



## 100 years: A Pioneering Inspiration

In November 2002, the Air Liquide Group will reach the important milestone of its first 100 years.

The theme of our 100 year anniversary is: **A Pioneering Inspiration**. This is an ideal opportunity for the Air Liquide Group to reaffirm the pioneering and innovative spirit of our men and women, past and present.

Events will kick off on **April 30, 2002**, at the Shareholders' Meeting to be held at the **Bercy sports complex (Palais Omnisports) in Paris**, France.

The Air Liquide Innovation tour will visit some 100 sites around the world. These caravans will share Air Liquide's accomplishments and collect innovative ideas from throughout the Group, recognizing the best ones.

Starting **September 24**, a special Air Liquide exhibition located at the Palais de la découverte (1) in Paris will present the main uses of industrial and medical gases in everyday life. Open to the general public, this exhibition will provide the chance for many people to learn about Air Liquide.

This year of celebrations will come to an end on **November 8, 2002**, the anniversary of Air Liquide's foundation.

(1) The Palais de la découverte (Discovery Palace) is a French national museum devoted to science and technology. The museum provides interactive exhibitions and is visited regularly by school groups and families.

## Shareholder information

Toll-free number

(France only): 0 800 16 61 79

or from other countries: +33 1 40 52 08 91

By mail:

Air Liquide Shareholders

Service Department

75, quai d'Orsay

75321 Paris Cedex 07

By e-mail: [actionnaires@airliquide.com](mailto:actionnaires@airliquide.com)

To obtain a copy of the Annual Report:

tel: +33 1 40 62 53 44

Internet site: [www.airliquide.com](http://www.airliquide.com)

L'Air Liquide, société anonyme,  
run by a Management  
and Supervisory Board.

The company was established  
for the study and application  
of processes developed  
by Georges CLAUDE

With issued capital of  
982,595,823 euros

Head office: 75, quai d'Orsay  
75321 Paris Cedex 07

Tel.: + 33 1 40 62 55 55

RCS Paris 552 096 281

Design and printing: Altedia - Paris  
and Air Liquide Corporate Communications.

Written by: Longueur d'Onde (Françoise Lafragette).

Translation: RWS.

Photos: Air Liquide, Alcatel, Artechnique, A. Bertry,  
BP-Lavera, Cryospace, DTA, ESA-CNES-Arianespace,  
J.N. François, Th. Layani, photothèque Air Liquide, X. Renaud,  
J.P. Salomon, Le Square des Photographes, P. Zamora, X.

Air Liquide thanks all the collaborators appearing in the  
photographs used in the Annual Report.

The following trademarks used in this document are the property  
of the Air Liquide Group: Alglass, Algal, Aljet, Alnet, Alphagaz,  
Altec, Altop, Carbofresh, FabNet, Floxal, Himalaya, Kinox, Kalinox,  
Minitop, Phargalis, Prestop, Teleflo, Turboxal.

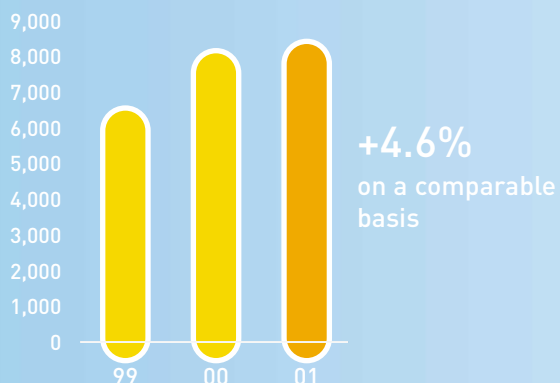


*100 years. A pioneering inspiration*

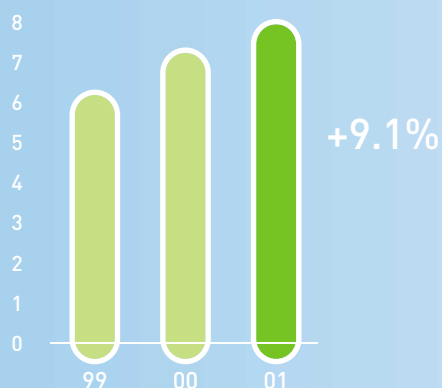


A pioneering inspiration

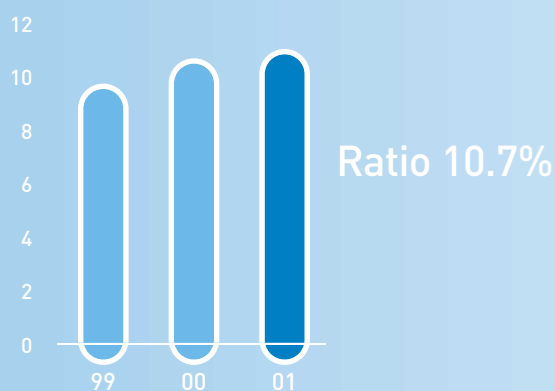
# Financial highlights



Total consolidated sales in million euros



Earnings per share (EPS) in euros



Return on capital employed (ROCE) \* (after tax) in %

	1999	2000	2001	2001-2000
	in million euros			in %
Total sales	6,538	8,099	<b>8,328</b>	<b>+4.6</b> <sup>(1)</sup>
of which Gas and Services	5,694	7,113	<b>7,256</b>	<b>+4.0</b> <sup>(1)</sup>
Operating income	935	1,116	<b>1,178</b>	<b>+5.5</b>
Net earnings	563	652	<b>702</b>	<b>+7.7</b>
Cash flow	1,308	1,564	<b>1,627</b>	<b>+4.0</b>
Capital expenditures	1,438	1,015	<b>1,102</b>	
Dividend payout	222	282	<b>298</b>	
Shareholders' equity	4,927	5,286	<b>5,353</b>	
Net debt	2,433	2,280	<b>2,583</b>	
Market capitalization	13,771	14,528	<b>14,295</b>	

(1) On a comparable basis.

	1999	2000	2001	2001-2000
	in euros			in %
Earnings per share (EPS)	6.22	7.22	<b>7.88</b>	<b>+9.1</b>
Dividend per share	2.36	3.00	<b>3.20</b>	<b>+6.7</b>

	1999	2000	2001
	in %		
Key ratios			
Return on equity (ROE)	12.1	12.8	<b>13.2</b>
Return on capital employed (ROCE) before tax	14.4	14.9	<b>15.2</b>
Return on capital employed (ROCE) after tax	9.6	10.5	<b>10.7</b>
Operating income before depreciation/Sales	24.2	23.4	<b>24.2</b> <sup>(2)</sup>
Operating income/Sales	14.3	13.8	<b>14.2</b> <sup>(2)</sup>
Net earnings/Sales	8.6	8.0	<b>8.4</b>
Cash flow/Sales	20.0	19.3	<b>19.5</b>
Debt/Equity	46.1	40.4	<b>45.5</b>

(2) 2001 excluding natural gas effect.

	1999	2000	2001
Employees	29,000	30,300	<b>30,800</b>

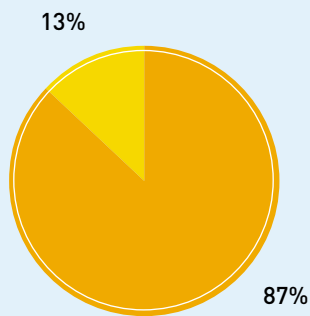
## Contents

02	Messages from the chairmen	46	Men and Women
06	Sustainable growth	50	Environment and Safety
16	Executive Committee	54	Research and Development
17	Report from the Management Board	57	Business Report
20	Highlights	69	Consolidated Accounts
26	Activities and Markets		Inside back cover – Glossary

\* Refer to the definitions provided in the glossary at the end of this report.

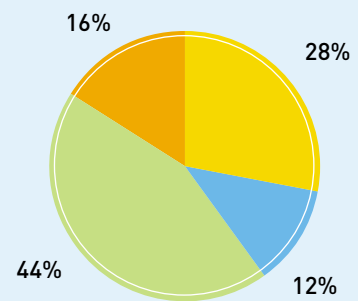
# Air Liquide overview / 2001

## Focused on our core business: industrial and medical gases



→ Consolidated sales  
8,328 million euros

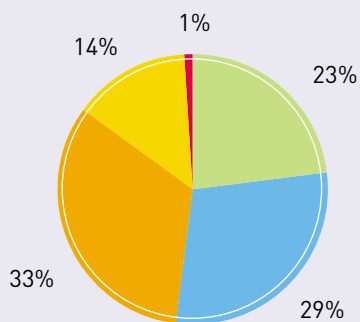
- Gas and Services
- Other activities including:
  - Air Liquide welding
  - engineering and construction
  - chemicals
  - diving



→ Gas and Services sales  
7,256 million euros

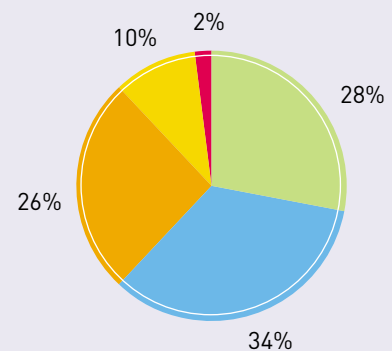
- Large Industries
- Industrial Customers
- Electronics
- Healthcare

## A well-balanced global presence



→ Share of sales by region

- France
- Europe (excluding France)
- Americas
- Asia-Pacific
- Africa

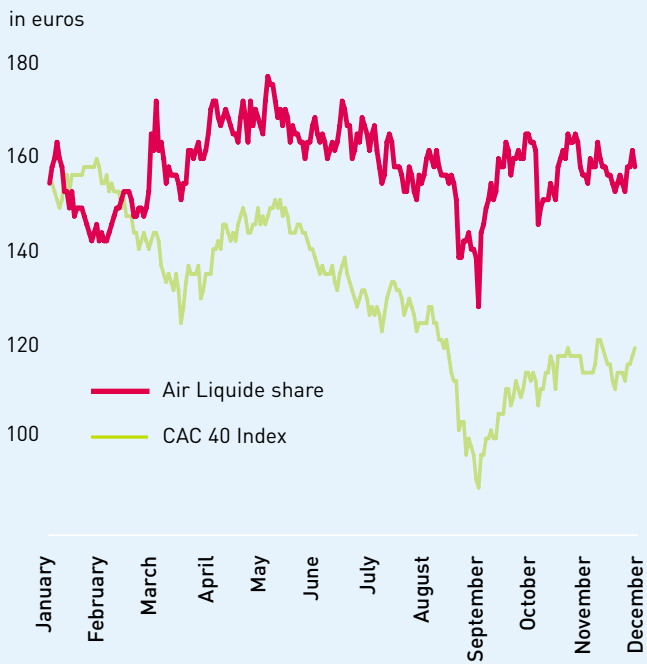


→ Share of EBIT\* by region

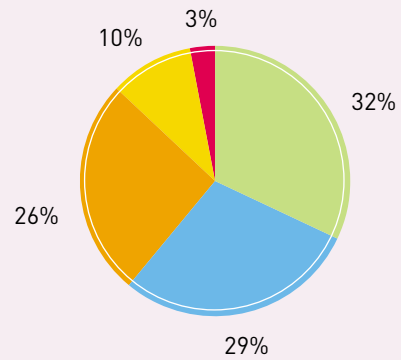
- France
- Europe (excluding France)
- Americas
- Asia-Pacific
- Africa

\* Excluding R&D centers and corporate overhead.

## Air Liquide share performance



## Men and Women



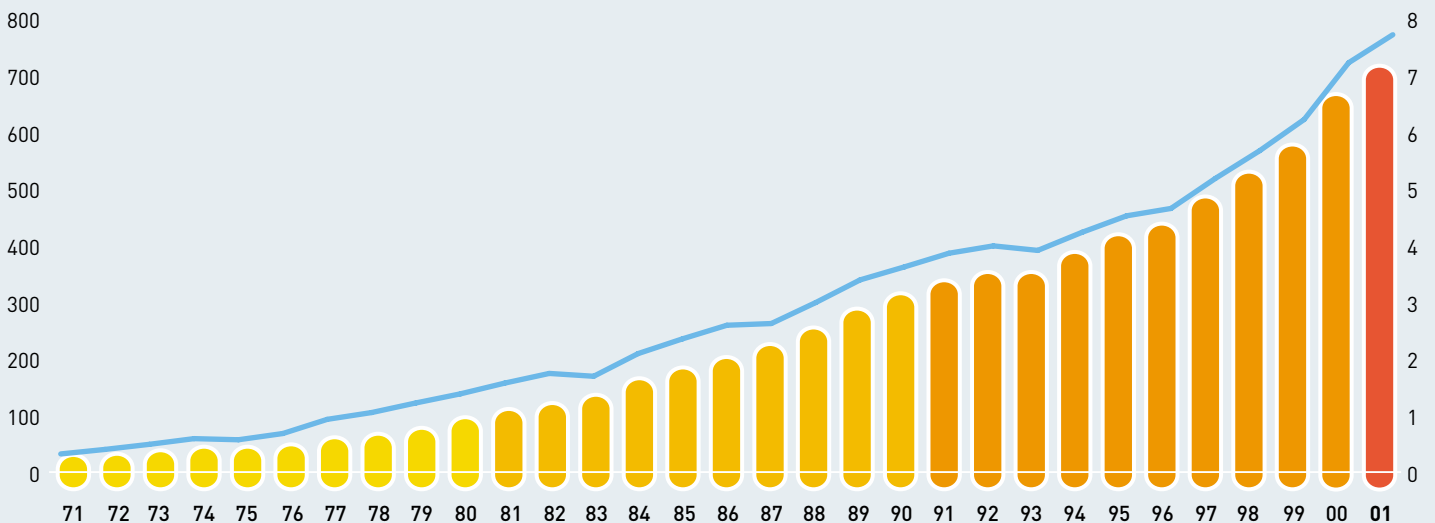
### → Employees by region

total: 30,800

- France
- Europe (excluding France)
- Americas
- Asia-Pacific
- Africa

## Solid and sustained earnings growth

Net earnings  
(in million euros)





# Glossary

## Gas and Services

### → Adsorption

The retention of gas molecules on a solid surface known as the adsorbent. Adsorption is used either to separate gases (e.g. nitrogen from oxygen) or to purify them. For example, water, CO<sub>2</sub> or hydrocarbons may be removed from air gases before separation by a cryogenic air separation unit.

### → Aerosoltherapy

The delivery of medications through inhalation. Medications are administered in very fine particles through a nebulizer.

### → Carrier Gases

Carrier gases (e.g. nitrogen, oxygen and hydrogen) are used to transport and dilute process gases or to protect semi-conductors from minute dust particles that must be banned from chip plant clean-rooms.

### → Cogeneration

The simultaneous production of steam and electricity. Cogeneration enables more efficient use of primary energy and produces less air pollution.

### → Cryogenic equipment

Equipment for chilling, producing, transporting, storing and distributing gas at extremely low temperature.

### → Electronics specialty gases

Specialty gases, like silane or arsine, are "process gases" used at each stage of the chip manufacturing process to deposit molecular-scale circuits.

### → Fab

A plant that makes semiconductors.

### → FLOXAL

Customer on-site nitrogen production service capable of satisfying a wide variety of requirements, including purity, consumption profile, pressure and backup stock. Two technologies are currently used: permeation, which uses polymer membranes developed in collaboration with DuPont, and cryogenic distillation (APSA).

### → Fuel cell

An environmentally-friendly electrochemical device that produces electricity by creating a chemical reaction between hydrogen and oxygen in the air. Fuel cells have potential applications, for example, in public transportation vehicles or portable power plants.

### → GTL (Gas To Liquid)

The conversion of the "associated gas" produced by oil wells into liquid hydrocarbons. Associated gas is currently burned which wastes energy and produces CO<sub>2</sub> emissions that harm the environment. The GTL process provides a solution by converting these gases into liquid hydrocarbons that can be easily transported and sold.

### → On-site production

Producing industrial and medical gases with equipment installed on the customer's site and operated by Air Liquide.

### → Oxygen therapy

The treatment of chronic respiratory insufficiency by administering oxygen to patients in the home using oxygen cylinders, oxygen extractors or liquid oxygen tanks.

### → Plasma

A gaseous medium in a highly energized state. Plasma is the 4th state of matter, after solid, liquid and gas. It generally occurs at a very high temperature of several tens of thousands of degrees centigrade and is produced when an electrical charge is applied to the gas.

### → Synthesis gas or syngas

A mixture often produced by natural gas or naphtha reformers that contain hydrogen and carbon monoxide in variable proportions depending on the process used. Synthesis gas generally cannot be used without the hydrogen and/or carbon monoxide first being purified. It is mainly used in the chemicals and oil & gas industries.

### → Teleflo

An integrated system for exchanging data and remotely managing facilities at customer sites. It includes facility units, servers and development tools. Teleflo links Air Liquide to its customers via telephone networks and the Internet.

### → TGCM

TGCM (Total Gas and Chemical Management) is a package of Air Liquide services that handles every aspect of gas and liquid chemical management, both prior to and after production, from procurement, quality control, metering and maintenance to the recycling of gases and waste materials.

## Financial

### → Capital employed

Financial resources used by a company to develop its business. It is the sum of equity, minority interests and net debt.

### → Cash flow

The cash generated by a company's operations. It is either reinvested in production facilities, distributed to shareholders in the form of dividends or used to reimburse debt. Cash flow corresponds roughly to after-tax earnings plus depreciation and amortization expenses.

### → Operating income

Annual sales minus the cost of producing, distributing and selling products and the depreciation or amortization of capital expenditures. It includes a company's ability to generate the profit required for its operation and growth.

### → Return on capital employed (ROCE)

Ratio of net earnings before interest expenses and after taxes over capital employed. It reflects the net return on money invested by shareholders and on borrowings.

### → Return on equity (ROE)

The ratio of net earnings over shareholders' equity. It represents the net return on money invested by shareholders.

### → Shareholders' equity

The part of a company's capital belonging to its shareholders. It includes subscribed capital and retained earnings.