

pharmaceutical plant, six in Italy and 14 elsewhere in Europe



#### Activities:

- The supply of services, apparatus and products for home oxygen therapy with liquid or gaseous oxygen and concentrators
- The supply of services and apparatus for home mechanical ventilation
- Home treatment of the obstructive sleep apnoea syndrome (OSAS)
- The supply of products and apparatus for home artificial feeding
- The supply of integrated home care services
- The supply of apparatus and services for home care of bedsores

### Our commitment to the environment and safety

Vivisol operates with awareness of the need to maintain and further develop a quality management policy aimed at continuously improving home care services and with an overall management vision of its activities.

Home solutions and services have been perfected with key strengths including user safety defence and protection of the environment:

 a logistics system that optimises the routes of delivery vehicles, reducing atmospheric pollution thanks to lower mileage.

- progressive substitution of delivery vehicles with the introduction of at least Euro 4 certified vehicles
- a system that optimises home visits by nursing and medical personnel and the routes of the vehicles they use
- an emergency telephone helpline for patients who have technical problems with the apparatus
- a technical assistance service with ready availability
- software for planning the transfer of materials between warehouses and centres, leading to a reduction in the number of supply trips needed



#### Home oxygen therapy service

Vivisol operates throughout Italy and in the main European countries, providing care for patients with respiratory insufficiency. Thanks to VIVITRAVEL, patients can continue to use the service even when they are travelling in Italy and in the main European countries.

#### Ventilotherapy

Vivisol offers mechanical ventilation apparatus that can be interfaced with various remote monitoring systems thanks to agreements with leading world producers.

The Vivisol service includes installation, ordinary and extraordinary maintenance, instruction and training for the patient and caregiver.

#### Treatment of sleep apnoea

Analysis of the quality of sleep is a new science that makes it possible to intervene with suitable therapies on certain pathologies that are often hidden or latent. The VIVIDREAM service offers an accurate analysis of sleep, using sophisticated apparatus that can remotely monitor clinical data obtained directly in the patient's home.

#### Aerosol therapy

Aerosol therapy is a natural, ancient and effective method, with no counter indications and recognised benefits. The service offered includes installation of the apparatus in the patient's home, training for the patient and his family and a technical assistance service.

#### Alternative communication

Vivisol is able to offer a service dedicated to those affected by pathologies that limit or prevent communication, for example neuromuscular pathologies. The reacquisition of the possibility of communicating autonomously offered by the service leads to an improvement in the patient's quality of life.

#### Artificial feeding service

When enteral or parenteral feeding is used for long periods, doctors may decide to have the patient continue the therapy at home. Vivisol provides all the feeding products, the apparatus and accessories needed to administer the treatment, guarantees training for patients and caregivers and offers ongoing technical and health assistance.

#### **Telemedicine**

Telemedicine is an important result achieved by Vivisol in patient care and assistance. It can overcome time and distance, making it possible for doctors to monitor patients at home with an effectiveness and immediacy comparable to hospital care.

#### Home healthcare

The high-intensity home care service offered by Vivisol is specially formulated to satisfy the user's social and health care needs, offering in the home services typical of the hospital that demand the integration of technological and health resources.

### Therapy aid and antidecubitus treatment management

Vivisol has also specialised in the management of certain therapy aids, including, among others, those for preventing and treating decubitus lesions.

#### **Training services**

Vivisol organises training meetings, for example those held in Holland for 250 professional doctors on oxygen (Breathless symposium) and sleep apnoea (Sleepless symposium).



### SERIOUS REQUEST PROJECT

The purpose of Vivisol is to offer a better quality of life, allowing persons in difficulty to live and receive treatment at home, surrounded by their loved ones.

All Vivisol services are created by placing the person at the centre and this philosophy has also resulted in social sustainability projects such as collaboration with the Onlus Vividown Association and the Serious Request project.

The latter project was launched in the Netherlands where Vivisol, the International Red Cross and one of the largest Dutch radio stations, 3FM, teamed up to raise money to support a "silent emergency" project, normally not publicised by the media, but none the less important. Every year thousands of children suffering from pneumonia and who reside in the least developed countries die for lack of proper care and medicines.

To raise public awareness about the emergency these children are facing, in the week before Christmas 2 DJs

from 3FM have voluntarily undergone a tough survival test without food for 6 days inside the so-called 'glass house', in the city of Breda, Netherlands.

The experience of the two DJs will be broadcast live 24 hours a day on radio, television and the web.

The survival test of the two DJs has greatly raised awareness among the general public, giving rise to numerous schemes to raise money and contribute to the project.

Vivisol also did its part and contributed to raising awareness concerning respiratory diseases. With this in mind it introduced and sponsored the "Lung Walk", a walk of 5 kilometers along a route with the shape of two lungs.

The initiative had excellent feedback and contributed to achieving the ambitious goal of reaching 9 million euro to be donated entirely to the Serious Request project.

## **1.4.4** THE BIOTECHNOLOGY SECTOR



companies in Italy: BiotechSol, Diatheva and Cryolab

22 employees

more than 300 customers

pharmaceutical plant and

two being built/awaiting authorisation



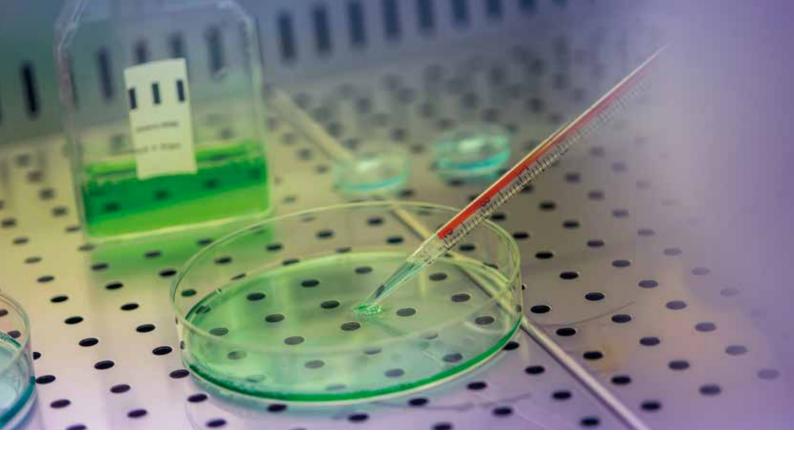
- Clean Room laboratories and cell and tissue processing and conservation centres; design, construction and management
- Cryo-biological rooms: design, construction and operational and documentary management of the rooms and the samples stored there; event and emergency management (Disaster recovery)
- Biological sample conservation services for third parties
- Pre- and postnatal diagnostic services
- Biological sample transport services for third parties (bioshipping)
- Production and sale of diagnostic systems and services
- GMP production of monoclonal antibodies and recombinant proteins
- Scientific, pre-clinical and clinical research on new biological pharmaceuticals
- Research and development of new protocols for cell manipulation

#### Design and Creation of Biobanks

The service of designing and creating ISO 9001 certified cryo-biological rooms is aimed at public and private structures that carry out scientific research and manipulation for cell, tissue and organ transplants and need to preserve their biological samples for long periods of time in liquid nitrogen.

#### **Disaster Recovery**

The complementary Disaster Recovery service guarantees public and private structures the transfer, in emergency situations, of biological samples to cryo-biological rooms owned by the SOL Group. In particular Cryolab is authorised by the Ministry of Health and National Transplants Centre for long-term and disaster recovery conservation of human gametes.



#### **Bioshipping**

The Cryolab Bioshipping service provides transport of biological samples between health structures in conditions of total security and traceability, with continuous control of parameters.

This service is growing continually and is of particular importance for numerous uses and applications, in particular for delicate and often unrepeatable samples such as gametes. The SOL Group, through Cryolab, can satisfy the requirements for reliability and very high specialisation required by the regulations governing structures for Medically Assisted Procreation and follow its continual evolution.

Through its subsidiary Cryolab the SOL Group is now active in the research and development of protocols for cell manipulation, in particular of stem cells, the new frontier of regenerative medicine.

#### **Advanced Diagnostics**

The pre- and postnatal diagnostic screening services are important for ensuring correct development of the newborn baby since they permit early diagnosis of numerous and insidious diseases which can be cured if diagnosed in time.

#### **Biotechnology**

Through its subsidiary Diatheva, the SOL Group entered the sector of development, production and sale of diagnostic systems for clinical, diagnostic and analytical application.

Diatheva diagnostic systems are innovative because they permit identification and quantification using DNA amplification techniques of food pathogens in any matrix and for any requirements.

Compared with traditional techniques such as cultures they can reduce the time required to obtain results to just a few hours and are aimed principally at the food and environmental control sectors where fast analytical results are critical for taking decisions that will affect the safety of people and the environment.

# **1.4.5**THE ENERGY PRODUCTION FROM RENEWABLE SOURCES SECTOR



### Companies:

- Energetika doo, with 6 hydroelectric power stations operating;
- Hydroenergy Sh.p.k, with 2 reservoir fed hydroelectric power stations in operation;
- SOL Hydropower d.o.o.e.i., with 4 hydroelectric power stations
- Mega Elektrik ad, with a power station in Bosnia

15 employees



#### **Activities:**

- Production of electrical energy in hydroelectric power stations
- The exploration and identification, design, construction and management of hydroelectric power stations connected to the national high tension electricity distribution network

### Our commitment to the environment and safety

The production of technical gases is highly dependent on electrical energy, mostly produced from such fossil fuels as gas, carbon and petrol which have a considerable negative impact on the environment.

Among the objectives the SOL Group has long had is to meet part of its energy needs by itself producing electrical energy from renewable sources, so as to benefit the environment by reducing its dependence on fossil fuels.

Various projects have been launched, some still under development, which have led over the years to the construction of a number of hydroelectric power stations that are already able to meet part of the Group's energy needs.

The reduction in  ${\rm CO}_2$  emissions into the atmosphere in 2016 is estimated at more than 52,000 tons thanks to the electrical energy generated in the Group's power stations.



The SOL Group sustainable development model is based on correct and loyal behaviour, the free distribution of information, a willingness to listen, and the ability to realise that the problems of those we have contact with are our problems, being aware that the economic process must continually be coordinated by a system of values.

#### 2.1. \_\_\_\_

#### THE SYSTEM OF VALUES

SOL Group is well aware that the expectations of shareholders must be balanced with those of all parties who interface with the company, since they have legitimate interests.

The Group therefore considers that the values on which everyday operations must be founded are:

**ethical behaviour**: in interpersonal relations, towards customers and suppliers and all stakeholders

**safety**: for all employees and collaborators, the safety in the workplace and the safety of products and services must be considered a top priority

**customer satisfaction**: we are committed to supplying customers, with constancy and continuity, with innovative and technologically advanced solutions and offering patients the finest home care **balanced development**: we work to create balanced economic growth and constant development in the long term, employing resources efficiently and orienting them constantly towards change

**environmental protection**: to be pursued both through the optimization of the process and of the use of energy resources, and through the development of technologies and services that help our customers improve their environmental efficiency

**the development of talents**: we feel that attracting new talents and building on the capacities of individuals are a fundamental tool for the success of the SOL Group.

#### 2.2. \_\_\_\_

#### ETHICAL PRINCIPLES

### **2.2.1.** THE CODE OF ETHICS

The Code of Ethics lays down the rules governing the conduct of all Group employees and collaborators when they interact with each other, with customers, suppliers, authorities and, in general, all stakeholders.

The Code of Ethics came into force on January 1, 2006 and its validity was confirmed by the Board of Directors of SOL Spa on February 19, 2009.

It was adopted by the Group companies through a formal approval by the respective Boards of Directors and distributed to all employees.

To date, approximately 90% of total employees belong to companies that have adopted the Code. Most of the remaining 10% belong to newly acquired companies.

The Code of Ethics is published on the Group website so that it can be easily accessible to all of our stakeholders.

## **2.2.2.**THE PROTECTION OF HUMAN RIGHTS

The SOL Group is constantly committed to respecting national labour regulations, the conventions and recommendations of such international organisms as the ILO (International Labour Organization) and the UN (United Nations Organization).

The rules of conduct are stated in the Group Code of Ethics.

The Code, for example, stipulates that recruitment, hiring, remuneration and training policies must comply with criteria of impartiality, avoiding all forms of discrimination.

The use of child or adolescent labour, as well as forms of forced or compulsory labour, is prohibited and the full and free right to freedom of association and collective bargaining is guaranteed.

### **2.2.3.** RELATIONS WITH COMPETITORS

In dealing with competitors and more generally with the market, all Group employees and collaborators are required to follow the principle of fair competition and to follow the laws and regulations existing in each country to protect competition.

### **2.2.4.** THE FIGHT AGAINST CORRUPTION

The Code of Ethics explicitly condemns any kind of bribery in performing activities.

The Model of organisation, management and control as adopted pursuant to Legislative Decree (D.lgs) 231/2001 by the parent company SOL Spa and Vivisol srl further strengthens the commitment to correct conduct, which is regularly the subject of staff awareness meetings.

#### 2.3. \_\_\_\_

#### GOVERNANCE AND SUSTAINABILITY

The model of governance adopted to ensure sustainability objectives are met consists of the corporate governance system, the internal control system and the integrated quality, safety and environment management system.

The latter, in particular, makes it possible to manage development plans in all company environments, aiming for continual improvement, and ensures that company activities with risk potential are tackled with a precautionary approach, even with regard to situations that are very unlikely to occur, without restricting preventative action to known risks.

## **2.3.1.** THE CORPORATE GOVERNANCE SYSTEM

The parent company SOL Spa has adopted a model of corporate governance that it feels is substantially adequate for its structure size and market capitalisation and that can continue to guarantee, at this time, the transparency required by market practice and a balanced and effective system of controls.

The organs making up the governance structure of SOL Spa are:

- the Shareholders' assembly;
- the Board of Directors;
- the Board of Auditors:
- the Audit firm.

For further information, see the section "Investor relations" on www.solgroup.com.

### **2.3.2.** THE INTERNAL CONTROL SYSTEM

The Board of Directors of the parent company SOL Spa has created the internal control function, with the job of ensuring that internal operational and administrative procedures, laid down to ensure clean and efficient management and to identify, prevent and handle risks of a financial and operational nature and attempts to defraud the company, are effectively respected.

Those responsible for the internal control function do not answer in hierarchical terms to any operational area managers but directly to the Board of Directors.

Verification activities are held both at the central managements in the Monza headquarters and at the locations of the Group operating companies.

Both SOL Spa and Vivisol Srl have also instituted their own Supervisory Body, with suitable means and the necessary autonomy, which verifies that the Model of organisation, management and control under D.Lgs. 231/2001 is respected.

The internal control system is integrated by the Code of Ethics and the regulations and procedures in the integrated system of quality, safety and environmental management.

# 2.3.3. THE MODEL OF ORGANISATION, MANAGEMENT AND CONTROL UNDER D.LGS 231/01

SOL Spa and Vivisol Srl have each adopted their own Model of organisation, management and control as laid down by Legislative Decree 8/06/2001 n. 231.

The first versions of the two Models date back to 2006 and have been subsequently updated to take account of the experience built up in management, the introduction of new offences and the related jurisprudence.

The two Models were last updated during 2016, following the introduction of new environmental offences and of the self-laundering crime.

The new editions of the Models were approved by the Board of Directors of SOL Spa and of Vivisol srl on September 6, 2016 and on November 28, 2016 respectively.

Both the Code of Ethics and the Model are distributed to all employees and collaborators of the companies concerned, and also published on SOL Group website.

Every employee is encouraged to report to his superior possible violations of the Code of Ethics. In particular for SOL Spa and Vivisol Srl a specific email address has been created for reports to the Supervisory Body.

## **2.3.4.** THE GOVERNANCE OF SUSTAINABLE DEVELOPMENT

On November 28, 2016 the Corporate Social Responsibility (CSR) Committee was set up with Directors, General managers and Central managers appointed as its members.

The CSR Committee, which becomes operational in 2017, will take charge of setting sustainability goals and will coordinate and stimulate the operational structures of all Group companies.

### **2.3.5.** THE MANAGEMENT SYSTEMS

The SOL Group has opted to impose in an integrated way its Quality, Safety and Environmental management System (SHEQ/MS), to guarantee coverage of all its activities, eliminating pointless duplication and emphasising synergies.

Application of the Management System is aimed at:

- improving the quality, efficiency and effectiveness of the various company processes, thus continuously reducing impacts on the health of employees, on safety conditions in the workplace and on the external environment;
- managing the risks involved in the various company processes, adopting the procedures needed to identify and prevent in a timely way situations which could have serious and undesired repercussions on Group activities.

#### The organisational structure

The governance of the Management systems is entrusted to the "Quality, Safety and Environment Management System Steering Committee" (CGSQ) made up of the executive directors, general managers and central directors. This has the task of re-examining the Management system to ensure its efficacy and adequacy over time.

#### The CGQS:

- examines the progress of the SHEQ/MS;
- evaluates and define strategic interventions;
- verifies and, when necessary, updates the quality, safety and environmental management policies;
- deliberates objectives and activity programmes for quality, safety and environmental management that appear necessary after Committee discussions.

In operational terms, the Management systems are under the responsibility of Central Quality, Safety and Environment Management (DIQS), which reports annually to the CGSQ.

Progress and any updates are presented by DIQS to Director and Central managers at quarterly report meetings and the investment summit.

Matters relating to organisation, labour and industrial relations are handled by Central Personnel and Legal Affairs Management, which presents the following data on human resources management annually to the managing directors and general managers:

- the main indicators relating to human resources and their cost
- data on turnover, absenteeism, over time, hours worked, holidays

- the types of contract used
- the state of industrial relations with union representatives and any disagreements
- the principal training initiatives and investments for improving human resources management

#### **Policies**

The basis of the Management system is the Policies. The Policies are documents underwritten by the President and General Managers of the Group that outline the principles behind the operations of Group companies and define the objectives that top management intends to pursue in the various sectors

**SOL** Group companies quality management **Policy:** this document from the integrated quality, safety and environment management system was published for the first time in 1993 and revised and updated in November 2014.

The document is made available to all Group employees through publication on the company intranet.

The Policy expresses the concept that SOL Group companies carry out their activities aware of the need to maintain and further develop a quality management system oriented towards continuous improvement, in an overall vision of their activities, in the conviction that quality is a value that everybody creates together, day by day, through dialogue, participation, agreement and involvement.

**SOL** Group companies safety and environment **Policy:** this document from the integrated quality, safety and environment management system was published for the first time in 1993 and revised and updated in June 2013.

The commitments and fundamental principles expressed in the Policy are:

- respect for health, safety and environmental rules, laws and regulations;
- the carrying out of activities with the aim of preventing all accidents and injuries;
- a review of performance aiming for continual improvement;
- the identification, elimination or control of potential risk situations connected with activities;
- continual improvement in personnel training at all levels, technical updating of plant and the sharing of best practices with partners and in category associations.

Because, as the "Policy" states:

- safety and respect for the environment mean consciousness and awareness
- safety and respect for the environment mean teamwork
- safety and respect for the environment mean a sense of responsibility
- safety and respect for the environment mean professionalism

The safety and environment policy document is published on the Group website and is distributed internally, at all levels, and to suppliers.

It is periodically revised to ensure that any needs to update objectives are recognised and integrated in the document.

Units to which the "Seveso Directive" applies or which are certified BS OHSAS 18001 or under the ISO 14001 standard also issue their own documents of environmental and safety policy which include the principles of Group policy and integrate them with the specific objectives of the site.

#### Responsible Care

SOL Spa was, in 1995, one of the first companies in Italy to subscribe to Responsible Care, the voluntary programme of the world chemical industry supported, in Italy, by Federchimica, in which it plays an active part, with its own representative on the managing Committee.

As part of this programme, several environmental and workplace safety performance indicators are collected each year, and are also used in this report.

On January 7, 2015 SOL adhered to the "Responsible Care Global Charter", committing itself to promoting the principles and contents of the initiative in all countries where the Group is present.

On April 23, 2015 the subsidiary Flosit adhered to the program promoted in Morocco by the "Federation de la Chimie et de la Parachimie", a further indication of Group Companies' sensitivity to the sustainability issue.

### The Charter of principles for environmental sustainability

SOL has adopted the "Charter of principles for environmental sustainability" produced by Confindustria and proposed at the beginning of 2012 to member companies.

SOL played a leading part in the drafting of the Charter of principles and of the relative Operational guidelines, with company directors participating in the working group set up by Confindustria.

#### Certifications

The SOL Group launched the certification process for its units as early as 1994.

The main Italian locations were first certified according to ISO 9001 and other standards have gradually been implemented in relation to Group activities. The perimeter was then extended to other locations and other countries.

The aim is to further increase the number of certified units, in particular in accordance with OHSAS 18001 (occupational safety) and ISO 27001 (information security)

**ISO 9001:** starting from the certification of the first Units in 1994, the Group has subsequently extended the perimeter. In 2016 many new Units were added and to date the certifications cover 114 Units (96 in 2015) in the various European countries, more than 90% of the total.

**BS OHSAS 18001**: with the coming into force in Italy of Legislative Decree 81/2008, which lays down, as a necessary condition for exemption from application of the sanctions laid down by Decree 231/01, the adoption of a Management system in line with Regulation OHSAS 18001, certification becomes even more important as a guarantee for top management.

SOL Spa and Vivisol Srl obtained certification of the Safety management system for all their Units, as laid down by the Standard OHSAS 18001.

Later, other Units in Slovenia, Spain, Romania, the United Kingdom and, in 2016, Holland were added to those certified in Italy.

**ISO 14001 e EMAS**: considering the importance attached to respecting environmental issues, though the Group's production activities have a quite limited direct impact on the environment, the correct adoption of the Group Management System was verified with certification of some particularly significant Units.

Two Italian Units have obtained EMAS Registration of their environmental management system.

Responsible care: the implementation of the "Responsible care" Programme in SOL Spa was submitted, in 2014, to an "Audit of the verification scheme by Federchimica". This audit confirmed conformity with the principles and requirements of the Programme.

**ISO 50001**: the Frankfurt plant of SOL Spa Branch Deutschland and, since 2015, Slovenian SPG and TPJ plants and SOL Kohlensäure Glees plant are certified ISO 50001, the international standard whose adoption helps organisations to improve their energy performance, increasing efficiency and reducing climatic and environmental impact.

**ISO 27001**: the ISO 27001 standard defines the requirements for creating and running an Information security management system (logical, physical and organisational security), with the aim of protecting data and information from threats of all kinds, ensuring its integrity, confidentiality and availability.

The table below shows the situation at December 31, 2016 of certifications obtained by the SOL Group, subdivided by country and company.

#### **CERTIFICATIONS AT DECEMBER 31, 2016**

Company	Country	ISO 9001	OHSAS 18001	ISO 14001	EMAS	ISO 50001	ISO 13485	ISO 27001	FSSC 22000
TECHNICAL GASES	S SECTOR								
SOL Spa	Italy	18	27	3			1	1	1
SPG Srl	Italy	6	7	3	2			1	1
ICOA Srl	Italy	1		1					
SOL Welding	Italy	1					1		
CTS	Italy	1							
Behringer	Italy	1							
Medes	Italy	1					1		
Tesi	Italy	1							
SOL Spa Belgium	Belgium	1		1					1
SOL Spa Deutschland	Germany	1				1			1
BTG BVBA	Belgium	1							
SOL Nederland	Holland	2	3						2
TGS AD	Macedonian Republic	3							3
SOL SEE doo	Macedonian Republic	2							2
SOL TG GmbH	Austria	1					1		
UTP doo	Croatia	2							
Kisikana	Croatia	3							
SOL France SA	France	1					1		
SPG doo	Slovenia	1	1	1		1			1
ТРЈ	Slovenia	1	1	1		1			1
SOL Hellas	Greece	2					1		2
SOL Srbija	Serbia	1							1
GTS	Albania	1							
TGP	Bosnia-Herzegovina	1							1
TGT	Bosnia-Herzegovina	1							
SOL Deutschland	Germany	2							2
SOL Kohlensäure	Germany	2				2			2
GTH	Rumania	1							
SOL Bulgaria	Bulgaria	2							2
SOL TK	Turkey	1							
Flosit	Morocco	1							
Irish Oxygen	Ireland	1							
SicgilSOL	India	2							

Company	Country	ISO 9001	OHSAS 18001	ISO 14001	EMAS	ISO 50001	ISO 13485	ISO 27001	FSSC 22000
HOME CARE SECTOR									
Vivisol Srl	Italy	20	20	1			2	1	
Vivisol Napoli Srl	Italy	1							
Vivisol Silarus Srl	Italy	1							
Vivisol Calabria Srl	Italy	1							
App4Health	Italy							1	
Vivisol Deutschland GmbH	Germany	7					4		
Pielmeier Medizin Technik	Germany	1							
Vivisol Nederland	Holland	1							
Vivisol Austria	Austria	2							
Vivisol Hellas	Greece	2							
Dolby Vivisol	United Kingdom	4	4	4				2	
Vivisol Iberica	Spain	4	3	4					
BIOTECHNOLOGIES SECTOR									
Biotechsol Srl	Italy	1					1		
Diatheva	Italy	1							
Cryolab	Italy	1							

### **2.3.6.** "SEVESO" DIRECTIVE

Nineteen Group Units, because of the kind of gases they produce and the quantities stocked, fall into the field of application of Directive 2012/18/UE ("Seveso Directive").

They are the Italian units in Piombino, Mantova, Cremona, Cuneo, Salerno, Ancona, Marcianise, Verona and Pisa, and since 2016, Augusta, as well as those in Feluy (Belgium), Frankfurt, Gersthofen and Krefeld (Germany), Cergy Pontoise and Saint Savin (France), Tillburg (Holland), Jesenice (Slovenia), and Devnja (Bulgaria).

Directive 2012/18/EC makes it obligatory to adopt a specific safety management system (which has much in common with the provisions of OHSAS 18001), and, therefore, to be periodically subjected to controls by the Authorities (three during 2016, all with positive outcomes).

## 2.3.7. INDUSTRIAL EMISSION DIRECTIVE (IED)

Some Units of SOL Spa and SGP srl fall into the field of application of European Directive no. 75 (24/11/2010) "Industrial Emission Directive" (I.E.D.), extending the scope of application of the I.P.P.C. (Integrated Pollution Prevention and Control) regulations, which govern the granting, renewal and re-examination of Integrated Environmental Authorisation.

The company has authorisation for its hydrogen (Ravenna), nitrous oxide (Cremona and Caserta) and acetylene (Ancona) production plants.

#### 2.4. \_\_\_\_

# SUSTAINABILITY FOR CUSTOMERS AND PATIENTS

The SOL Group aims to satisfy its customers' needs in all the sectors where it operates and to contribute to guaranteeing the quality of life of the patients supplied.

It offers industrial customers products, services and technologies that help them do business more safely, economically and environmentally friendly.

In addition to medical gases, hospitals are provided with support services for the administrative and technical management of gas supplies and services designed to ensure the health safety of patients, such as sanitizing services.

The home care activity, finally, allows patients suffering from chronic diseases to lead a more serene life in their homes.

The personal data of our customers are protected in all countries where the Group operates, in accordance with a specific "Services supply policy". Thanks to the application of this policy, there are no significant complaints about the privacy and security of the data handled.

### **2.4.1.** TECHNOLOGIES FOR THE INDUSTRY

Given the growing sensitivity of customers to environmental and safety matters, SOL has invested in the identification and development of innovative technologies that, starting from understanding customers' needs and using the products supplied, permit an improvement of working conditions, in all respects, from an environmental, economic, and safety point of view.

Here are some examples of how SOL supports its customers in operating more sustainably

#### Water quality:

 using oxygen in waste water treatment makes purification more effective and increases purification capacity, reducing environmental impact and giving better control over treatment

#### Climate protection and productivity

 The use of our oxy-combustible burners in the metals and glass industries permits more efficient combustion than using only air, with a consequent reduction of energy consumption and atmospheric emissions.

#### Sustainable mobility

 the use of hydrogen as fuel eliminates emissions deriving from the circulation of cars, buses or lorries

#### Safety

 The use of inerting nitrogen contributes to the safety of industrial installations

#### Reduction of pollutants

- Disinfection with oxygen protects the watercourses where wastewater is re-emitted after treatment from bacterial pollution and also avoids the use of chlorine compounds;
- pH control with CO<sub>2</sub>: this substitutes mineral acids (sulphuric and hydrochloric) which leave pollutants in the water.
- Modified atmosphere packaging protects food while reducing the use of chemical preservatives

# BIOMETHER-PLANTS FOR THE PRODUCTION OF BIOMETHANE THROUGH UPGRADING OF BIOGAS

## A STEP FORWARD FOR THE USE OF RENEWABLES ALTERNATIVE ENERGIES.

A step forward for the use of alternative renewables.

At the treatment plant in Roncocesi (RE) operated by Iren, multiservice company active in distributing electricity, water and natural gas, SOL has installed a plant capable of upgrading the biogas produced in the sewage sludge treatment line, to convert it into biomethane, a renewable biofuel.

Biomethane is considered a "carbon negative" fuel. If it is obtained from landfill biogas or wastewater treatment plants, not only does it contribute to increasing the amount of carbon dioxide emitted globally into the atmosphere, but it reduces it.

The upgrading plant removes  $\mathrm{CO}_{\mathrm{2}}$  and other pollutants found in biogas and produces a gas with methane

percentage equal to or greater than 95%, so with quality features that make it conform to feeding into the network, as it is very similar to natural gas

The installation is part of the BioMethER project "Regional system of biomethane in Emilia Romagna", funded by the European Commission's LIFE programme and co-funded by the Emilia Romagna region to promote the development of the entire biogas-biomethane supply chain.

The aim of the project is to demonstrate how the use of Biomethane provides immediate environmental benefits, allowing, at least partial, replacement of fossil fuels with renewable fuels with a low environmental impact.

SOL will also construct a second prototype that will be installed at the landfill in Ravenna managed by HERA, multiutilities active in waste collection and disposal, and will come into operation by the year 2017.



### **2.4.2.** ON-SITE PLANT

Producing gas directly on industrial customer premises or at a hospital using on-site plants significantly contributes to environment protection, thus enabling:

- a reduction in atmospheric pollution, compared with traditional supply in cylinders or tanks, delivered by road
- a reduction of energy consumption, since the production process specialising in a single gas with specific characteristics normally consumes less energy than a traditional centralised plant.

Applying the "Life Cycle Assessment" method, the lower quantities of  ${\rm CO_2}$  emitted to the atmosphere in 2016 using on-site plans instead of traditional plants amounted to 21,064 tonnes, in line with the previous year.

### **2.4.3.** HEALTHCARE SERVICES

The SOL Group is constantly looking for answers to health management challenges that are posed both by hospitals and by patients who use home care services.

That's why SOL believes that it is necessary for hospitals to be supplied not only with traditional medical gases (oxygen and nitrous oxide), but also with the equipment to use them and, above all, the services enabling clients and doctors to focus on the main purpose of their activities, namely patient care

Patients with chronic conditions such as sleep apnea or respiratory insufficiency can then rely on home care services that, if conditions apply, support their independence and quality of life as much as possible.

#### PRINT-AGE

#### AN INTEGRATED APPROACH TO PROMOTE THE HEALTH OF THE ELDERLY AND THE FRAIL: PREVENTION OF INFECTIONS, NUTRITIONAL SUPPLEMENTATION AND "PRINT-AGE" PERSONALISED THERAPIES

The SOL Group company Diatheva participates every year in various projects. The most outstanding of them, the PrInT-Age project, has just been financed under the 2014-2020 ERDF intervention POR MARCHE "Promoting innovative solutions to meet health and wellness challenges of local communities"

In this context Diatheva collaborates with other companies from the Marche region and with important research centres such as the University of Urbino "Carlo Bo and Marche Polytechnic University. The aim is to create products that will be used to improve the services offered to citizens - in particular those hosted in healthcare and social health facilities - and to promote the public expenditure efficiency by personalising care, curbing pharmaceutical expenditure, reducing nosocomial infections, and the resulting hospitalizations.

In as much as lead undertaking in this context, Diatheva is exclusively responsible for coordinating the whole research and experimentation team. Specifically, the



role of Diatheva is to create new systems for clinical risk prevention in healthcare facilities, such as a molecular kit that can be used to monitor nosocomial antibiotic-resistant microorganisms and a kit for the detection of viable cells of legionella from sanitary water. Nosocomial infections are associated with a significant increase in mortality, longer hospitalization time, and increased complexity of patient and human resources management resulting in higher cost. The infection-control products developed by Diatheva can explain the movement and spread of antibiotic resistance in the individual patient and can identify possible legionella contamination. Both of them would include timely adoption of isolation measures restricting the movement of microorganisms within the facilities, preventing epidemics and hence additional costs.

As part of the project, companies will have the opportunity to test the products developed in real-life conditions, at private healthcare rehabilitation facilities (Santo Stefano Group), public nursing homes for the elderly (Istituto Nazionale di Ricovero e Cura per Anziani) and management of the frail with an acute condition (Azienda Ospedaliero-Universitaria Ospedali Riuniti di Ancona). This collaboration process with end users of the products will be crucial to ensuring continuous improvement of technical specifications and performance of the products in order to be introduced into the routine.







### **2.4.4.** CUSTOMER SATISFACTION

Client satisfaction is periodically verified through ad hoc surveys.

In 2016, the following activities are reported:

- monitoring carried out in Italy on a sample of patients receiving home-based therapy and resulted in a rating between "satisfied" and "very satisfied" from 100% of respondents;
- an investigation carried out by Flosit (Morocco) downstream of the entrance into the Group, with a rating between "satisfied" and "very satisfied" from 85% of respondents.

Some key performance indicators (KPIs) (customer complaints, lead times with customer orders and patient requests, etc.) are also constantly tracked to enable timely corrective actions.

### **2.4.5.** SAFE PRODUCT MANAGEMENT

Product safety is monitored both in the production phase, during transport and through to use by customers, using risk evaluation processes.

The SOL Group takes part in national and international working groups on product safety matters so as to be constantly updated on the evolution of regulations and operate in harmony with other companies in the sector.

#### Safety Data Sheets

Management of the Safety Data Sheets (SDS) of all substances and for all companies operating in the European Community is centralised in the Monza headquarters. SDS currently amount to 4,000, and are available in 15 languages.

All these instructions, together with the labels applied to mobile containers, conform to CLP (Classification, Labelling and Packaging), aimed at standardising the classification and labelling of dangerous substances and preparations in Europe.

#### **REACh**

As far as REACh (Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals) is concerned, the only substances that required registration were calcium hydroxide (in Italy and Croatia) and acetylene (in Croatia).

The registration required for other substances that have already been preregistered (acetylene in other countries, nitrous oxide and calcium carbide) has been postponed until the 2018 deadline after verification that the quantities produced or imported are below the limit of 100 t per year.

#### Traceability

Product traceability and, in particular, for medical gas containers - which require implementation of a pharmaceutical vigilance system - provides information on their location at any time in order to make timely withdrawal actions, in case flaws were found in the products delivered.

Computerised traceability currently covers about 90% of containers handled.







52.9%

net sales other countries



47.1%

net sales **Italy** 



722.8

millions euro capitalization

#### 3.1. \_\_\_\_\_

#### FINANCIAL DATA

Net sales in 2016 grew to 703.4 million Euro (+4.3% compared with 2015).

In more detail, the turnover of the technical, special and medical gases sector (373.1 million Euro) grew (+2.6%) over 2015.

In general there was a slight increase in sales volumes to certain economic sectors such as metalworking and food.

The home care sector saw good growth, with a turnover of 360.0 million Euro (+5.9%), both in Italy and overseas countries, thanks to a continuous commitment to develop new products and services alongside and integrating oxygen therapy activities.

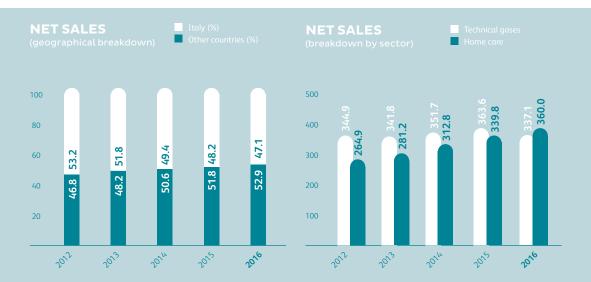
The cash flow was 127.5 million Euro (18.1% of sales).

Recorded investments were 103.7 million Euro (89.8 million Euro in 2014).

The parent company SOL Spa is quoted on the Milan Stock Exchange with a market capitalisation, at 31.12.2016, of 722,8 € milion.

For more information on Group trends, see the balance sheet published on our website www. solgroup.com.





	2016	2015	2014	2013	2012
Net sales (1)	703.4	674.2	636.4	595.4	583.0
EBITDA (1)	167.6	148.4	142.9	131.8	132.2
EBIT (1)	80.9	65.6	61.9	53.5	56.5
Net profit <sup>(1)</sup>	44.1	32.4	29.2	21.6	29.0
Cash-flow (1)	127.5	112.9	106.2	92.4	98.5
Investments (1)	103.7	89.8	98.0	92.0	85.4
Employees	3,128	2,995	2,806	2,580	2,479
Number of countries	28	27	24	24	23

(1) million €

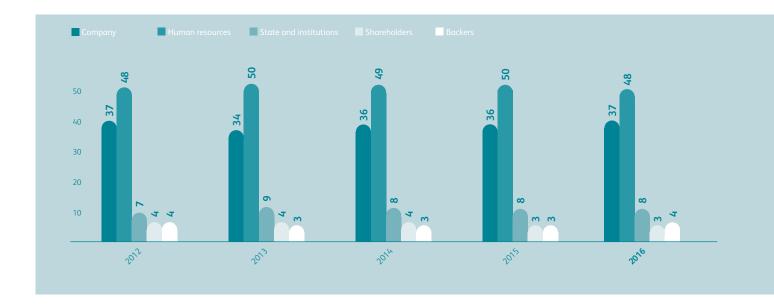
#### 3.2. \_\_\_\_

#### THE DISTRIBUTION OF ADDED VALUE

The distribution of added value allows the relationships between the SOL Group and the main stakeholders to be expressed in monetary terms:

- Company system: amortisation and non distributed profit
- Human resources: employee remunerations
- State and institutions: taxes
- Shareholders: remuneration for risks capital
- Backers: remuneration for borrowed capital

In 2016 the added value was equal to  $\le$  310.0 milion (+9% over 2015)



#### 3.3. \_\_\_\_

#### SHAREHOLDERS AND INVESTORS

# THE STRATEGIC SUCCESS OF A COMPANY IS PURSUED ALSO BY MAXIMISING VALUE FOR SHAREHOLDERS

Code of Ethics, article 2 – Conduct in the management of business activities

The principal means of communication with shareholders is the Balance Sheet, published in the "Investor relations" section of the Group website www.solgroup.com.

For this reason, as well as fulfilling legal requirements, the Balance Sheet has been expanded, especially in the sections "Additional notes" and "Management report", with information giving greater detail on the activities carried out.

Communication with shareholders and investors also includes:

- the periodic publication of press releases on the Group website and their transmission to institutional investors
- participation in conferences promoted by financial institutions
- meetings and conference calls with investors and analysts
- roadshows



#### 3.4. \_\_\_\_\_

#### THE SUPPLY OF GOODS AND SERVICES

#### **Suppliers**

The SOL Group implements a supply policy that guarantees to all potential suppliers equal opportunity to propose their products and services and that relationships with them are managed with the criteria of impartiality, correctness and openness to competition.

In the selection of partners for the supply of goods and services that are critical for safety, quality and the environment, SOL uses a qualifying process that verifies the possession of requisites demanded by company procedures.

Possession of these requisites is verified by objective methods such as the compilation of questionnaires and, where it is felt necessary, the carrying out of audits at supplier headquarters.

During 2016, 30 supplier audits were performed onsite in Italy (16 in 2015) and 1 non-compliance was detected.

Suppliers are required to acquaint themselves with the Group Code of Ethics (in Italy also the Model of organisation, management and control under D.Lgs 231/01), and with the safety and environment Policies, and must adopt their content in carrying out their activities.

The responsible management of the Group means both constant attention to cost optimisation, including efficiency in purchasing, and the safeguarding of local interests and the maintaining of equitable and correct relationships with suppliers, aimed at creating value in the long term.

#### The supply chain

The companies that are part of the SOL Group are essentially 'local' realities. Production facilities are built not far from customers and distribution is usually carried out within the home country of the vendor company.

The supply chain is therefore relatively simple and suppliers are mostly locally based.

The main products and services purchased by the Group companies are electricity and transport services, maintenance and technical assistance.

A wider choice exists for supply sources in respect of capital goods: sales means (cylinders, tanks, tankers, etc.), plants, and equipment.

An accurate analysis of the percentage of local suppliers on total purchases was carried out for the Italian companies within the Group.

This confirmed the validity of the foregoing considerations: in 2016, they accounted for 91% of the total value of purchases of goods, products and services, in line with the values of previous years.

It is reasonable to assume that, even in the absence of numerical data, the percentage of local suppliers out of the total lies on the same values also for the other Group companies.

#### Indirect economic aspects of the supply chain

For the above reasons, the SOL Group, in carrying out its activities, is assisted by other undertakings. These are preferably identified from among those operating in the same areas where manufacturing and distribution units are based.

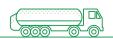
Among the contractors, special prominence is given to product transportation and delivery companies and, in the field of home healthcare, specialist personal care assistance.

# THE ENVIRONMENT



494.2<sub>GWh</sub>

electric energy consumed



kilometres driven for product delivery

108<sub>GWh</sub>

hydro electric energy produced CONFORMITY WITH LEGAL REQUIREMENTS IS A PRIORITY REQUISITE FOR SOL AND FOR ALL ITS COLLABORATORS AND EMPLOYEES.
SOL IS CONSTANTLY ENGAGED IN THE SAFEGUARDING OF THE ENVIRONMENT, HEALTH AND SAFETY IN THE WORKPLACE.

Code of Ethics, article 5 – Safeguarding of safety, health and the environment

#### 4.1. \_\_\_\_

# PRODUCTION ACTIVITIES, THEIR ENVIRONMENTAL IMPACT AND THE RAW MATERIALS USED

The most important environmental aspects are related to the activities carried out in the Group's production plants as well as to the distribution activity, namely the electrical energy consumption and the fuel for vehicles used for the delivery of gases.

The main plant types are:

#### Air separation plant (ASU)

The process of air separation for the production of oxygen, nitrogen and argon is a physical one. It is a process that uses atmospheric air as raw material and has a high consumption of electrical energy, as shown in detail below.

**Environmental aspects**: the process of air separation has significant indirect environmental impacts because it uses a great deal of electrical energy. On the other hand, it does not use raw materials and emits negligible amounts of  $\mathrm{CO}_2$ , sulphur oxides ( $\mathrm{SO}_\chi$ ) and nitrogen oxides ( $\mathrm{NO}_\chi$ ), already present in the air.

#### Hydrogen plant

These use natural gas and water (steam) as raw material in a chemical reaction that produces hydrogen.

**Environmental aspects**: hydrogen production plants emit  $CO_2$ , as a sub product of the reaction and negligible quantities of nitrogen oxides  $(NO_\chi)$  and consume natural gas to produce steam.

#### Nitrous oxide plant

These use as raw material ammonium nitrate, either solid or in water solution, in a thermal disassociation process.

**Environmental aspects**: the production of  $N_2O$ , can emit, from its vents, the gas produced (greenhouse gase) and consume electricity to bring ammonium nitrate to reaction temperature

#### Acetylene plant

These use as raw material calcium carbide, a solid that decomposes in water.

**Environmental aspects**: The process produces calcium hydroxide, which is normally recycled for use in industry or agriculture.

#### Plant for purifying and liquefying carbon dioxide

The raw material is carbon dioxide itself, obtained as a sub product of chemical plants or from natural underground deposits. The carbon dioxide is purified and liquefied, through the use of energy. The carbon dioxide obtained in this way is reused in industrial applications instead of being emitted directly into the atmosphere.

**Environmental aspects**: CO<sub>2</sub>, plants can emit, vents, the gas produced (greenhouse gases).

The table shows significant data relating to the production sites.

Company	Country	Unit	Plant type	<b>AIA</b> <sup>(1)</sup>	ISO 14001 <sup>(2)</sup>	ISO 50001 <sup>(2)</sup>	EMAS <sup>(2)</sup>	OHSAS 18001 <sup>(2)</sup>	Seveso Directive <sup>(3)</sup>
SGP Srl	Italy	Mantova	Air separation (ASU)		BETAND THE THE STATE OF T		C	60 ORGA - MINE 2001 DEPT TO THE SAME FINANCE OF THE SAME TO SHEET CONTENTS	х
		Verona	Air separation (ASU)		DEFECT TO STATE OF THE PARTY OF		C	ST CHEAT VIDEO COST  STITUTE OF COST COST  STITUTE  STITUTE COST  STITUTE  S	Х
		Cuneo	Air separation (ASU)					BE CHMAN WIDON CORT  SPECIAL PROPERTY OF THE P	Х
		Salerno	Air separation (ASU)					EI OMAN 1800 JURY  PARENT OF STREET	X
		Ravenna	Hydrogen production	Х	Total Control			BE OWNER THAT I THE T	
SOL Spa	Italy	Piombino	Air separation (ASU)					# COMPAN - SMICH COMPAN - COMP	X
		Augusta	Air separation (ASU)					BE CHEAT VIDEO CORT  SPECIAL PROPERTY OF THE P	X
		Cremona	Nitrous oxide production	Х	BETTA DE CATETAN METTAN DE CATETAN MARIANA CATETAN			ET CHAMA 1800 CORT  PARTICULAR  TITRISH CT CHIT 2018  CONTEXA CHIT PARTIC	X
		Ancona	Acetylene production	Х	DESIGNATION OF THE PARTY OF THE			BI OWAN 1001 JEET  PROJUBLISH  PROJUBLISH  PROJUBLISH CONTRACTO	X
		Caserta	Nitrous oxide production	Х				BE OWNER 1985 1985 BY THE LIFE OF THE OWNER IN THE OWNER	X
		Pisa	Cylinder filling					BE COMMAN VARIOUS CORT	Х
		Monza	Special gas production						
SPG	Slovenia	Jesenice	Air separation (ASU)		SELECTION OF SELEC	iso		EL CHAMA MICH AREA  TOTAL AND A CHAMA AND	Х
SOL France	France	Cergy Pontoise	Cylinder filling						Х
		Saint Savin	Cylinder filling						Х

#### **AIA** (1)

The plant has Integrated Environmental Authorisation as it falls in the field of application of the IPPC

#### Certifications (2)

The plant has a management system that is certified under one or more of the following standards: ISO 14001, ISO 50001, OHSAS 18001 or EMAS Registration.

#### Seveso Directive (3)

The plant falls in the field of application of Directive 2012/18/CE ("Seveso Directive")

Company	Country	Unit	Plant type	AIA <sup>(1)</sup>	ISO 14001 <sup>(2)</sup>	ISO 50001 <sup>(2)</sup>	EMAS <sup>(2)</sup>	OHSAS 18001 <sup>(2)</sup>	Seveso Directive <sup>(3)</sup>
SOL Spa Branch	Belgium	Feluy	Air separation (ASU)		OF IN SOCIETY OF STREET				Х
SOL Spa Branch	Germany	Frankfurt	Gas liquefying from air separation			ISO			Х
SOL Kohlensäure	Germany		Carbon dioxide production			ISO			
SOL Nederland	Holland	Tillburg	Nitrous oxide production					ST DOMO 10001.000*  TOTAL TO	Х
UTP	Croatia	Pola	Acetylene production						
Kisikana	Croatia	Sisak	Air separation (ASU)						
SOL SEE	Macedonian Republic	Kavadarci	Air separation (ASU)						
TGS	Macedonian Republic	Bitola	Carbon dioxide production						
		Volkovo	Carbon dioxide production						
		Lotepro	Air separation (ASU)						
		George Petrov	Acetylene production						
SOL BG	Bulgaria	Varna	Carbon dioxide production						
		Devnja	Air separation (ASU)						Х
TGP	Bosnia-Herzegovina	Petrovo	Carbon dioxide production						

#### 4.2. \_\_\_\_

#### ENERGY AND CLIMATE PROTECTION

## **4.2.1.** THE USE OF ENERGY

SOL Group activities use as energy vectors electrical energy, methane and steam.

The consumption of the latter two is negligible and therefore only electricity consumption was analysed. Electricity consumption is one of the critical factors in the air separation process for cryogenic gases production: both gas compression and gas liquefying are highly energy-consuming operations. As a result, the consumption of primary energy production plants accounts for about 97% of the Group energy consumption.

The reporting perimeter for energy consumption is limited to such plants, given the negligible percentage of those of secondary processing units and offices.

The Group is particularly careful to monitor energy consumption, not just for the economic aspects but also to meet the sustainability criteria that are a fundamental part of SOL Group culture.

Investments in the energy production from renewable sources sector are a further demonstration

of the Group's commitment to defending the environment. The amount of self-produced electrical energy accounts for 21.9% of overall electrical energy needs, more than the 14.7% of 2015 because of the higher rainfall.

Interventions to contain energy consumption are not limited to the optimisation of processes and careful plant operation, but also extend to the design of plants and the renewal of machinery used in the plant, to which an important slice of investments is destined annually.

Consumption is however considerably influenced by customer demand and the start-up (or shutdown) of production plant.

In particular, the lower power consumption in 2016 are totally attributable to the discontinuation of supplies to an important customer supplied via pipeline, which in past years, starting in 2014, had already reduced its consumption.

The gradual reduction of withdrawals resulted in the deterioration of the efficiency index in past years. However, the trend was reversed in 2016, due to the commissioning of new plants and the investments made for the modernisation of existing ones.

# MWh OF ELECTRICAL ENERGY CONSUMED - SOL GROUP



# MWh OF ELECTRICAL ENERGY CONSUMED PER MC PRODUCED SOL GROUP (Base 2012=100)



The breakdown by energy vector, calculated starting from electrical energy consumption in each nation where the SOL Group is present with primary production plants, assuming that the energy mix is equal to the average of the company further plant is located, is shown below.

# **4.2.2.** CLIMATE PROTECTION

#### Greenhouse gas emissions

Starting from this year were monitored not only direct emissions but also indirect emissions deriving from:

- electrical energy supply
- deliveries to customers

#### a. Direct emissions

The direct emission of greenhouse gases is made up of:

- carbon dioxide, a sub-product in plants producing hydrogen by steam reforming from methane or emitted from plant producing CO<sub>2</sub> from wells;
- nitrous oxide, emitted from plant producing N<sub>2</sub>O from ammonium nitrate;
- HFC (hydrofluorocarbons), used in plant refrigeration circuits.

During the 2016 no extraordinary maintenance was necessary on ASU plant refrigeration units and, consequently, emissions attributable to losses in HFCs were small and account for lower direct emissions.

# b. Indirect emissions from electrical energy supply

Starting from an analysis of the mix of energy supply we evaluated indirect emissions generated by the production of the electrical energy used by the SOL Group. These emissions were about 240,000 tonnes of CO<sub>2</sub>.

For calculation purposes, separate consumption by country and Residual Mixes were used as applicable to every country (source: RE-DISS).

For a definition of Residual mix see the Glossary

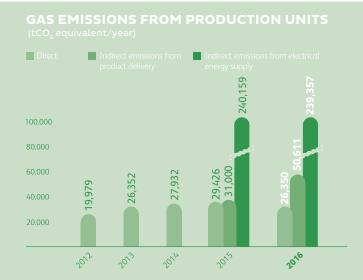
#### c. Emissions from product deliveries

Starting in 2016, the monitoring of emissions as a result of delivery activity was extended to all product types:

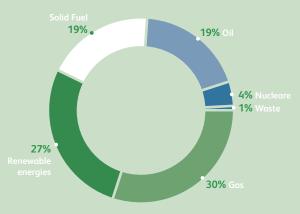
- Products in tanks and tube trailers
- Products in mobile containers
- Home care products

Based on the type of vehicles for the three main types of products transported total emissions have been estimated to be about 50,600 tonnes of carbon dioxide.

Calculation was performed by referring to the standards available on www.gov.uk







#### 4.3. \_\_\_\_

#### TRANSPORT

## **4.3.1.** DELIVERIES TO CUSTOMERS

Attention to transport is of fundamental importance for environmental and safety aspects.

Products are distributed mainly by road and to an extremely widespread customer base.

The chemical and physical characteristics of the main products also make it necessary to use special vehicles for transport (super isolated tankers for cryogenic liquids) or special containers (cylinders for compressed gases and base units for liquid oxygen for home care use). In both cases, the unfavourable ratio between the tare weight and the weight of the products transported makes for low fuel consumption efficiency per product unit.

Bearing in mind these limits, SOL action to reduce fuel consumption and hence environmental impact consisted of:

- the creation of production units spread as widely as possible over the territory, to reduce vehicle mileage
- investments to purchase new generation super isolated tankers, with a higher ratio between weight of product transported and total weight

 the adoption of logistics management methods aimed at optimising routes.

Rainbow, a software for planning the distribution of liquid products adopted and perfected in 2012 for companies operating in Italy, has now been adopted for all other companies, except for those recently acquired where introduction of the software is planned.

As mentioned above, starting from 2016 mileage data collection could be extended to all Group companies (with the exception of 5 companies and limited to the transport of mobile containers) and in all modes of transport: in tanker for cryogenic gases, mobile containers trucks and vans for products intended for home care.

The total mileage proved to be equal to 82 million.

The table shows, with respect to the transportation of cryogenic gases in tank vehicles, the trend in the ratio between kilometres driven and product units transported (mc/kg), with the base reference 2012=100.

#### RATIO BETWEEN KILOMETRES DRIVEN AND PRODUCT TRANSPORTED (mc/kg)

	2016	2015	2014	2013	2012
SOL Group	92	96	95	97	100

#### 4.3.2.

## MOBILITY OF TECHNICAL AND SALES STAFF

The environmental impact of the mobility of technical and sales staff operating in Italy is also kept under control through a policy of renewing the fleet of company vehicles acquired through long-term rental, and to a lower extent through operating leases, favouring models with reduced CO<sub>2</sub> emissions.

Currently emissions are only monitored for cars used by the Group's Italian companies.

In 2016 the percentage of vehicles in the middle-lower categories, between 81 and 140 g/km, rose from 82% to 87%, an increase of 6.1%.



#### 4.4. \_\_\_\_

#### ACOUSTIC EMISSIONS

Acoustic pollution is mainly caused by machinery such as compressors and turbines, by the loading of tankers and by evaporation towers used to cool industrial water.

To reduce emissions, which already in the plant design phase have been limited by certain technical measures (for example, the encapsulation of compressors), further interventions have been carried out over the years, including the installation of silencers along the tanker loading lines and the soundproofing of evaporation towers.

For all plant, thanks above all to the above interventions, daily noise levels at the perimeter wall have been recorded as lower than 70 dB(A), thus within the limits allowed by law in industrial areas.

The company is however committed to monitoring constantly the levels of acoustic pollution and acting, where technically possible, to reduce it further with additional interventions on plant.

#### 4.5. \_\_\_\_

#### WASTE AND PACKAGING

The production processes used in Group Units do not directly produce waste, with only one significant exception: the acetylene production process, which generates calcium hydroxide, which can be sold as a sub-product or sent for disposal.

During the 2016 it was no longer possible to find buyers for Hydrated lime (classified as hazardous waste), which had then been managed as waste, sending it to landfills for disposal. The increase of non-hazardous waste that is not sent to landfills is due to a wider data reporting perimeter in terms of units considered. Data now cover all of the activities.

The Report gives the waste produced:

- in the primary process plants:
  - non-hazardous waste from maintenance tasks: mainly scrap metals, packaging and insulation materials;

- hazardous waste from maintenance tasks (mainly oils, already used for the lubrication of machines), from the production of acetylene (calcium hydroxide) and ammonia conditioning (ammonia solution).
- In the activities of:

Non-harmful

Harmful

- testing of cylinders and cryogenic vessels (harmful and non-harmful waste);
- repairer of electrical and electronic apparatus (harmful and non-harmful waste);
- activities on customer premises:
  - · harmful waste produced by maintenance

- activities: prevalently oil formerly used to lubricate machines and plant filtering systems;
- harmful waste from home care activities (sanitary waste).

Given the origin of the waste produced, the type and quantity varies from year to year with the number and type of maintenance interventions carried out.

	2016	2015	2014	2013	2012		
Non-harmful	1,111	515	170	432	34		
Harmful	2,273	1,757	582	2,421	2,20		
The destinations of the waste produced are the following:  DUMP (t/year)							
	2016	2015	2014	2013	201		
Non-harmful	332	24	36	16			
Harmful	1.723	1.660	482	2.309	2.02		
TREATMENT (t/year)	2016	2015	2014	2013	20 <sup>-</sup>		
TREATMENT (t/year)  Non-harmful	<b>2016</b> 104	2015	2014	2013			
Non-harmful Harmful					201		

343

57

118

1

386

42

249

135

675

32

# **4.5.2.** PACKAGING

The amount of packaging that constitutes refuse is generally modest.

Products are prevalently distributed by pipeline or in liquid form in tanks, and since these products are consumable, customers have nothing to return to us. For the distribution of bottled products, cylinders, cylinder baskets, dewars and other mobile recipients are used. These can all be reused several times and last up to about 40 years.

Programmes for controlling the rotation and stock checks are periodically implemented so as to reduce as far as possible the number of mobile recipients to be purchased.

#### 4.6. \_\_\_\_\_

#### WATER RESOURCES

For the SOL Group, managing water resources means:

- optimising usage in its own plant. by reducing withdrawals to a minimum also through investments in recycling;
- research and application on customer premises of technologies which by using technical gases can improve processes such as wastewater treatment or making water drinkable for civil uses.

Most of the water is used in the cooling circuits of machinery in primary process production plant.

The quantities used in secondary process units and offices are negligible and are not reported.

The reduction in consumption, registered in 2016, is mainly due to two aspects:

- shutdown of a plant following cessation of pipeline consumption by an important customer in Italy;
- the reduced utilisation of plants with higher specific consumption.

During 2016 we then continued to optimise the "number of concentration cycles" in the cooling circuits to minimise the consumption of water for cooling.

WATER USAGE (m³ x	WATER USAGE (m³ x 10³)							
	2016	2015	2014	2013	2012			
Italy	784	963	1,060	1,053	1,094			
Other countries	553	1,172	2,052	1,990	1,616			

#### 4.7. \_\_\_\_

#### EMISSIONS AND WATER DISCHARGES

These are minor environmental parameters for the SOL Group activities as against those previously discussed, but they are still listed for completeness and transparency

The nature of the production processes, described in 4.1, is such that no significant quantities of nitrogen  $(NO_\chi)$  or sulphur  $(SO_\chi)$  emissions are generated.

The levels of emissions are however periodically controlled, but are always found to be well below legal limits.

Water discharge in production plants is periodically controlled. Analyses show that, over and above the absolute values of the quantity of pollutants shown in the tables below, their concentration is well below legal limits.

		2016	2015	2014	2013	201
SOL Group	COD	5.66	9.88	8.57	17.23	27.3
	Total nitrogen	1.88	2.62	3.31	5.32	4.
	Suspended solids	4.03	7.17	7.14	8.26	5.
	Total phosphorus	0.22	0.32	0.19	0.65	0.
	Heavy metals	0.00	0.03	0.04	0.12	1.5

#### 4.8. \_\_\_\_

#### SOIL AND GROUNDWATER

Oxygen, nitrogen and argon are produced by a process (air separation) which is physical in nature and excludes the possibility of the presence of substances that could contaminate soil or groundwater.

Nor does the production of hydrogen with the steam reforming process involve chemical pollutants.

In the production of nitrous oxide, ammonium nitrate, as a concentrated liquid or solid, is used as the raw material. It is stored using methods designed to prevent any dispersal in soil or groundwater.

In acetylene production, the reaction produces calcium hydroxide as a sub-product, and this is stored in special tanks before being transferred to users in various market sectors or sent for disposal.

Some SOL Units have been constructed in locations that have soil and groundwater contamination problems, but these have other causes and predated the arrival of SOL.

#### Mantova

Part of the SOL plant in Mantova, constructed inside the Chemical Park, falls within the boundary of the "Sito di interesse nazionale Laghi di Mantova e Polo chimico".

Again in 2016 SOL took part in the annual "Planned groundwater monitoring campaign" promoted by the Mantova ARPA.

#### Ravenna

The SOL plant is located inside the Ravenna Chemical Park, which has a groundwater pollution problem.

SOL has constructed a piezometer on its own land, as requested by the Ravenna ARPA, and takes part in periodical monitoring campaigns.

4.9. \_\_\_\_

#### BIODIVERSITY

The activities of the SOL Group have a very limited impact on biodiversity, since the production units are

relatively small in size and located in industrial areas.



Transparency, loyalty, impartiality, honesty, integrity, a continual commitment to quality, continual improvement of safety and respect for the environment are the fundamental values that SOL Group wishes to find and constantly encourage in all its employees.

Safeguarding the health and safety of its human resources is a basic, indispensable value for the SOL Group. This attitude is based on an ethical view of work which guides the daily activities in all Group companies.

Our ambition is to reach the goal of "zero injuries" in all group companies.

5.1. \_\_\_\_

# 5.1. HEALTH AND SAFETY IN THE WORKPLACE

## **5.1.1.** ORGANISATION

The importance of the subject led to the creation, back in 2005, as part of central Quality, Safety and Environmental Management, of a specific function serving all the companies in the Group that has the job of handling all activities safeguarding:

- personnel: health, accident prevention and workplace hygiene;
- company property: fire prevention, plant safety and environmental hygiene;
- administrative company responsibility pursuant to Italian legislative decree 231/01: Company Management System for health and safety, in accordance with BS OHSAS 18001.

The Management defines the lines of action, verifies their application and coordinates operations of the territorial units and the other management functions. In every Group company, each unit has one or more people trained to acquire specific competences in the areas of safety and the environment, and so be able to implement company directives and ensure they are correctly applied.

For each company a single "Safety and Environment Reference Person" (SERP) has been appointed. The SERP:

- is the hub of all communications of the managements of the Group on the issues of safety at work and environment (guidelines, regulatory updates, etc);
- is responsible for distributing these communications within the company and the consequent training activity
- takes part in periodical training meetings where experiences are also shared

## **5.1.2.** TRAINING AND AWARENESS

Workers training plays a fundamental role in the correct application of the company Management System.

All employees are thus involved in constant awareness and training activity aimed at avoiding or at least minimising the possible impact of our activities on the environment and ensuring a high level of safety.

The training needs of individual units are determined annually by their managers and take concrete form in customised training programmes for personnel of all levels.

The training and updating of managers is also crucial.

To this end, periodic meetings are organised, also with the contribution of outside specialists, to extend competences and also to stimulate collaboration among Units and share management methods.

A further reminder of safety problems comes from the periodical publication (in Italian and English) of:

- "Safety alerts", documents which, starting from incidents that have happened in the sector, encourage observance of rules of correct conduct;
- "Quarterly Accident Reports", documents which explain and analyse any incidents that have occurred during the period within the Group and in other companies in the sector belonging to Assogastecnici and EIGA.

In 2016 the Group companies have held over 1,350 training sessions on occupational safety and environmental issues, totaling over 17,000 hours.

## **5.1.3.** AUDITS

Audits are the main instrument for verifying that the health, safety and environmental management system is working properly and for identifying and implementing any corrective measures.

Audits may be internal, carried out by SOL Group staff, or external, carried out by outside organisations, normally when certificates have to be renewed or obtained.

The aim of the internal audits is:

- to verify that activities are carried out in accordance with company rules and procedures, taking corrective action if this is not the case;
- to assist the units subjected to audit in making improvements, making use of the experience of other units and reinforcing company health, safety and environmental culture.

External audits are carried out by the certifying body, with methods similar to those of the internal audits, and are designed to verify the correct application of the management system and observance of the reference regulations (ISO 9001, ISO 14001, OHSAS 18001, EMAS, etc.).

# **5.1.4.** INJURY INDEXES

The trend in injury indexes shown below shows that the entire organisation is constantly engaged in respecting good company practices, as laid down by the Management System.

In 2016 the frequency (FR) and severity (SR) rates of injuries within the Group (injuries that involved

absence from work for at least a day, excluding that of the accident) were, respectively 4.0 and 54.5.

Frequency and severity rates are slightly lower than the average of the five-year period examined, remaining thus at levels of excellence.

Taking as reference, for example, the value of the frequency rate for the Italian chemical industry to which SOL belongs (median 2013/2015 period – source INAIL), the group rate is lower by more than 50%.



#### "Zero injuries" goal

Reaching the "Zero injuries" goal is the challenge that each unit of the SOL Group sets itself each year. The success is closely linked to an awareness that safety in the workplace is above all an ethical matter, because it involves the quality of life of the people working in our Group.

This is how we are able to create and maintain over time a shared culture that makes safety the basis of all activities carried out.

During 2016 the "Zero injuries" goal was attained by 71 Group units, representing 95% of the Group's production units.

Many units have been able to repeat this result over time, as shown by the fact that in the past three years:

- 12 units have reached **five consecutive years** without injuries
- 11 units have reached **ten consecutive years** without injuries
- 2 units have reached **15 consecutive years** without injuries
- 8 units have reached **20 consecutive years** without injuries



Asphyxiation hazards



Safety equipment



Oxygen hazards



Management of change



Work permit



Personal protective equipment



Lockout - tagout



Driving hazards



Fall from height



Personal responsibility



#### LIFE SAVING RULES

In 2016 adoption of the ten "Lifesaving Rules" of the SOL Group was announced.

We started from considerations that for the type of activities we are involved in, any incident can lead to potentially very serious consequences and that all of us have a moral duty to respect colleagues, ourselves and the company for which we work.

In this context, we reflected on the fact that, despite being on track to achieve the goal of "zero injuries, we must give ourselves tools which are:

- Innovative and in line with best practices
- Determined taking into consideration our particular characteristics
- Focused on the most important risks
- Easy to understand and remember

Taking therefore a cue from a recent scheme by EIGA (European Industrial Gases Association) we have identified ten rules which, if applied by all employees of the Group, must enable us to achieve the goal we have set ourselves.

The campaign, to be launched at the beginning of 2017, will be supported by information materials (posters, flyers, promotion through the intranet, etc.) and will be the subject of an education campaign in all group companies.

# **5.1.5.** WORKER HEALTH

Industry-specific production activities do not usually expose workers to health risks bearing in mind the protection measures adopted.

The risks are basically limited to ancillary activities such as manual handling of loads and work at the video terminals.

For these reasons, only some of the employees are subjected annually to health surveillance.

	Italy	Other countries	Total
Medical examinations (n° of employees)	445 (44.7%)	414 (19.4%)	859 (27.%)
Clinical analyses (n° of employees)	345 (34.7%)	256 (12.0%)	601 (19.2%)
Further checks (n° of employees) <sup>(1)</sup>	322 (32.4%)	134 (6.3%)	456 (14.6%)

All potential health risks are assessed however and personnel potentially exposed are given medical checks, as laid down by law in the various countries and at intervals fixed by the company doctor.

To maximise the quality of these checks in such complex organisations as SOL Spa and Vivisol Srl a Coordinating Doctor has been appointed to set guidelines and verify the health protocols followed by local doctors.

The outcomes of the checks carried out revealed 28 cases of pathologies deriving from work activity, mainly from manual load handling.

There were no positive results in tests for the assumption of psychotropic or narcotic substances.

There was no evidence of professional illnesses.

#### HSE PROJECT OF THE YEAR

On the occasion of the annual meeting of the heads of safety of the Group companies, the "HSE Project of the year" prize was awarded for the second time.

The purpose is to reward the best initiative for environmental protection or health and safety at work, which has been designed and implemented independently by a company or a local production unit.

Nine projects were submitted, of which two were related to home care and seven to technical and medical gases. As regards the subjects, one project concerned the protection of environmental resources

and the other eight concerned promotion of the best conditions for safeguarding health in the workplace.

The choice of the winning project, made by the participants of the meeting, was particularly difficult, and in the end the prize was awarded jointly to SOL Deutschland and Vivisol Deutschland for the projects "Prevent the Unexpected" and "Evolution of Safety: From Toe to Friends".

Both projects have an innovative approach to the daily tasks of implementing effective prevention concerning safety in the workplace.

#### 5.2.

# HUMAN RESOURCES MANAGEMENT POLICIES

# SOL ATTACHES THE MAXIMUM IMPORTANCE TO THOSE WHO WORK WITHIN THE GROUP, CONTRIBUTING DIRECTLY TO THE DEVELOPMENT OF THE COMPANY

The Code of Ethics, art. 4 - Human Resources Policy

To operate responsibly, the involvement of all personnel is indispensable. It is above all through human resources that the SOL Group is able to develop and improve its performance.

The periodic meetings between headquarter managements and operational personnel, the maintenance and continual enrichment of the company Intranet and publication of the company magazine "SOL News" are instruments designed to exchange information and experiences and to contribute to the personal and professional growth of employees.

All SOL Group employees, whatever their roles and with whatever type of contract they operate within the Group, are responsible for the objectives entrusted to them and must thus have the possibility, within the limits of their responsibility and with respect for the hierarchy, of taking decisions and working with a high degree of autonomy, in a solid relationship of trust with the company.

In this sense the SOL Group undertakes to:

- develop the abilities and competences of its employees so that the commitment and the creativity of each of them can find full expression in realising their own potential, in harmony with the requirements of the organisation;
- maintain close ties between the parent company and the various subsidiaries in the field with a spirit of partnership;
- stimulate the exchange of information through internal communication media that are increasingly varied thanks also to the use of modern information technology;
- make the most of human capital through the sharing of the main values on which the Group identity is based and the integration of diversity and best practices within the Group;
- guarantee to all its collaborators psychophysical integrity with respect for their moral personality. In this sense the SOL Group is constantly committed to respecting national labour regulations, international conventions and recommendations, including the resolutions of such international organisms as the ILO (International Labour Organization) and the UN (United Nations Organization).

#### 5.3. \_\_\_\_

# EMPLOYMENT AND THE MANAGEMENT OF DIVERSITY

Some general data is given below on the situation at 31.12.2016 regarding personnel within the SOL Group.

For the first time in 2016 data has been requested from all Group companies.

The response was positive: reports for 2016 represented a sample equivalent to 98.1% of Group employees.

#### **Employment trends**

Despite the persisting market crisis, again in 2016 the number of employees grew both in Italy and in the other countries where the Group operates, though slightly less than last year.

The total number of employees at December 31, 2016 was 3,127, with overall growth compared to 2015 of 126 units (to 4.2%).

Of the 126 units, 116 (+ 5.9 %) relate to overseas companies while the remaining 10 (+ 1.0%) to those operating in Italy.

It should be noted that more than 40% of new entrants were in the <30 age group.

The percentage of turnover (9.7% in 2016) is not comparable with the figures for previous years which refer only to Italian companies. The value however is lower than the industrial gases industry average.

A similar consideration should be made for the average seniority, for which it should also be noted that the existing method of calculation for new entries, counts the length of service from the date of entry into the Group. The adoption of a different accounting policy is currently being examined.

#### Work-life balance

The SOL Group, compatibly with technical and production organisational needs, is sensitive to the needs of its employees to balance their working life

with personal and family obligations and needs, even of a temporary nature.

In fact the SOL Group operates forms of flexible working hours: it is well-disposed to granting periods of leave in response to justified requests, even beyond what is laid down by law or collective contracts and has had positive experiences of teleworking. The percentage of part-time workers, approximately 13% of the average Group workforce, is particularly significant.

This percentage rises to 25% if we consider the female staff as a further sign of the Group's concern for the question of work-life balance.

The concession of loans on favourable terms is formally approved and likewise advances on severance indemnities can be granted, even for reasons different from those laid down by law.

## Management of diversity and equal opportunities

The SOL Group is determined to combat all forms of discrimination based on gender, nationality, age or disability.

The progressive extension of our activities to new countries requires increasing attention in particular to the national and cultural differences in the companies of our Group.

The desire of the Group is to develop local resources at all levels of organisation, giving preference to local managers and reserving control and monitoring tasks for corporate functions.

To meet these needs which arise from the growing internationalisation of the Group, in 2015 we launched a diversity and inclusion management programme with online and classroom training for all Group personnel.

This training has become an integral part of the

induction process for all new recruits joining the Group.

The percentage of women employed in Group companies is constantly growing and in 2016 reached 34.3% of the total workforce.

More in detail, 42% of managers, clerical and executive personnel and 22% of the workers are women.

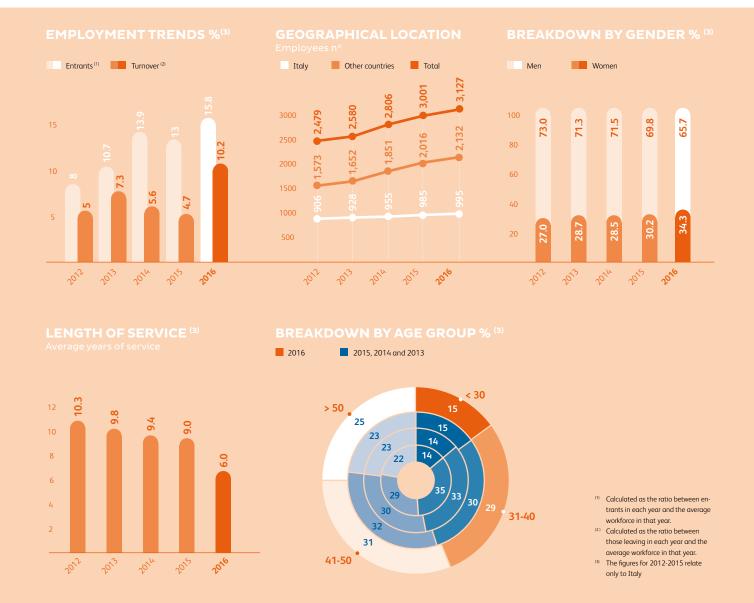
Note in particular that, on the occasion of the renewal of the top company positions, the number of women who sit on the Board of Directors of the

parent company SOL Spa rose from four to five, representing 50% of the 10 members.

#### Absenteeism

In Italy the SOL Group has had a level of absenteeism in Italy far below both the national average for the sector and the average for industry generally.

Data collected this year, for the first time for all group companies, have confirmed this in overseas companies: absenteeism in the Group amounted to 3.7%.



#### 5.4. \_\_\_\_

#### REMUNERATION AND SOCIAL BENEFITS

The SOL Group operates with the aim of constantly developing, in its human resources management policies, optimal management of its personnel through the combined use of a series of instruments.

The SOL Group makes no distinctions of sex in the management of remuneration policies which, for each role, are based on competences and results.

Where checks have been carried out on this issue, there were no significant differences.

Where required by local legislation, the SOL Group applies to its personnel the collective contracts for the target sector or, alternatively, minimum salaries. The percentage of employees that fall into these categories is 62%.

Retribution, which is monitored by local managers, is in line with or better than that laid down in the reference contracts.

"In 2016 the remuneration of the Chairman and Managing Director, Ing, Aldo Fumagalli Romario was equal to13.37 times the average of the gross annual salary of all employees of the italian companies of the Group"

#### Remuneration policies

In Group companies, great attention is paid to the use of remuneration development incentives both at collective level and at individual level though merit policies and bonuses for individual performance.

All managers are required every year to evaluate the performance of their employees and to refer proposals to the management for increases in salaries and career progression.

Normally the increases in retribution laid down by collective sector contracts or by law are guaranteed and, where union representation is present, supplementary contracts are negotiated that can include, as happens in Italy and France for example, bonuses for production and participation linked to the trend in parameters of productivity, company profitability and injury rates.

#### Supplementary pension plans

The employees of 30 group companies, accounting for approximately 63% of total employees, have supplementary pension coverage, for which the company pays a contribution together with the employee.

In Italy, especially as part of the chemical industry National Collective Employment Contract, there is the "FONCHIM" pension fund (to which SOL subscribed right from the start) which, with joint contributions from the employee and the company, creates individual pensions that supplement public pensions. The level of participation in the fund by personnel in the Group's Italian companies is very high, considering both the validity of the scheme and the constant promotion and information activity by the company both at the time of hiring and during employment.

2016	639	79%	491,650
2016	575	73%	442,100
2014	580	74%	418,600
2013	582	73%	390,800
2012	567	77%	414,000

In line with differing practices in the various European countries, many Group subsidiaries also contribute to similar pension plans.

#### Supplementary health plans

The employees of 27 Group companies, accounting for approximately 57% of total employees, have supplementary pension coverage, for which the company pays a contribution together with the employee.

In Italy this has been possible through "FASCHIM", the supplementary health fund for the chemicals sector.

The chemical sector was the first to introduce this coverage at category level, making it part of collective negotiations, being well aware of that the public health system would find it increasingly difficult to meet public health needs.

The greater part of the contribution is paid by the company. Employees can also add their families. The fund has been an undeniable success, with a stable level of about 80% of company employees subscribing.

In this sector too, similar initiatives have been taken by the principal overseas Group subsidiaries.

2016	673	83%	180,500
2015	634	80%	174,000
2014	630	81%	171,400
2013	613	79%	150,400
2012	574	79%	157,000

#### Insurance

Company personnel required to travel abroad are protected by a specially stipulated insurance policy to cover medical expenses, theft of baggage and all other misfortunes.

#### 5.5. \_\_\_\_\_

# PERSONNEL SELECTION AND TALENT ATTRACTION

Recruitment and selection play a key role in succeeding in attracting on to the staff of Group companies highly qualified collaborators of great professional value.

In addition to the direct operational involvement of the central and local Human Resources functions, contact is often made with the leading universities, training bodies, schools and professional associations, with participation also in special recruiting events ("career fairs") and publication of the company profile in some of the leading career directories.

These contacts lead each year to university students entering the company for professional orientation, job training or thesis material gathering.

#### **TALENT DAY 2016**

The first Italian edition of the "Talent Day" workshop reserved for children of employees of the head office was held in 2016.

The workshop aims to help young people to approach the world of work with greater awareness and provide useful tools for active job search.

Later in the day of vocational guidance, the young people were put in contact with some human resource managers using a "class-workshop" format.

The workshop was organised as a veritable laboratory to develop awareness of the dynamics of the business world, the tools and the distinguishing features of the labour market and its players, through an orientation model that stimulates participants to acquire context information and carry out self-assessment.

The topics discussed during the workshop were:

- Assessment of skills: the importance of selfassessment
- Working abroad: choosing the right destination
- Major Web tools for job searching
- Tips from the managers for a successful CV
- The strategy for an effective cover letter
- Tricks to promote oneself
- The secrets to a successful job interview and job interview simulation

Added value for the participants included:

- Direct acquaintance with HR Managers
- Correction of the curriculum and assessment of social networks by an external HR expert
- Development of an active job search strategy thanks to the advice of the HR experts
- Acquisition of knowledge about labour market dynamics and trends

#### 5.6. \_\_\_\_\_

# TRAINING, DEVELOPMENT AND COMMUNICATION

Learning and training, in the broadest sense, are an integral part of SOL Group culture.

For this reason, the companies in the Group attach great importance to the training and development of personnel at both the technical and managerial levels.

The SOL Group believes that everyone must find within themselves the stimulation to improve their professionalism: in curiosity, determination in facing new challenges, the desire to learn and deal with new situations.

In this context, training in our Group is primarily "in the field", with more experienced colleagues

constantly at one's side.

In 2016, training sessions were held within the Group for a total of about 38,700 hours of training provided, equal to 13 hours of training per employee.

The training covered all areas of business and all professional skills.

In addition to technical and obligatory and nonobligatory safety training, the Human Resources Management organises and coordinates dedicated special training plans each year with an international viewpoint, to improve knowledge of the company and its culture.

#### 5.7.

#### INDUSTRIAL RELATIONS

Central Personnel and Legal Affairs Management directly handles industrial relations for all Italian companies in the Group and coordinates them for overseas companies, intervening when necessary.

SOL is an active member of the Chemical industry confederation (Federchimica) and takes part in negotiations for the renewal of the National collective employment contract and in other joint schemes.

At the corporate level SOL maintains relations with its unions periodically based on the utmost cooperation and transparency.

The new supplementary company premium was negotiated in 2016. Unlike the previous one, it contains parameters of quality, environment and

safety at work, as well as traditional ones related to productivity and performance.

In the supplementary agreement, explicit reference was made to the company's commitment to implement welfare schemes for employees.

No labour disputes occurred in any of the Group companies and in 2016 there were no recorded hours of strike action.

During the year the reorganisation of an important Italian factory, which had to downsize its workforce due to the closure of the customer base, was concluded. The repercussions for the existing personnel was limited due to the outplacement of 87% of the employees.

#### 5.8. \_\_\_\_\_

# AUTHORITIES AND PUBLIC ADMINISTRATION

RELATIONS WITH THE PUBLIC ADMINISTRATION MUST ALWAYS BE CONDUCTED BY EACH EMPLOYEE AND/OR EXTERNAL COLLABORATOR APPLYING PRINCIPLES OF LOYALTY, CORRECTNESS AND TRANSPARENCY

The Code of Ethics, art. 2 – Conduct in the management of company business

The Group's business involves frequent contact with the Authorities and Public Administration, both for the handling of authorisation procedures and for periodic verifications that the laws of each country are being respected. On the second point, during 2016 Group units were subjected to 83 days of audits by the Authorities on safety, environmental and pharmaceutical GMP issues (in 2015: 73 days).

In handling relationships with local and national Authorities, the SOL Group endeavours, while respecting the roles of the parties involved, to set up a constructive dialogue aimed at constant improvement, on the basis of objective data and technical and scientific evidence.

#### 5.9. \_\_\_\_

#### THE COMMUNITY

The companies that are part of the SOL Group are rooted in their respective territories: the product distribution methods require that production and distribution units be evenly distributed so as to be close to customers, to the point of creating on-site installations dedicated exclusively to a specific customer.

This has a positive effect on the territory due to employment policies that favor local personnel and the need to engage the services of local contractors for transport activities, maintenance, etc.

It is important to bear in mind that the characteristics of the production processes and of most products handled do not normally create problems in relations with local communities.

The SOL Group is however always keen to maintain open dialogue, seeking to understand the needs and

requests of the communities in the neighbourhood of its production units in order to obtain better acceptance of its presence. Active participation in the preparation of External Emergency Plans (where required) is further evidence of sensitivity to the needs of the community.

"Fabbriche Aperte" (Open Factories) is an important scheme promoted in Italy by Federchimica, which periodically allows the public (from time to time: general public, students, authorities, customers, suppliers etc) to visit a production unit and see with their own eyes how a complex industrial concern is managed.

The SOL Group gives its support to bodies, institutions, associations and sports clubs operating coherently with Group values, both with financial contributions and by making available its competences.

In 2016 contributions totalled about €300,000.

Among the projects worthy of mention:

Italy: **SOL Spa** and **Vivisol Srl** contribute to various non-profit organisations.

SOL, in particular, is a sponsor and partner of Progetto SLAncio, promoted by the La Meridiana Cooperative in Monza, which supplies assistance to those suffering from invalidating neurological and neuromuscular illnesses.

Vivisol supports AISLA, an association with the mission of becoming the national landmark organisation for the protection, assistance and care of SLA sufferers and for the development of scientific research into a neurodegenerative disease which affects motoneurons and gradually limits muscular activity; TELETHON Onlus which since 1990 has invested in research into a cure for rare genetic illnesses; the Vivi Down Onlus Association, which supplies Down Syndrome sufferers and their families every day with tools to alleviate the difficulties that this disability involves; UILDM, the reference national association for those affected by dystrophy and other neuromuscular diseases.

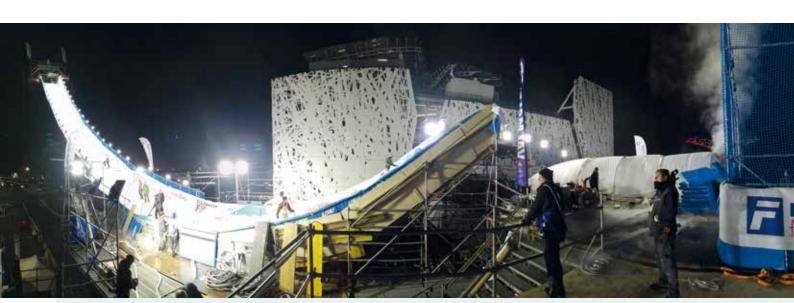
Belgium: **Vivisol B** is the main supporter of Sleeponline, a non-profit organisation of pneumologists specialising in the study of sleep that promotes awareness among other doctors of respiratory disturbances during sleep.

Germany: **Vivisol D** supports, among others, the Deutsche Sauerstoffliga LOT eV (Association of patients in home oxygen therapy) and the QVH (Association for quality in home respiratory care).

Holland: **Vivisol Nederland** supports several projects and bodies, particularly significant among which is the "Homerum" research project of the for Dutch Academic Centres for Home Ventilation. The project involved remote monitoring of a sample of patients receiving pulmonary ventilation and demonstrated that treatment is just as safe at home as in hospital and costs less. Vivisol Nederland also supports several patient organisations, including the Dutch Apnoea Society and the Dutch Lung Foundation. **SOL Nederland** supports the non-governmental body Stichting MOS which provides medical support during sports events.

Spain: Vivisol I supports the Catalan Pneumology Society (SOCAP).

United Kingdom: Dolby Vivisol supports several Associations including the BLF – British Lung Foundation; the ARTP – Association For Respiratory Technology & Physiology, of which it has been a corporate member since 2012; the BTS – British Thoracic Society; the CHSS – Chest, Heart & Stroke Scotland; the SEHTA - South East Health Technologies Alliance: projects for patient care at home; Scottish Sleep Forum.



#### **BIG AIR AND THE CITY**

In November 2016, in the former Milan Expo area, the "Big Air and the city" event was held.

This is a competition of the men's and women's freestyle skiing and snowboarding World Cup organised by the Big Air Competition Committee of Chiesa in Valmalenco.

The competition area 40 meters long and 130 meters tall is picturesque with a blanket of snow weighing 600 tons covered the launch and landing ramps for the displays of the athletes.

For the landing ramp natural snow was carried up to the competition area, while for preparing the launch

ramp top quality artificial snow produced directly on site was used.

As part of its commitment to providing cutting-edge services to customers and always environmentally sustainable solutions, SOL has made available its organisation and the nitrogen necessary for innovative artificial snow production.

A water stream properly mixed with the air, sprayed and then cooled with liquid nitrogen provided by SOL produced an artificial snow so highly performing as to be considered by the athletes as one of the best in the entire World Cup circuit.

#### 5.10. \_\_\_\_\_

#### ASSOCIATIONS

The SOL Group takes an active part in the activities of the main associations of companies in the technical and medical gases sector, in the home care and biotechnology sector in Europe and in various European countries.

Group experts take part in several working groups in these associations, contributing to the exchange of technical knowledge and the drafting and updating of sector standards.

### International Oxygen Manufacturers Association (IOMA)

SOL Spa is a member of the IOMA, which includes all the world's main operators in the technical and medical gases sector; its principal objective is to coordinate the harmonisation of safety rules so that operational practices are the same throughout the world.

#### European Industrial Gases Association (EIGA)

In addition to SOL Spa, members of EIGA, which includes all the main European operators in the technical and medicinal gases sector, are also Group companies SOL Nederland, BTG, SOL Deutschland and Vivisol Austria.

During 2016 the SOL Group further increased its involvement with the association and today has its own representatives on the Board of EIGA (of which Marco Annoni was chairman for 2015/2016), in the four Councils (Andrea Mariotti is the Chairman of the IGC), in 12 working groups (11 in 2015) and in 14 ad hoc Groups (as in 2015), contributing to the definition of standards and best practices in the sector.

#### National category associations

Among the national Associations of which Group companies are members we mention:

- Industrial and chemical and pharmaceutical industry associations: Confindustria,
   Assolombarda and Federchimica (Italy), UIC (France), Essenscia, Febeliec and Pharma.
   be (Belgium), Spectaris, VCI and BVMW (Germany), HACI (Greece), UGIR (Romania), CIA (Macedonian Republic)
- Technical gases industrial associations:
   Assogastecnici (Italy SOL Spa), IGV (Germany
   – SOL Deutschland and SOL Kohlensäure),
   ÖIGV (Austria SOLTG), VFIG (Holland SOL
   Nederland), BIMGA (Belgium BTG), AFGC and
   APHARGAZ (France SOL France), HAIMG (Greece
   - SOL Hellas), GIZ TP (Slovenia TPJ), BCGA
   (United Kingdom Dolby Vivisol), BIGA (Bulgaria
   – SOL BG); AIIGMA (India SicgilSOL); AMGIM
   (Marocco Floisit).
- Associations for biotechnology development: Assobiotec (Italy - Biotechsol)
- Associations of home care sector operators: ÖGP
   (Austria Vivisol A); Deutschen SauerstoffLiga LOT
   and QVH (Germany Vivisol D); FHI (Holland –
   Vivisol Nederland); SYNALAM and FFAIR (France
   – Vivisol F and France Oxygene); Assobiomedica,
   which represents companies supplying medical
   devices to health structures (Italy Vivisol)
- Other associations: Unamec "Association of producers, importers and distributors of medical devices" (Belgium - Vivisol Belgio); ARTP "Association of Respiratory Technology and Physiology" (United Kingdom – Dolby Vivisol); Unternehmerschaft Niederrhein (Germany – SOL Deutschland)

#### Various

Group companies are part of prestige associations, with their own representatives who, in many cases, hold positions of responsibility in governing Councils:

- FBN Family Business Network, includes more than 6000 companies from 56 countries and has the aim of helping family companies to grow, succeed and prosper through the exchange of new ideas and "best practices"
- AIDAF Associazione Italiana Delle Aziende Familiari, which includes Italian family companies that shared the guiding values of business ethics, meritocracy, social responsibility and sustainability
- Aspen Institute Italia which promotes and encourages the development of enlightened leadership that is open to dialogue and able to face the challenges of a global society
- ISPI Istituto Studi di Politica Internazionale, one of the most ancient and prestige Italian institutions specialising in international activities which, among other things, constitute a point of reference for companies and institutions intending to extend their range of action abroad, offering materials and ad hoc encounters



#### 6.1. \_\_\_\_\_

#### 6.1. REFERENCE GUIDELINES

In drawing up the Report we referred to the Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI), with the aim of progressively approaching full conformity.

The standard used for the 2016 Report is the GRI-G4 in accordance with the "In accordance-Core" option.

Despite having read the provisions of Directive 14/95/EU on the "disclosure of non-financial and diversity information" ("Barnier Directive") and Italian Legislative Decree 254/16 that implements it in Italy, alignment of report contents for the year 2017 to the above legislation has been postponed.

6.2. \_\_\_\_

## DETERMINATION OF PRIORITIES AND INVOLVEMENT OF STAKEHOLDERS

#### The stakeholders of the SOL Group

The SOL Group believes that doing business in a sustainable way must lead to the creation of value for all those involved and in all three dimensions: economic, environmental and social.

To do this, it is necessary to take due account of the indications and expectations of all stakeholders, because it is they who guide the Group's actions and urge it toward continual improvement.

For this reason we keep channels of communication constantly open with all those who can influence our decisions and actions and whose actions and decisions can be influenced by us.

In this context, starting from this year, some stakeholders in the different countries in which the

SOL Group operates were involved in conducting the materiality analysis.

It is precisely from the materiality analysis that the opportunity has arisen to add to those hitherto considered an additional category of stakeholders: patients, users of home care services.

The stakeholders considered important to the SOL Group are:

- 1. Associations
- 2. Environmental associations
- **3.** Authorities and public bodies
- 4. Shareholders, investors and financial institutions
- 5. Customers
- **6.** The community
- **7.** Employees
- 8. Suppliers and partners

#### Materiality analysis

The GRI-G4 Guidelines stress the need for organisations to concentrate their accounting process on aspects significant for their activities and stakeholders.

It is thus requested to carry out a materiality analysis aimed at identifying aspects that reflect significant economic, environmental and social impacts and substantially influence the evaluations and decisions of stakeholders.

The SOL Group has followed a process of analysis in accordance with the scheme below:



















## Benchmark analysis

Benchmarking analysis of potentially relevant issues considered by analysing documents and public information of comparable companies (sustainability reports, materiality analysis, stakeholder engagement activities, etc.).

## Analysis of stakeholders

Stakeholder mapping and analysis of the SOL Group and possible updating of the categories identified

## Identification of relevant topics

Identification of the issues to be examined in the process of materiality analysis, using the reference methodologies in this area and the results of the benchmark analysis.

## Evaluation of relevant topics

Assessment of materiality areas by conducting interviews or the administration of a questionnaire to the company managers and external stakeholders in order to obtain an idea of the view of external stakeholders and the organisation.

## Materiality matrix

Materiality analysis, construction of the materiality matrix of the SOL Group and sharing and validation of the results. Through the benchmark analysis 39 potentially relevant issues were identified. These were submitted, using a questionnaire, for the opinion of internal stakeholders (Group managers) and external stakeholders (representative sample of the different categories of stakeholders).

The analysis led to the identification of 17 significant topics divided into 4 main categories.

The results, in addition to defining the reporting perimeter, are a guide for internal functions in identifying areas where initiatives should be focused to improve the impact of the SOL Group on the environment and on society.

#### **PRODUCT LIABILITY**

- Product information and responsible communication
- Product and service quality and customer satisfaction
- Research and development
- Sustainability and traceability of products and services

#### **ENVIRONMENTAL RESPONSIBILITY**

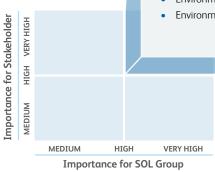
- Environmental impact of production
- Energy efficiency
- Environmental impact of products
- Environmental impact of transport

### ECONOMIC RESPONSIBILITY AND GOVERNANCE

- Balanced economic development
- Compliance with laws and regulations
- The internal control system

## CORPORATE SOCIAL RESPONSIBILITY AND HUMAN RESOURCES

- Management and development of human resources
- Worker health and safety
- Commitment to the community
- Assessment of suppliers for the social and environmental aspects
- Cooperation with the authorities
- Human rights



#### 6.3. \_\_\_\_\_

#### REPORTING CRITERIA

#### Reporting perimeter

The Report deals with the same Group Companies whose accounts were presented in the consolidated balance sheet.

In line with the rules adopted in drawing up the balance sheet, following the coming into force of the amendment to IFRS 11 (joint control agreement) which does not permit the consolidation of companies in which a stake of  $\leq$  50% is held, this Report does not consider the data of the two Indian companies.

To prepare this edition of the report, steps were taken to review the timing, methods and contents of data collection, involving all group companies and thus making it possible to account for almost 100% if the issues deemed relevant to all the companies.

Cases where the data relates only to some Group Companies are highlighted in comments in the individual sections or in the correlation table further below, together with reasons given for omissions (data not significant or not available, etc.).

All data refers to the period 1/1/2016 - 31/12/2016, except for certain information relating to events occurring in the first few months of 2017 that we feel are particularly significant.

#### Data collection

Data was collected using a standard form sent to and used by all managers of the companies involved.

#### Equilibrium

The parameters used reflect trends in performance, regardless of whether it is better or worse than in the past, and are objectively and systematically presented.

#### **Accuracy**

The data has been checked by the managers responsible.

Economic data and figures relating to the Group refer to the Group consolidated balance sheet.

#### **Earlier editions**

The SOL Group has published Reports covering the environment, social responsibility, personnel and sustainability since 2009.

With reference to the previous edition of the Report, no revision of the information supplied was necessary.

The topics covered in this edition are more extensive than the previous one, in line with the broader scope of reporting and the results of the materiality analysis.



# CORRELATION TABLE GRI - G4

The table shows the indices accounted for on the basis of the materiality analysis. The "Page" column indicates the pages of the report where the subject is covered. The "Notes" column gives additional information and clarification

Rif.	Description	Paragraph/Value
	GENERAL ASPECTS	
	1 1. Strategy and analysis	
G4-1	Chairman's declaration	The SOL group for sustainable development
G4-2	Impacts, risks and opportiunities	Annual Report
	2 2. Organisation profile	
G4-3	Name of organisation	1.1 SOL Group website: Where we a
G4-4	Main brands, products and/or services	1.4
G4-5	Main office	Via G. Borgazzi 27, Monza (Italia
G4-6	Countries of operation	1.2 SOL Group website: Where we a
G4-7	Ownership structure and legal form	Annual Report
G4-8	Markets served	1.4
G4-9	Dimension of the organisation	The main figures for the SOL Gro
G4-10	Employees by type of contract, sex, geographical area, position	5.3
G4-11	Employees covered by collective contracts	5.7
G4-12	Description of supply chain organisation	3.4
G4-13	Significant changes compared with preceding report	1.2
G4-14	Method of application of welfare principle or approach	2.3.5
G4-15	Adoption of external codes and principles in the economic, social and environmental areas	2.3.5
G4-16	Participation in category associations	5.10
	3. Materiality and report perimeter	
G4-17	List of companies included in the consolidated balance sheet	6.3 Annual Report
G4-18	Explanation of the process of definition of the content of the Sustainability report and the way in which the organisation implemented the reporting principles	6.0
G4-19	Material aspects identified	6.2
G4-20	Material aspects inside the organisation	6.2
G4-21	Material aspects external to the organisation	6.2
G4-22	Modifications made to earlier reports	6.2
G4-23	Most significant perimeter changes	6.3

Rif.	Description		Paragraph/Value
	4. Stakeholder engagement		
G4-24	List of stakeholders		6.2
G4-25	Principles for identifying stakeholders		6.2
G4-26	Ways of involving stakeholders		2.4; 3.3; 3.4; 5.2; 5.8; 5.9; 5.10
G4-27	Keys stakeholder engagement issues and response of the organisation		2.4; 3.3; 3.4; 5.2; 5.8; 5.9; 5.10
	5. Report profile		
G4-28	Accounting period		January 1st - December 31st 2016
G4-29	Date of publication of previous report		2016 (2015 data year)
G4-30	Accounting frequency		Yearly
G4-31	Contacts and addresses for information on report		sustainability@solgroup.com
G4-32	Conformity to GRI guidelines		In accordance - Core
G4-33	External validation		No
	6. Governance		
G4-34	Governance structure of the organisation		2.3
0-10-1	overhalic street. of the organization		2.3
	7. Ethics and integrity		
G4-56	Principles and values of the organisation		2.1; 2.2
			***************************************
Rif.	Description	Note	Paragraph
	MATERIAL ASPECTS		
	a. Economic performance		
G4-DMA	Disclosure on Management Approach		3.0
G4-EC1	Directly generated and distributed economic value		3.2; 5.9
G4-EC2	Risks and opportunities relating to climate change		4.2
G4-EC3	Coverage of obligations undertaken with definition of pension plan		5.4
	Coverage of obligations undertaken with definition of pension plan  Significant financing received from the Public Administration	No significant financing	5.4
	Significant financing received from the Public Administration	No significant financing	5.4
G4-EC4	Significant financing received from the Public Administration  b. Market presence	No significant financing	
G4-EC4	Significant financing received from the Public Administration  b. Market presence  Disclosure on Management Approach	No significant financing	5.2
G4-EC4	Significant financing received from the Public Administration  b. Market presence	No significant financing	
G4-EC4	b. Market presence Disclosure on Management Approach Relation between standard remuneration of the newly employed and the local minimum	No significant financing	5.2
G4-EC4	b. Market presence Disclosure on Management Approach Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE	No significant financing	5.2
G4-EC4 G4-DMA G4-EC5	Significant financing received from the Public Administration  b. Market presence  Disclosure on Management Approach  Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE  a. Energy	No significant financing	5.2 5.4
G4-EC4 G4-DMA G4-EC5	b. Market presence Disclosure on Management Approach Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE  a. Energy Disclosure on Management Approach	No significant financing	5.2 5.4 4.2.1
G4-EC4 G4-DMA G4-EC5 G4-DMA G4-EN3	b. Market presence Disclosure on Management Approach Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE a. Energy Disclosure on Management Approach Consumption of energy within the organisation	No significant financing	5.2 5.4 4.2.1 4.2.1
G4-EC4 G4-DMA G4-EC5 G4-DMA G4-EN3	b. Market presence Disclosure on Management Approach Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE  a. Energy Disclosure on Management Approach	No significant financing	5.2 5.4 4.2.1
G4-EC4 G4-DMA G4-EC5 G4-DMA G4-EN3	b. Market presence Disclosure on Management Approach Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE a. Energy Disclosure on Management Approach Consumption of energy within the organisation	No significant financing	5.2 5.4 4.2.1 4.2.1
G4-EC4 G4-DMA G4-EC5 G4-DMA G4-EN3 G4-EN4	Significant financing received from the Public Administration  b. Market presence  Disclosure on Management Approach  Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE  a. Energy  Disclosure on Management Approach  Consumption of energy within the organisation  Consumption of energy outside the organisation	No significant financing	5.2 5.4 4.2.1 4.2.1
G4-EC4 G4-DMA G4-EN3 G4-EN4 G4-DMA	b. Market presence Disclosure on Management Approach Relation between standard remuneration of the newly employed and the local minimum  ENVIRONMENTAL PERFORMANCE a. Energy Disclosure on Management Approach Consumption of energy within the organisation Consumption of energy outside the organisation b. Water resources	No significant financing	5.2 5.4 4.2.1 4.2.1 4.2.1

Rif.	Description	Note	Paragraph
	c. Emissions, discharge and waste		
G4-DMA	Disclosure on Management Approach		4.1
G4-EN15	Greenhouse gas emissions		4.2.2
G4-EN16	Indirect greenhouse gas emissions		4.2.2
G4-EN17	Other indirect greenhouse gas emissions		4.2.2
G4-EN19	Action to reduce greenhouse gas emissions		4.2.2
G4-EN21	NOx, SOx and other atmospheric emissions		4.7
G4-EN22	Water discharge		4.7
G4-EN23	Refuse by type and disposal methods		4.5
	d. Products and services		
G4-DMA	Disclosure on Management Approach		2.4
G4-EN27	Mitigation of environmental impact of products and services		2.4.1; 2.4.2; 2.4.3
G4-EN28	Proportion of products sold and their packaging recycled or reused		4.5.2
	SOCIAL PERFORMANCE		
	a. Employment		
G4-DMA	Disclosure on Management Approach		5.2
G4-LA1	Analysis of newly hired personnel and turnover, by age, sex and region		5.3
	b. Health and safety in the workplace		
G4-DMA	Disclosure on Management Approach		5.1
G4-LA6	Accidents at work and illnesses		5.1.4
G4-LA7	Workers exposed to a high risk of serious disturbances or illnesses		5.1.5
G4-LA8	Formal agreements with unions on health and safety		5.7
	c. Training and instruction		
G4-DMA	Disclosure on Management Approach		5.1.2; 5.6
G4-LA9	Personnel training		5.1.2; 5.6
G4-LA10	Programmes for the development of skills and career advancement		5.4
	d. Diversity and equal opportunities		
G4-DMA	Disclosure on Management Approach		5.2
G4-LA12	Composition of the organs of governance and breakdown of personnel by category o employees, sex, age, inclusion in protected categories and other diversity indicators	f	5.3
G4-LA13	Relation between basic salaries for men and women by category of employee		5.4
	SOCIETY		
	a. Local communities		
G4-DMA	Disclosure on Management Approach		5.9
G4-SO2	Production units with significant current or potential impacts on local communitie	S	5.9

2.1 2.2.4; 2.3.3 2.3.3
2.2.4; 2.3.3 2.3.3
2.2.3
2.2.3
nent Report section of the ual Report
idi keport
2.1
2.4
2.4.5
2.4.5
2.4.5
2.4.5
2.4.5



## GLOSSARY

**Accident:** a chance event that could lead to injury or material damage.

**Air separation:** process of separating out the gases contained in air by distillation, producing both liquid and gaseous products.

**Audit:** A systematic, independent and documented process for objectively evaluating to what extent the management criteria of reference have been satisfied.

**BS OHSAS 18001:** an international standard issued by the British Standards Institute that establishes the requirements of a health and safety management system. It allows organisations to be aware of and keep under control risks deriving from operations in normal and extraordinary conditions and to improve safety performance.

**Cold converter:** container with insulated vacuum chamber for highly refrigerated cryogenic gases, complete with interception, measuring and safety instruments.

Conditioning: a production operation that consists in taking gas from a secondary storage tank and compressing it in a gaseous or liquid state and transferring it to mobile containers. Conditioning also includes the sequence of operations carried out on the containers from when they arrive at the centre to storage of full containers ready for delivery.

**Cylinder basket:** steel structure containing a number of cylinders, normally 8 or 16, in a vertical position to facilitate their handling with normal forklift trucks.

**Cylinder bundle:** set of interconnected cylinders supported by a metal structure. The outlets of the cylinders are led to a single manifold.

**Cylinder:** container in steel or light alloy for compressed, liquefied or dissolved gases.

#### EMAS (Eco-Management and Audit Scheme):

European Community regulation 761/2001. A voluntary instrument for implementing Community Environmental Policy aimed at continually improving environmental performance of the companies and businesses adopting it.

**Food safety:** the concept that food must not cause harm to consumers if prepared in accordance with its intended use.

Frequency index: ratio between the number of accidents and hours worked multiplied by 1 million. It measures the frequency of accident occurrence

Global Reporting Initiative (GRI): a multistakeholder network instituted in 1997 and made up of companies, NGOs, associations of accountancy experts, business organisations and other international stakeholders involved in subjects relating to Corporate Social Responsibility. GRI's mission is to develop, supply and promote global reference guidelines for the drawing up of Sustainability Reports that describe the economic, environmental and social impacts that companies or organisations cause with their activities.

**Injury:** undesired event in the workplace that provokes bodily damage or objectively verifiable illness

IPPC (Integrated Pollution Prevention and

Control): Strategy instituted with Directive 2010/75/EU "Industrial Emission Directive (I.E.D.) for minimising the pollution caused by various sources throughout the EU. All types of installation listed in Appendix 1 of the Directive must obtain integrated authorisation from the authorities of the various countries. It is based on the premise that the failure to adopt a common approach for controlling emissions into air, water and terrain could lead not to a reduction of pollution but to its transfer from one compartment to another.

#### ISO 13485 standard (Medical devices

quality management systems): an
international standard that aims to maximise
the probability that organisations operating
in the medical devices sector satisfy the legal
requirements existing at world level on quality
management, and so supply safe and effective
medical devices.

ISO 14001 standard (Environmental Management): an international standard that lays down the requisites for an environmental management system. It allows organisations to be aware of that and keep under control activities that have significant environmental impact, and improve their environmental performance.

ISO 22000 standard (Food Safety Management Systems): an international standard that defines the requirements for a food safety and hygiene management system.

#### ISO 27001 standard (Information security):

an international standard that defines the requirements for setting up and running an information security management system (logical, physical and organisational security), with the aim of protecting data and information from threats of all kinds, ensuring the integrity, confidentiality and availability.

#### ISO 50001 standard (Energy Management):

an international standard aimed at helping organisations improve their energy performance, increasing energy efficiency and reducing climate and environmental impact.

Major accident: event such as a serious spill, fire or explosion due to uncontrolled developments in activities in the presence of dangerous substances, that could cause grave danger for human health or the environment.

**Medical device (MD):** any instrument, apparatus, equipment, machine, device, plant, reagent in vitro or for calibration, computer

**SOL** GROUP - GLOSSARIO

83

software, material or other similar or related product for use, alone or in culmination, on persons for one or more specific purposes of diagnosis, prevention, control, therapy or attenuation of an illness; for diagnosis, control, therapy, attenuation or compensation of a wound or handicap; for studying, substituting or modifying anatomy or a physiological process; for intervening on conception where the main desired action in or on the human body is not carried out with pharmacological or immunological means or through metabolism, but whose function can be aided by these means.

**Medical gas:** any medication consisting of one or more active gaseous substances that may or may not be mixed with excipient gases.

Mobile container: container for compressed, liquid, dissolved and cryogenic gases used for transporting products. Mobile containers are: cylinders, drums, gas cylinders, cylinder bundles, dewars, base units and portable units.

**Policy (quality, safety, environment):** general principles and guidelines of an organisation, formerly expressed by top management.

**Primary process units:** units where gases are produced from raw materials.

**Primary storage:** liquefied cryogenic gas container filled directly by the production plant. Quality, safety and environmental management system.

Quality, Safety and Environment Management System (SHEQ/MS): that part of the general management system that includes the organisational structure, planning, responsibilities, procedures, processes and resources for drawing up, implementing and maintaining active well-defined quality, safety and/or environmental policies.

Raw materials – primary process units: atmospheric air, for the production of oxygen, nitrogen and argon; natural gas, for the production of hydrogen and carbon dioxide; calcium carbide for the production of acetylene; ammonium nitrate for the production of nitrous oxide.

**REACh:** EC regulation n. 1907/2006 (Registration, Evaluation, Authorization and Restriction of Chemicals). Its main aim is to improve the awareness of the dangers and risks deriving from chemical substances, aiming to attain a high level of protection of human health and the environment.

Residual mix: refers to the average primary energy sources that were not intended for a specific entity or to an end consumer. If a consumer uses the power grid without having purchased a GO certificate, he then has to use the residual mix in the calculation of its footprint. The Residual mix is calculated for each year and country by organizations that are part of the European E-Track programme, such as RE-DISS.

Responsible Care: a voluntary program of the world chemical industry based on the implementation of principles and conduct concerning the safety and health of employees and environmental protection, and the commitment to communicate the results obtained aiming for continual, significant and tangible improvement.

**Sale equipment:** technical/technological equipment purchased from third parties and supplied for use to customers as part of a service, but destined to remain the property of SOL; for example mobile containers, cold converters etc.

Secondary process units: units where gases are conditioned, normally using gases coming from primary process units, into their physical form (which may be compressed gas or cryogenic liquid) in the containers (cylinders, cylinder bundles, drums or tanks) best suited for distribution to end users. Some units also produce pure and high purity gas mixtures.

**Secondary storage:** liquefied cryogenic gas container filled by tankers, normally installed in secondary process units.

**Severity index:** ratio between days of absence due to injury and hours worked multiplied by 1 million. It measures the severity of injuries.

Seveso Directive (2012/18/EU and later modifications): European regulation aimed at preventing and controlling the risk of serious accidents. It governs industrial activities that involve the stocking and/or use of certain quantities of dangerous substances.

Stakeholder: all categories of subjects, private or public, individual or collective, internal or external, that can influence the success of a business or whose interests are involved in business decisions: customers, suppliers, investors, local communities, employees, unions, public administration, future generations etc.

**Steam reforming:** process in which methane reacts with steam, in the presence of a catalyst, to produce hydrogen and CO<sub>2</sub>.

Sustainability (see Sustainable development)

**Sustainable development:** development that can satisfy current economic, environmental and social needs, without compromising the chances of future generations being able to satisfy theirs.

Design by

M Studio, Milano

Photographs by **Renato Cerisola** 



SOL Group Via Borgazzi, 27 20900 Monza · Italy Tel. +39 039 23961 Fax +39 039 2396420 sustainability@solgroup.com www.solgroup.com