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Givaudan<sup>®</sup>

**Safety and Environmental Protection:  
The Givaudan Group Report**





**Safety  
and Environmental  
Protection:**

**The Givaudan Group Report  
2003**

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# F o r e w o r d

**Dr. Jürg Witmer**  
Chief Executive  
Officer

Givaudan's record in safety, health and environmental protection continued to be good. This result is based on the company's continued efforts to guarantee safe working places, limit the impact on the environment, care for the needs of public communities and comply with all rules and regulations, whilst still ensuring a high level of service to our customers. The commitment and efforts by all employees to maintain high safety standards and safe working conditions has also contributed to this achievement.

In this report we have now integrated the S&E data for the former FIS sites of Kempthal (Switzerland), New Milford (USA) and Singapore. The addition of this data changes of course significantly some of the major key figures, such as energy consumption, waste production, etc.

In 2003, the bulk of the investments in the area of S&E were in new production equipment and in the upgrading of warehousing equipment. Improvements were realised in wastewater treatment and air treatment at various production sites.

In terms of safety, the number of accidents has been further reduced although our headcount increased through the addition of several hundred employees from the FIS acquisition. However, despite high safety standards and the determination to make human safety a top priority, one employee suffered a severe injury. We will continue to remain vigilant on a daily basis to control and identify all possible situations at risk which could lead to major accidents.

For many years, Givaudan has been focussing on reducing the impact of its business activity on the environment. In the area of energy consumption, this goal has been achieved in recent years through the installation of state-of-the-art equipment. However, once this equipment is in place, further improvements remain particularly challenging, since progress is directly dependant on the available technology. Last year, Givaudan could, for the first time, totally eliminate the emission of halogenated solvents, and the amount of land filled waste has been reduced significantly.

Seven safety audits at various Givaudan sites have been conducted in 2003, not only to ensure compliance with laws and regulations, but also to make sure that all future development are being made according with the principle of sustainability. Specific training programmes for our S&E specialists around the world were conducted in order to further improve Givaudan's high S&E standards.



## Comparison of the 2003 with 2002 data

**This report  
includes for the  
first time data  
from the acquired  
FIS operations**

### **Production**

Overall production of fragrances and flavours has grown by 40.0 % mainly due to the addition of the FIS production sites.

### **Energy**

Overall energy consumption has increased by 20.9 %. Fossil energy: 22.5 %. On a comparable basis energy consumption remained stable.

### **Carbon dioxide**

CO<sub>2</sub> emissions have increased by 21.7 %.

### **Inorganic gas**

NO<sub>x</sub> emissions increased along with the increase in fossil energy consumption. SO<sub>2</sub> emissions have increased significantly due to an installation on a former FIS site using fuel.

### **VOCs emissions**

Total VOC emissions have increased significantly by 42 %; halogenated VOCs emissions have been totally eliminated.

### **CFCs inventory**

CFC inventory has been reduced by 10%.

### **CFCs consumption**

CFC consumption has decreased. 2002 consumption was due to faulty equipment.

### **Waste water**

The total organic carbon (TOC) rejected by the waste water treatment installations of the chemical plants decreased by 7.3 %, despite an increasing production volume and two additional waste water treatment plants in the Group.

### **Hazardous waste**

Overall quantity of hazardous waste decreased by 12.9 %. The land fill part (2.2%) remains low and decreased by 27%.

### **Non-hazardous waste**

Non-hazardous waste quantity has grown significantly mainly due to the inclusion of the former FIS sites. Recycling rate is 73.8 %.

### **Internal Accident Index**

The internal accident index has increased by 52 % due to one major accident mentioned in the CEO's foreword.



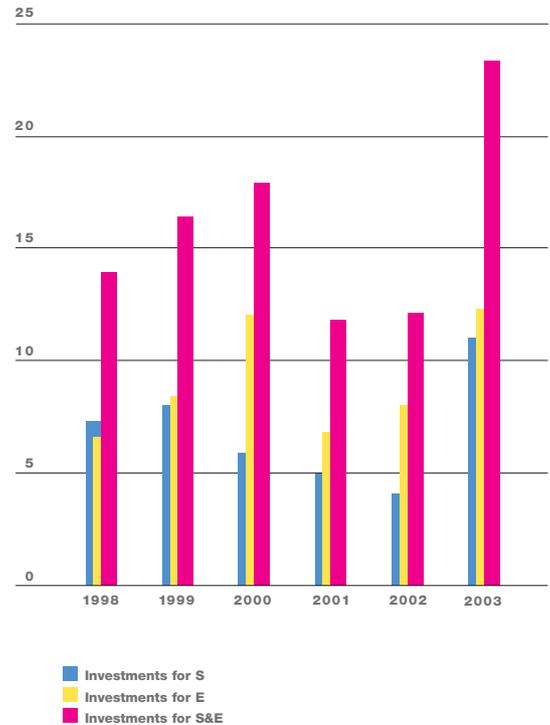
## Investments

**Investments include full expenses made for S&E specific pieces of equipment for fire detection, water/air treatment or fire water supply and the percentage of expenses for investments in relation with the operating facilities.**

The investments dedicated to S&E have increased significantly in 2003. These investments represent 14.6 % of the total Group investments.

Among the S&E investments, about 80% are S&E contributions to larger projects concerning production units in Vernier, Dortmund, Sant Celoni and in the warehouses in Kempththal and Barneveld. The remainder are S&E specific and have been made mainly for the air treatment in Duebendorf and for the modernisation of the wastewater treatment plant of New Milford.

**S&E Investments**  
(In million of Swiss francs)



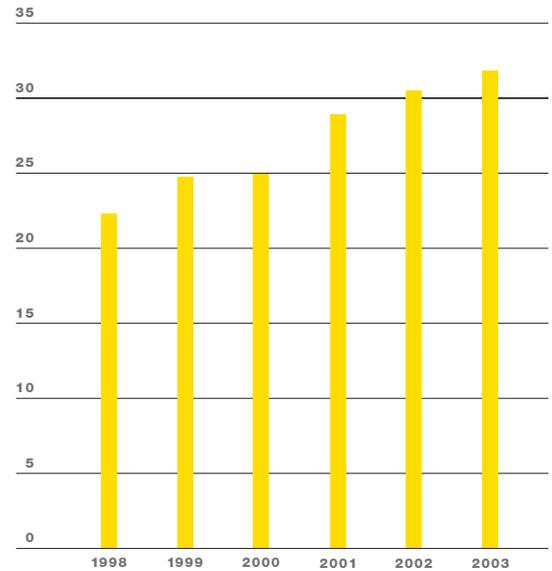


## Expenditure

Expenditure mainly covers the expenses of the S&E services, the maintenance of the S&E equipment, the site remediations, the waste elimination costs and the training of employees on S&E matters, etc.

S&E expenditure has grown by 5 % mainly due to the integration of FIS. More than 50 % of these expenses are made up of environmental operating costs for the management of the waste, air treatment and wastewater treatment installations. About 25 % are dedicated to the running cost for the site safety services including safety officers, fire brigades and medical services. The remainder covers information and training sessions in S&E area.

**S&E Expenditure**  
(In million of Swiss francs)





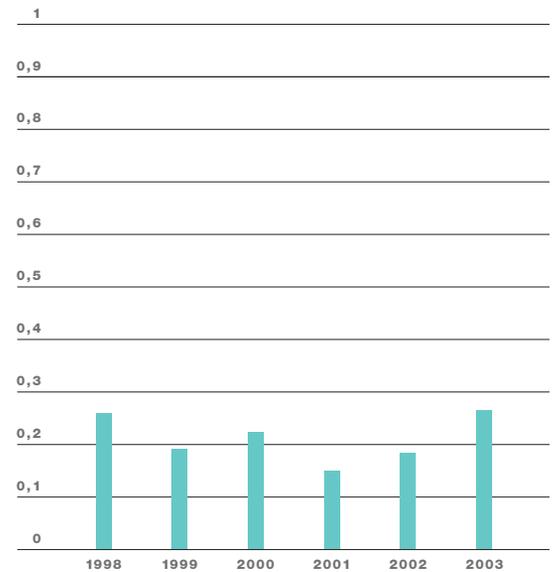
## Safety

The Internal Accident Index (IAI) expresses the amount of workdays lost per employee and per year.

The Internal Accident Index has increased in 2003 by more than 50 %. This is caused by one accident, where an employee fell from a tank wagon and was severely injured. For many years now, Givaudan has been spared such severe accidents. On the positive side, 6 out of the 24 sites have recorded zero accidents.

The accident frequency, with 13,5 accidents per 1000 employees, shows a stable trend over the past three years.

Internal Accident Index (IAI)



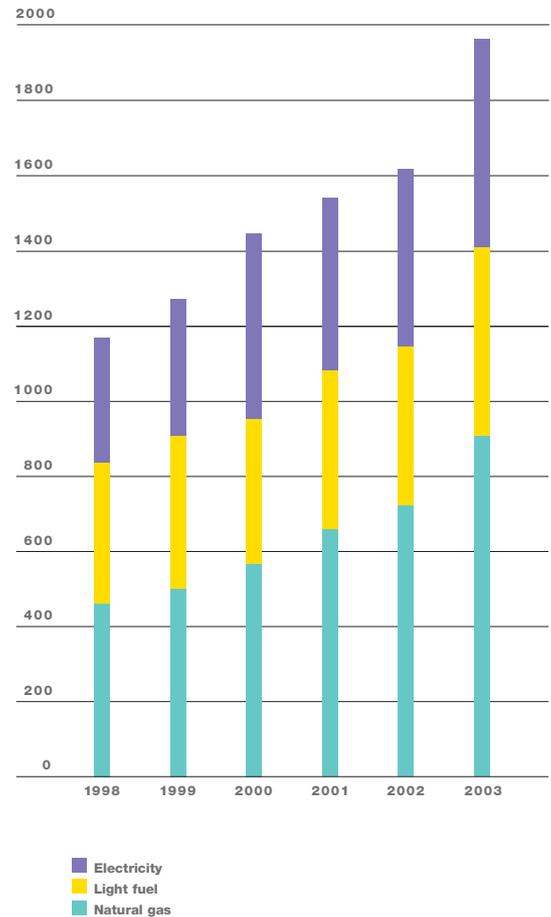


## Energy

Energy mainly covers the consumption of electricity, light fuel and natural gas to produce chemicals and to manufacture mixtures of liquids and powders.

The energy consumption, with 20.9 %, is increasing significantly mainly due to the integration of the FIS activities

Energy consumption  
(In terajoules)



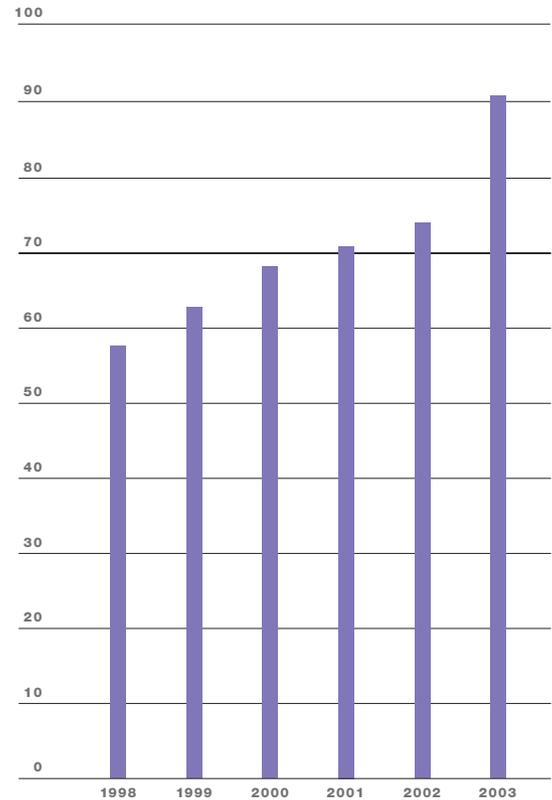


## Air / CO<sub>2</sub> emissions

CO<sub>2</sub> emissions result from the combustion of fossil energy to generate steam necessary to produce flavors and fragrances and to heat the buildings.

CO<sub>2</sub> emissions continue to grow by 21% as the fossil energy consumption is growing. This significant growth is due to the integration of three former FIS sites.

**CO<sub>2</sub> emissions**  
(In thousand metric tons)



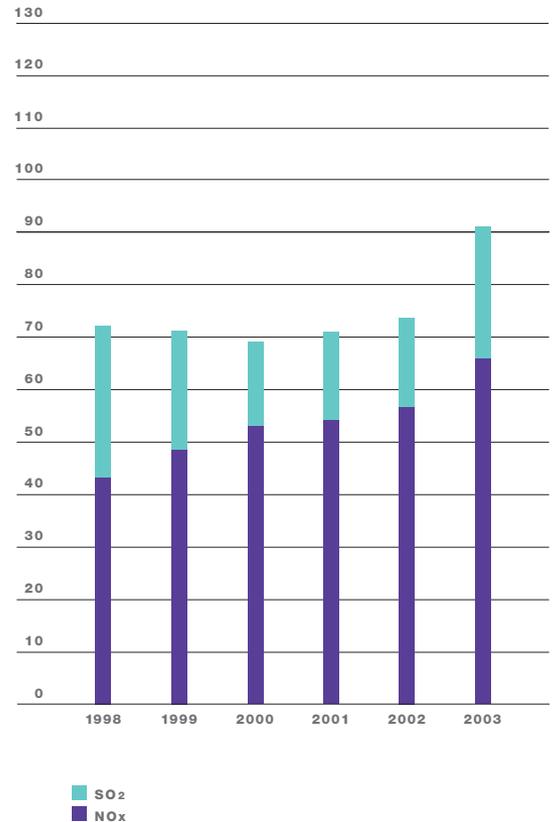


## Air / Inorganic gas emissions

Inorganic gases are sulphur oxides and nitrogen oxides emitted by the combustion of fossil energy.

NO<sub>x</sub> emissions continue to increase along with fossil energy consumption. SO<sub>2</sub> emissions increased significantly by 47 % due to a boiler using light fuel in one the former FIS sites.

Inorganic gas emissions  
(In metric tons)





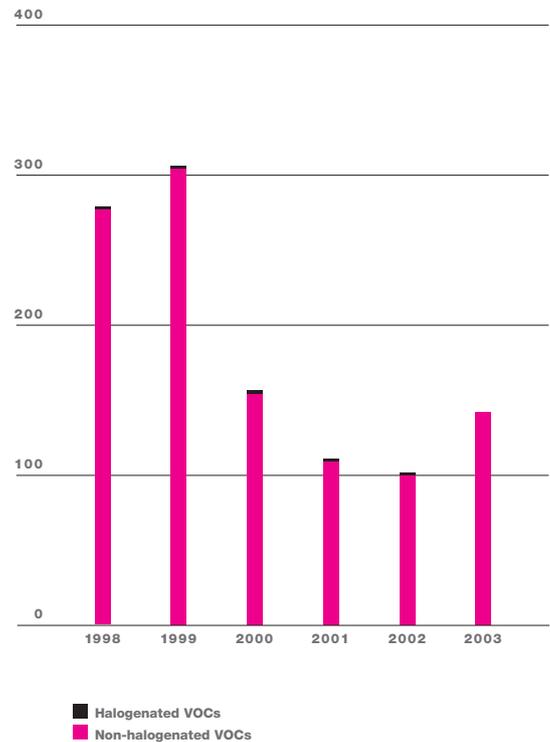
## Air / VOCs emissions

VOCs emissions have been divided into halogenated solvents (mainly methylene or ethylene chloride) and non-halogenated solvents such as aliphatic alcohols and toluene.

The non-halogenated emissions have increased by more than 40 % in 2003. This increase is mainly due to emissions in sites with chemical activities where solvents are commonly used in large volumes.

For the first time, halogenated emissions have been totally eliminated in the whole Group. This was possible due to the replacement of halogenated solvents in many important chemical processes.

VOCs emissions  
(In metric tons)



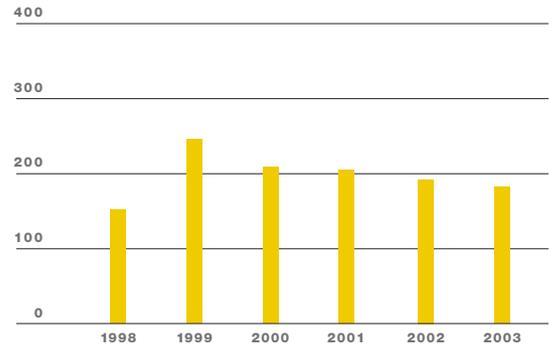


## Water / Total organic carbon (TOC)

TOC expresses the amount of organic substances rejected into receiving waters after the waste water treatment plant.

The total organic carbon rejected into receiving water has decreased by 7.3 % despite the integration of the two wastewater treatments plants from the former FIS sites. This decrease stems from the results of major improvements made in Givaudan's wastewater treatment plants in Vernier and Sant Celoni, combined with the effect of the phase out of the sunscreen filter production and the discontinuation of production of some large commodity ingredients on the Vernier site.

Total organic carbon (TOC)  
(In metric tons)



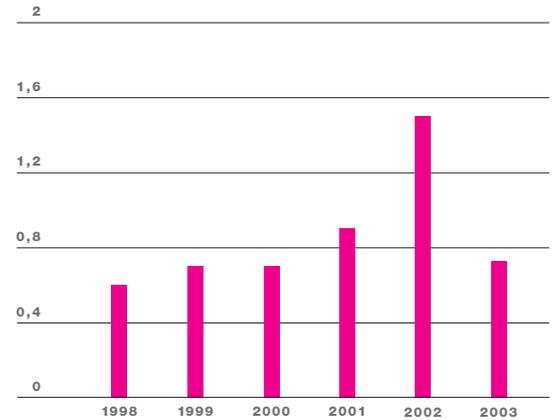


## CFCs

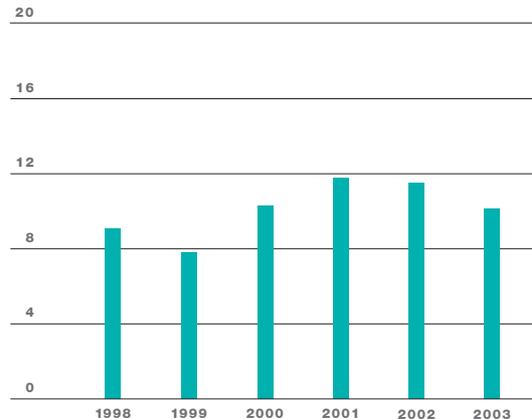
CFCs are only used in cooling or fixed fire extinguishing systems.

2003 CFCs consumption has strongly decreased compared with 2002. The peak in 2002 was caused by an installation which will be replaced early this year.

**CFCs consumption**  
(In metric tons)



**CFCs inventory**  
(In metric tons)



2003 inventory has decreased by 10 % mainly due to the replacement of laboratory refrigerators containing Freon R 22 with equipment containing an environmental friendly cooling medium.



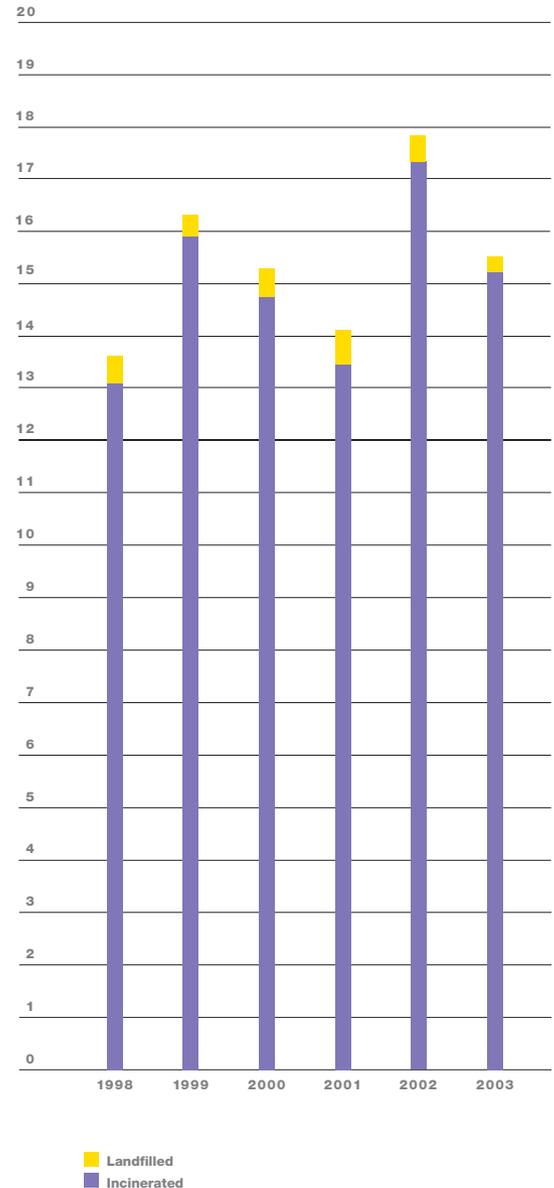
## Hazardous waste

Hazardous waste mainly covers flammable solvents, distillation residues and mineral sludge from wastewater treatment plants.

In 2003, the amount of hazardous waste decreased by 13%. This trend is visible in all the major sites.

The amount of land filled hazardous waste represents less than 3% of the total hazardous waste. In 2003, the quantity has significantly decreased by 27%. As an example, the sludge from the wastewater treatment of Vernier is now incinerated. Givaudan's policy to systematically avoid hazardous waste in landfill fully shows its effect. For three consecutive years the quantities have been decreasing.

**Hazardous wastes**  
(In thousand metric tons)





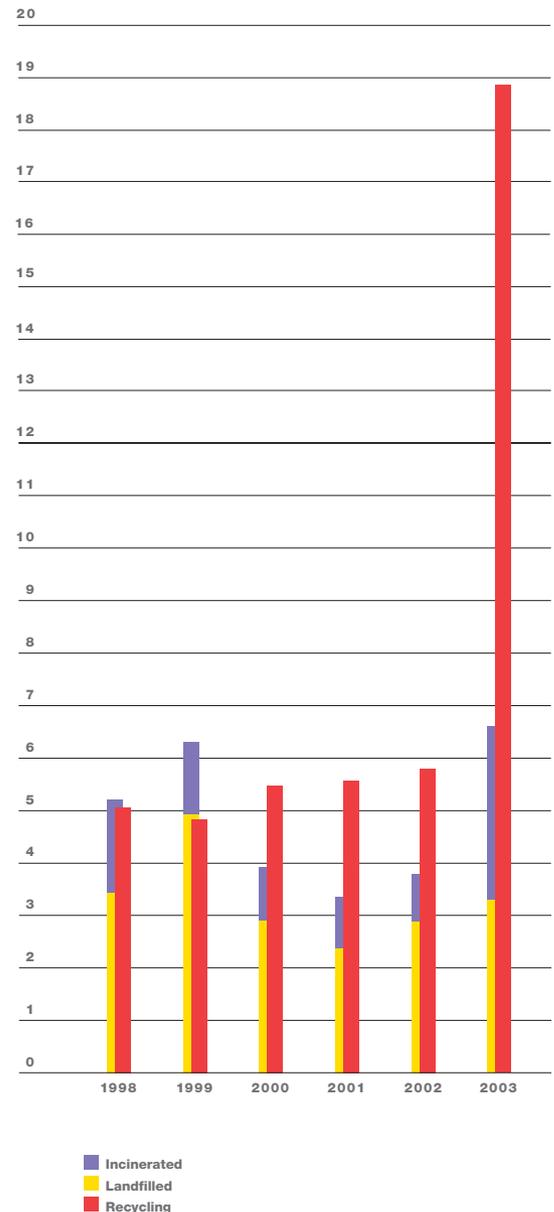
## Non-hazardous waste

Non-hazardous waste is mainly packaging of all kind, vegetables, etc.

The amount of non-hazardous waste has increased significantly mainly due to the integration of FIS. Most of the additional non-hazardous waste is vegetal residues that are recycled as animal food.

Due to this new situation the recycling rate has also significantly improved. It has now reached a rate of 73.8%.

Non-hazardous waste  
(In thousand metric tons)





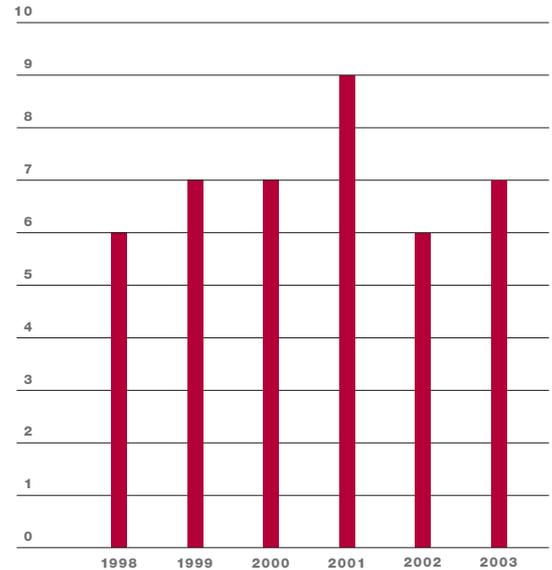
## Auditing

**Safety and environmental audits are performed on a regular basis in the 24 Givaudan production facilities.**

The objectives of the S&E audits are not only to review the compliance with local regulations and the Givaudan S&E policy, but also to provide technical support and give advice in the implementation of company guidelines and local directives.

The audit programme for 2003 was mainly focused on the two major European sites and on the five US sites. These audits were conducted for the first time together with an insurance company. During these audits no significant issues were identified. This again showed the high level of safety, hygiene and environmental protection achieved in the Group.

Audits





## Sites

participating in  
the 2003 S&E Annual Report.



### USA

- 1 Mount Olive (New Jersey)
- 2 East Hanover (New Jersey)
- 3 Lakeland (Florida)
- 4 Cincinnati (Ohio)
- 5 Devon (Kentucky)
- 6 Saint Louis (Missouri)
- 7 New Milford (Connecticut)

### Mexico

- 8 Cuernavaca (Mexico)

### South America

- 9 Munro (Argentina)
- 10 Sao Paulo (Brazil)

### Asia

- 11 Bangalore (India)
- 12 Singapore (Singapore)
- 13 Jakarta (Indonesia)
- 14 Shanghai (China)
- 15 Fukuroi (Japan)

### Oceania

- 16 Sydney (Australia)

### Europe

- 17 Argenteuil (France)
- 18 Lyon (France)
- 19 Vernier (Switzerland)
- 20 Dübendorf (Switzerland)
- 21 Barneveld (Netherlands)
- 22 Dortmund (Germany)
- 23 Sant Celoni (Spain)
- 24 Kempthal (Switzerland)





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**Givaudan SA**

Corporate Communication  
Corporate Safety  
and Environmental Affairs  
5, chemin de la Parfumerie  
CH - 1214 Vernier  
Tél: +41 22 780 91 11  
<http://www.givaudan.com>

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CH - 1000 Lausanne

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