Pirelli & C. S.p.A. Milan

Environmental Report 2004

PIRELLI

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THE CHAIRMAN'S LETTER

2004 was a year of growth for the Pirelli Group with all the economic indicators registering significant improvements, while there was an equally significant improvement in those activities associated with the objective of becoming a "sustainability company" we recently set ourselves.

Today, we are presenting a Group Report that takes a detailed look at the initiatives impacting society and our relations with our employees and with the local communities in which we operate, along with the numerous activities focussing on continuous improvement of the environmental impact of our production processes.

The identity of our group is historically founded on an array of values that over the years have been upheld and preserved by us all with great determination; these very values have allowed us to consolidate and enrich our business culture and are now summarized in the "*Ethical Code*" of the Pirelli Group.

This document constitutes the ideal source for all the initiatives that we have decided to activate: from the "*Health, Safety, Environment and Social Responsibility*" policy to the reinforcement of the models dictated by the Management Systems approach to improved health and safety at work; from the launch of a clear application of the internationally recognised principles of social responsibility to the development of the "*Progetto Donna*" relating to the theme of managing diversity; from the initiatives undertaken to create a "*No Smoking Company*" to the partnership with "*Children in Crisis*", to cite just a few.

We have always be firmly convinced that it is impossible to separate the economic elements of a business decision from an evaluation of the environmental, ethical and social consequences.

In the case of an international corporation intent on creating value, this implicates a system of values that is shared throughout the company, honest business practices and absolute transparency in the pursuit of the greatest possible equilibrium amongst what are, at times, the non-convergent interests of the stakeholders.

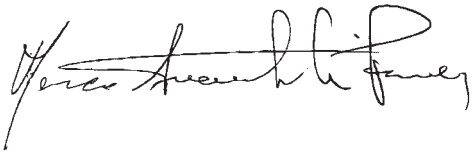
From this point of view too, we can look back with satisfaction on the recognition gained in 2004 with the company's insertion in the *FTSE4Good* and *ASPI Eurozone* sustainability indices, while with regards to the *Dow Jones*

STOXX Sustainability Index in which we had featured since 2002, the change in the composition of the industrial mother company in 2004 instead adversely affected the Pirelli stock.

However, this event is itself evidence of the ever more stringent analyses that the ratings bodies conduct with regards to these themes and should spur us on to work with our customary determination and professionalism to improve our performance.

2004 also saw Pirelli embrace the Global Compact with a commitment to respect and support the "ten principles" relating to human rights, labour, the environment and the fight against corruption.

As I emphasised last year, the challenge facing us lies in the fact Pirelli has production facilities on every continent; consequently we need to be capable of grasping the opportunities offered by the nature of our worldwide business and our historical-cultural heritage: a company with solid ethical foundations is more likely to succeed in a system that is free and open to competition.



2004 REPORT COMPILATION CRITERIA

The Pirelli Group's Environmental Report 2004 has maintained substantial editorial continuity with respect to the previous editions and is, as usual, divided into three sections:

- An initial general section of a descriptive nature illustrating how the group has approached and managed the on-going relationships between its activities and themes relating to health and safety at work, the environment and social responsibility.
- A central section in which the specific issues associated with the various types of production are examined;
- An appendix containing the quantitative data relating to the principal environmental parameters.

As was the case with the 2003 report, in this latest edition the *Energy Cables and Systems* and the *Telecom Cables and Systems* sectors have been presented independently in both the descriptive and quantitative sections.

Furthermore, as was again the case in the past, the operational units with *mixed* production (cables for both the energy and telecom sectors) have been included in the *Energy Cables and Systems* sector, in accordance with their business management structures.

As a consequence of industrial rationalization this report does not take into consideration the operational units belonging to the *Energy Cables and Systems* sector in Vereeniging (South Africa), Harare (Zimbabwe), Budapest (Hungary) and S. Giuliano (Italy).

As in the 2003 report, the quantitative environmental data relate to the following:

- ***Water consumption***, in both absolute and normalized terms with respect to the specific industrial output.
- ***Energy consumption***, in both absolute and normalized terms with respect to the specific industrial output, confirming the real data recorded "at the meter" by the operational unit.
- ***Consumption of organic solvents***, in both absolute and normalized terms with respect to the specific industrial output.
- ***Production of waste***, both waste considered to be hazardous and non-hazardous, according to the definition adopted within the ambit of the European Community and now accepted internationally. As usual, this year's edition of the report contains information relating to the percentages of such waste that are used for recycling purposes by agents outside the group.
- ***Quantity of dielectric oil containing PCB*** (polychlorinated biphenyls) ***and/or PCT*** (polychlorinated triphenyls) in concentrations greater than 50 mg/kg, present in certain electrical equipment such as transformers and capacitors, whether they are in use, in storage or awaiting disposal.
- ***Ozone layer depleting substances*** present in cooling/conditioning and/or fire-fighting systems or used for degreasing operations or in the laboratories, both currently in use and in storage.
- ***CO_2 and NO_x emissions*** referring to both the consumption of fuel needed for the production of purchased electricity and the internal consumption of fuel for the production of energy.

Factors of conversion deriving from international databanks (in particular BUWAL 250 and Idemat 2001) have been used and are presented in the following table.

Factors of Energetic Conversion for CO_2 and NO_x

Type of energy	Source	Factor of Conversion	
Natural gas	BUWAL 250	57.0	Kg CO_2 / GJ
		0.06	Kg NO_x / GJ
Diesel oil	Idemat 2001	2,983.3	Kg CO_2 / t disel
		9.7	Kg NO_x / t disel
LPG	Idemat 2001	2,703.6	Kg CO_2 / t LPG
		13.2	Kg NO_x / t LPG
Fuel oil	BUWAL 250	88.9	Kg CO_2 / GJ
		0.23	Kg NO_x / GJ
Electricity	BUWAL 250	119	Kg CO_2 / GJ
		0.26	Kg NO_x / GJ

With regard to "safety" aspects and with reference to work-related accidents, the cumulative group level data have been reported in terms of:

- the total number of accidents;
- the indices of "Frequency" and "Gravity" (defined below).

International references

As was the case with the previous reports, in relation to the section dealing with quantitative environmental data (and specifically the method of presenting the data and their processing and so on) we have again decided to follow the guidelines indicated in the document entitled "*Sustainability Guidelines on Economic, Environmental and Social Performance*" published by the *Global Reporting Initiative*™.

The environmental database

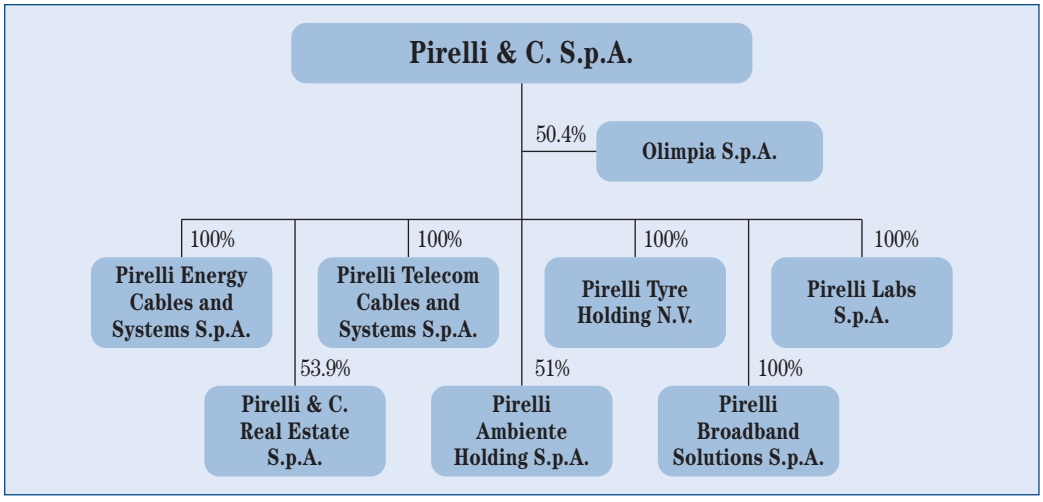
In parallel with the customary analyses and processing of the data compiled by the operational units, during 2004 work was completed on the conversion of the current database – resident on a central server – into a web-based archive within the Intranet area in order to allow the various operational units to insert data directly via computer, thus making the processes of data entry, verification and processing considerably more efficient.
With the testing and trial phase completed, the data will be available for the dynamic management of the objectives for improvement.

The home page of the new corporate Health, Safety & Environment database.

PRESENTATION OF PIRELLI & C. S.p.A.

The business structure

Following the mergers that significantly simplified the corporate make-up, from the "operational" point of view the structure of Pirelli & C. S.p.A. (as at 31/12/2004) is as shown in the diagram below:



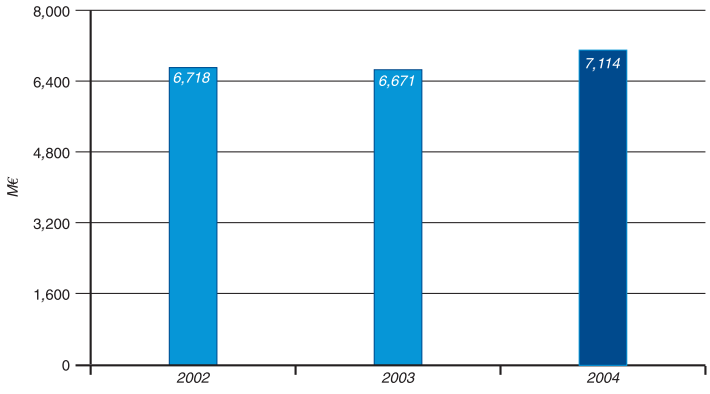
As will become clear, the quantitative data reproduced in the technical appendix to this report refer to the industrial sectors alone; that is to say, the "Tyre", "Energy Cables and Systems" and "Telecom Cables and Systems" sectors.

Pirelli & C. S.p.A. in figures

With regard to the above, the group's business on the 31st of December 2004 was subdivided as follows:

- three industrial sectors, "Energy Cables and Systems", "Telecom Cables and Systems" and "Tyre";
- the environmental technologies sector that brings together activities in the field of energy recovery from waste and the field of filters and low environmental impact fuels covered by Pirelli Ambiente Holding S.p.A.;
- the real estate sector, covered by the activities of Pirelli Real Estate.

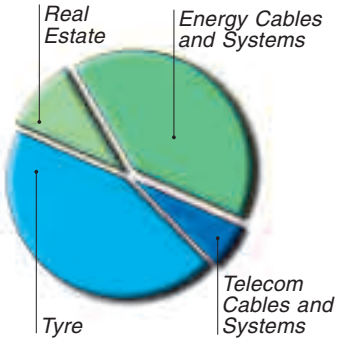
Pirelli & C. consolidated turnover (as at 31/12/2004)



The breakdown of sales by sector and by geographical area is illustrated in the following diagrams and tables:

Sector	2004	2003
Energy Cables and Systems	40%	40%
Telecom Cables and Systems	6%	6%
Tyre	46%	44%
Real Estate	8%	10%

Geographical Area	2004	2003
Italy	21.4%	22.3%
Rest of Europe	43.8%	43.1%
North America	9.7%	9.4%
Central and South America	14.0%	12.3%
Australia, Africa and Asia	11.1%	12.9%



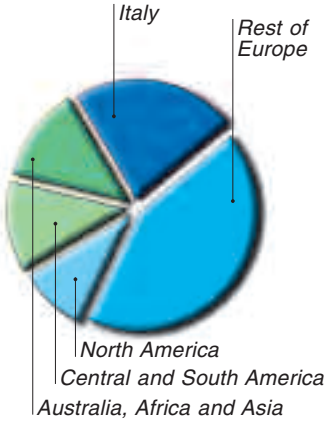
Breakdown of 2004 group sales by sector and geographical area.

On the 31st of December 2004, the group's total workforce was composed of 37,154 units, representing an increase of 817 units with respect to the same date the previous year (with a reduction of the permanent staff of 279 units and increase in temporary staff of 1,096).

On the 31st of December 2004, the workforce was distributed as follows:

Sector		
Energy Cables and Systems	10,385	28.0%
Telecom Cables and Systems	2,058	5.5%
Tyre	21,513	57.9%
Pirelli Real Estate	1,569	4.2%
Others	1,629	4.4%

Geographical Area		
Europe	59.2%	(of which 24.8% Italy)
North America	3.6%	
South America	25.4%	
Other	11.8%	



Pirelli & C. operational units around the world

On the 31st of December 2004, the Pirelli Group was present on 73 industrial sites in 22 countries and on 5 continents.

It should be pointed out, however, that in the preparation of this report a total of 81 operational units were taken into consideration due to the presence of more than one factory on the same industrial site.

There follows a detailed overview of the productive sites taken into consideration in this report, in which the Energy Systems and Cables and Telecom Systems and Cables sectors have been grouped together.

Cables and Systems

Argentina
La Rosa
Quilmes

Australia
Dee Why
Liverpool

Brazil
Cerquilho
Jacarei
S. Andrè
Sorocaba

Canada
Prescott
St. Jean

China
Baosheng
Tianjin
Wuxi

Finland
Pikkala

France
Amfreville
Angy
Charvieu
Chavanoz
Gron
Neuf Prè
Paron
Vologne
Xoulces

Germany
Neustadt
Schwerin

Great Britain
Aberdare
Bishopstoke
Eastleigh
Prescott
Wrexham

Holland
Delft

Hungary
Balassagyarmat
Kistelek

Indonesia
Bukit Indah

Italy
Arco F.
Ascoli P.
Battipaglia
Giovinazzo
Livorno F.
Livorno
Merlino
Pignataro M.
Quattordio

Malaysia
Shah Alam

Portugal
Valadares

Romania
Slatina

Slovakia
Bratislava

Spain
S. Vicenç dels Horts
Villanueva y la Geltru

United States
Abbeville
Lexington

Turkey
Mudanya

Tyres

Argentina
Merlo

Brazil
Campinas
Feira de Santana
Gravatai
S. Andrè
Sumarè

Egypt
Alexandria

Germany
Breuberg
Merzig

Great Britain
Burton on Trent
Carlisle

Italy
Bollate
Figline V.
Settimo T.

Spain
Manresa

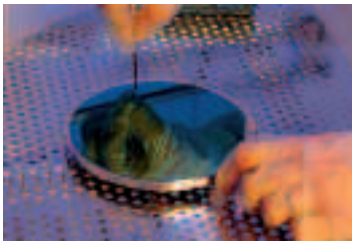
United States
Little Rock
Rome

Turkey
Izmit

Venezuela
Guacara

Pirelli Labs

Founded in the May of 2001 with an overall investment of around 135 million Euros, Pirelli Labs represents the group's pole of technological excellence. The research centre, extending for around 13,000 m² in the Milano Bicocca area, is active in the fields of photonics, optical fibres and new materials for energy.



An 8-inch wafer produced by Pirelli Labs.

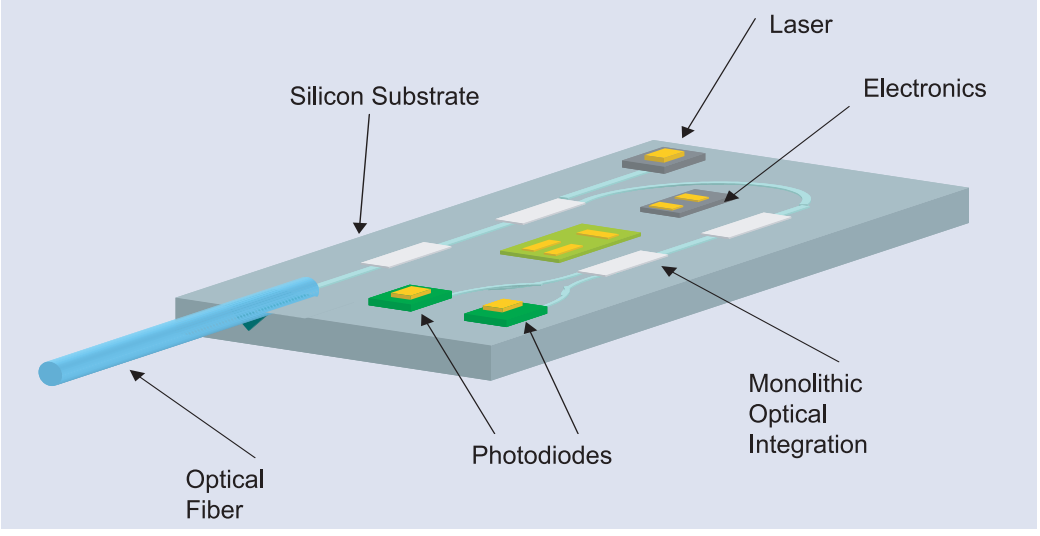
With its *Optical Innovation* and *Materials Innovation* divisions, Pirelli Labs represents the point of reference for all Pirelli research activities throughout the world and is directly linked to the group's other research centres and important private and university centres in the USA, Russia and Italy.

Optical Innovation

In the optical field, the new laboratories are focussing on research into nanotechnologies applied to photonics and the development of devices and modules for application in the world of telecommunications. By creating structures on the nanometric scale, it is in fact possible to control fundamental aspects of materials such as their optical properties without changing their chemical composition.

Among the projects for shorter-term products is a tunable laser for use in long-distance optical networks, while development has been completed on a Radio Over Fibre system enabling the remotization of UMTS radio base stations and a residential ADSL access terminal for use in domestic settings.

Again within the ambit of access solutions, development work has begun on optical fibre access networks based on passive architecture, the key element of which is an extremely low cost integrated optical chip for optical applications in the residential sector ("Triplexer").



Optical Innovation: picture of the Triplexer for Fibre to the Home applications.

Materials Innovation

In the field of materials, Pirelli Labs tackles materials science research projects dealing with applications above all in the group's core businesses.

The work involved in the fine-tuning of the CMM (*Continuous Compound Mixing*) process is a case in point, the technology being used to produce compounds for tyres.

The CCM system is the only production process of its kind in the world and is capable of guaranteeing qualitative control of materials and an unprecedented degree of precision. It efficiently manages the complexities deriving from the use of over 40 components making up tyre compounds.

With regard to projects for Pirelli Energy Cables and Systems, Pirelli Labs is developing an innovative solution that uses recycled materials for low and medium voltage cable sheaths.

Pirelli Labs' Materials Innovation division is also involved in the distributed generation sector with the objective of building a centre of expertise in "clean" energy: in particular, those technologies such as fuel cells and photovoltaic cells that lend themselves to the local generation of energy directly by the user and with power outputs of less than 20 MW are being studied. Within this field, agreements have also been signed with the Italian National Research Council (CNR) and leading university research centres in Russia.

The laboratories are also working on long-term research projects such as neutrino transmission and the study of electromagnetic radiation.

One application of particular interest being worked on in the Materials Innovation division is the reduction of footstep noise in residential buildings.

Pirelli Labs has verified the efficacy of a number of technical solutions that, by combining granulated rubber with appropriate binding materials, produce a composite material capable of maximising the damping properties of the rubber itself.

Footstep noise testing at Pirelli Labs.

The composite may contain a very high proportion of recycled rubber (up to 80-90%).

A number of tests have been conducted using equipment designed to generated standardized footstep noise and appropriate sound level meters (as foreseen by the standard ISO 140).

The results of the tests show that if a layer of such material with a thickness of just a few millimetres is laid on the floor slab and then covered with traditional flooring materials it performs anti-vibration and acoustic insulation functions.

Pirelli Ambiente Holding

Pirelli Ambiente Holding is the new company constituted by the Pirelli Group to reinforce its presence in the environmental field. Born out of the merger of the activities of Pirelli Ambient and Cam Tecnologie, Pirelli Ambiente Holding is actively involved in environmental and sustainable development projects.

Pirelli Ambiente Holding was founded to reinforce the Group's presence within the environmental sector.

Pirelli's presence in the environmental sector derives from the awareness that appropriate handling of environmental issues – in terms of the use of resources, the optimization of processes and products and the marketing of products with low environmental impacts – represents a factor of success and is one of the key elements in the sustainable development of the group.

Pirelli Ambiente Holding is capable of offering the market a vast range of products with low environmental impacts and extremely high technological contents. Thanks to the work of Pirelli Labs, the company has an on-going commitment to ever more eco-compatible products and processes and innovative solutions; for example, in the field of materials science or the development of alternative energy source or sources of "clean" energy that reduce the emissions of toxic gases.

Pirelli Ambiente Holding is active in particular in three business areas:

- the recovery of energy from waste,
- technology for sustainable development,
- environmental reclamation.

With regard to the ***recovery of energy from waste***, Pirelli Ambiente Holding has developed and patented – in collaboration with Pirelli Labs – a high quality WDF (Waste-Derived Fuel), the uniqueness of which lies in its composition and the way it is used.

The Pirelli WDF is, in fact, obtained by adding to the dry portion of ordinary urban waste a number of components with a high calorific power (such as end-of-life tyres or other types of rubber such as disused seals and non-chlorinated plastics) and may be used as a partial replacement for fossil fuels in existing non-dedicated systems such as cement works and thermoelectric power stations with significant economic and environmental advantages.

The WDF – Waste-Derived Fuel.

Since 2001 this project has been an industrial reality through the constitution of I.D.E.A. Granda, a company out of Pirelli Ambiente and A.C.S.R. (the Cunese Waste Disposal firm serving 54 municipalities) and the construction of the high quality waste-derived fuel plant at Roccavione in the province of Cuneo.

The logo of the I.D.E.A. Granda company.

The WDF produced is then burnt together with fossil fuel in the largest Italian cement works, the property of Buzzi Unicem, located in the municipality of Robilante: the use of this mixed-fuel system in the cement works in question allowed a reduction in the atmospheric emission of CO_2 of around 20,000 tonnes.

As well as permitting a reduction in the amount of waste disposed of in land-fill sites, a problem faced by all industrialized nations, the use of this fuel represents a valid opportunity for energy-hungry industries (in particular cement production and thermoelectric poower generation) called upon to increase the use of renewable sources of energy, while allowing them to perform a useful social function.

Within the ***technology for sustainable development*** sector, Pirelli Ambiente is working successfully thanks to the years of experience accumulated by Cam Tecnologie in the field of low environmental impact fuels and through the new initiative developed in collaboration with Pirelli Labs and important international research centres.

GECAM™, a low environmental impact fuel.

The company's reference product is GECAM™, the so-called "white diesel™". GECAM™ is a low environmental impact fuel patented by the group that permits a reduction in the polluting emissions typical of diesel oil (fine particulates, nitrogen oxides, carbon monoxide).

The product is an emulsion of diesel oil and water (10%), initially offered to the public transport sector; subsequently, GECAM™ has also been adopted by other sectors of the Italian extra-network market and is today also used by vehicles used for waste collection, goods transport, railway transport, earth moving and for heating systems (furnaces), without any modifications to the equipment being necessary.

White diesel™ has also gone beyond the Italian national borders, and is available commercially in France, the Czech Republic and China.

The company has recently extended its range of commercial products to include particulate filters and innovative exhaust gas treatment systems.

The particulate filters are devices capable of reducing the particulates emitted by diesel engines by over 90%. The technology is based on porous silicon carbide, a material that offers unique characteristics of resistance to heat and thermal shock.

Pirelli Ambiente Tecnologie has also proposed new technological solutions for the environment with the launch of new air quality monitoring devices produced in the group's laboratories in collaboration with international centres of research excellence.

An urban air quality monitoring unit.

These are innovative systems capable of measuring the concentration of polluting gases in the atmosphere based on semiconductor gas sensors (carbon monoxide, ozone, nitrogen dioxides and so on), exploiting the properties whereby certain oxides record an increase in electrical conductivity in the presence of the gas.

The Pirelli sensors are compact and have much lower installation and running costs than traditional systems, significant autonomy with respect to electrical power and permit wireless transmission of the data recorded via GSM (or GPRS).

A DSN sensor for the latest generation telemonitoring systems.

The new air quality monitoring systems may also be integrated with "intelligent" sensors for surveying traffic that – via a microprocessor – process and transmit the data to a central unit.

The instrumentation developed by Pirelli is marketed (to public bodies, specialised agencies and companies) in two ways, as an alternative to traditional monitoring or as a complementary support to existing networks.

In terms of ***environmental remediations***, Pirelli Ambiente Holding intends to market the experience gained in the field in collaboration with Pirelli Real Estate and the Pirelli group's industrial divisions.

The company is capable of providing comprehensive management of the remediation process: the activities proposed comprise all the solutions for the remediation of sites, from the preliminary quantification of the environmental liabilities through to complete redevelopment and valorization of the site with respect to the environment and its resources.

Pirelli & C. Real Estate

The Pirelli group is also actively involved in the real estate sector through Pirelli & C. Real Estate S.p.A.

With its four divisions, Pirelli RE is capable of operating in all real estate market sectors.

The core of the Pirelli & C. Real Estate business model is the Asset Management division responsible for the strategic activities of identifying and selecting investment opportunities and the managerial activities of planning and coordinating operational processes.

Pirelli & C. Real Estate has also developed in-house all those complementary and operational support skills required by the asset management activities through specialist service companies.

The strategic decision to encourage its companies to work independently on the market has allowed, through open competition, to increase the professionalism of the structures and the quality of the services offered.

Pirelli & C. Real Estate is therefore capable of responding to the varying demands of its clients with specific and above all synergic and integrated services provided by the individual companies.

Pirelli Broadband Solutions

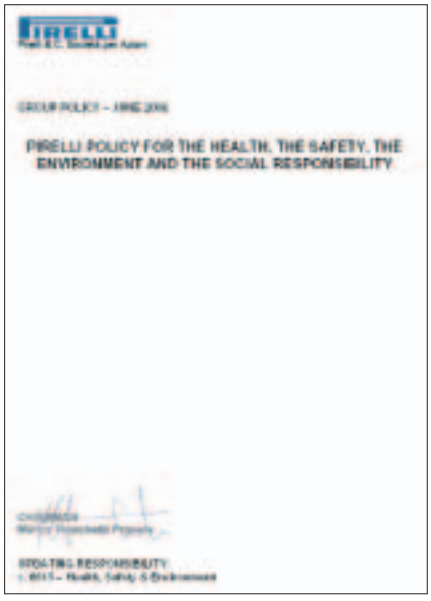
Pirelli Broadband Solutions, a company operating in the photonics field and involved in research into and development of advanced and innovative telecom infrastructures was constituted at the end of 2004.

A DTL (Dynamically Tunable Laser) module for optical fibre telecommunications networks due to be marketed by Pirelli Broadband Solutions.

This new company is focussing on the integration of skills in the field of photonics, nanotechnologies and broadband access systems (both cabled and wireless) and benefits from the technological support of Pirelli Labs.

THE GROUP POLICY

Policy for Health and Safety at Work, the Environment and Social Responsibility


PIRELLI POLICY FOR THE HEALTH, THE SAFETY, THE ENVIRONMENT AND THE SOCIAL RESPONSIBILITY

The Pirelli group policy document.

Within an international context in which social, environmental and economic expectations are ever more demanding, the policy adopted by the Pirelli group in June 2004 (published in all the languages used by the group) has further reinforced the equilibrium between sustainability and the group's industrial development.

As well as referring to the principle of sustainable development, the *Pirelli Policy for Health and Safety at Work, the Environment and Social Responsibility* brings together in a single document the earlier policies relating to the environment (first version published in July 1995 and updated in September 2000) and safety at work (September 1995).

The Pirelli group has always considered the safety, health and wellbeing of its employees and the environment as one of the primary needs that have to be respected in the organization of its activities. Pirelli adheres to the principle of Sustainable Development, committing itself to upholding – among others – the following principles:

- the government of its activities through the adoption of management systems relating to health and safety at work, the environment and social responsibility that conform to the international standards;
- the communication and diffusion of information regarding health and safety at work, the environment and social responsibility to the internal and external "stakeholders", actively working with the national and international academic and legislative bodies;
- the promotion of the use of the most advanced technologies in order to achieve a degree of excellence with regards to the protection of workers' health and safety at work and the safeguarding of the environment;
- the evaluation and reduction of the environmental impact of its processes/products through the LCA (*Life Cycle Assessment*) method;
- the responsible use of resources with the objective of achieving sustainable development that respects the environment and the rights of future generations;
- the evaluation of the risks of professional injury or disease so as to eliminate or at least reduce them, observing as a minimum standard the existing legislation in the various countries;
- avoidance of the use of or giving support to the use of either child labour or forced labour;
- guaranteeing equal opportunities and freedom of association; promoting the development of each individual;
- establishing and actively maintaining the procedures necessary for the evaluation and selection of contractors and sub-contractors on the basis of their commitment in the field of social and environmental responsibility;
- the involvement of all the group's organizational levels and employees, ensuring that operational responsibilities and procedures are precisely defined, appropriately communicated and clearly understood.

THE ENVIRONMENT AND SAFETY WITHIN PIRELLI

The Management Systems Approach

In 2004, Pirelli continued with an intensive programme of activities in the field of Management Systems, continuing to believe in the validity of these methods of improving the efficacy and efficiency of its processes while achieving further reductions of the impacts on the health of its employees, the conditions of safety at work and the external environment.

In 1998, an environmental management system was inaugurated that conformed to the ISO 14001 standard. Subsequently, in 2001, this approach was extended to the management of safety, with the OHSAS 18001 standard being progressively introduced to the group's operational units.

It should be underlined that there has been a significant change in the coordination activities undertaken by the committees responsible for the two management systems: at the end of 2003, the earlier Certification Coordination Committee and Environment Steering Committee were integrated to form a single new operational committee, the *Environment Safety Committee* (ESC), in order to guarantee coordination of the Environmental and Safety Management Systems at the group level.

In practice, the *new* ESC defines, updates and applies the group's standardized rules for the meeting of the certification requisites while respecting the objectives and specific characteristics of the various sectors.

The Environmental Management System: characteristics and results

The Environmental Management System adopted within the operational units of Pirelli's industrial sectors concerns the production activities, the most significant from the point of view of the potential impact on the environment, but in certain cases also includes the design, research, logistical or service activities conducted by Pirelli.

The results obtained at a group level demonstrate the suitability and efficacy of the approach adopted: by the end of 2004, over 90% of the group's operational units had been certified to the ISO 14001 standard.

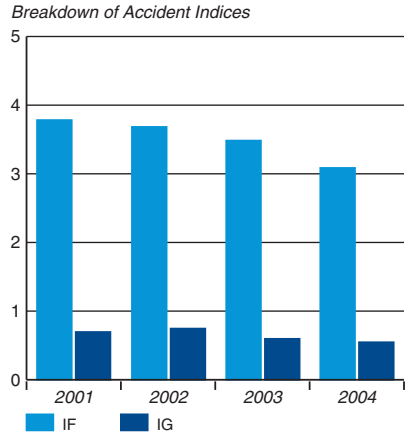
The efforts made at a group level to introduce the Environmental Management System and appropriately maintain it over time have favoured the gradual increase in awareness of, and expertise with regards to, environmental questions and, in many cases, have improved the group's environmental performance.

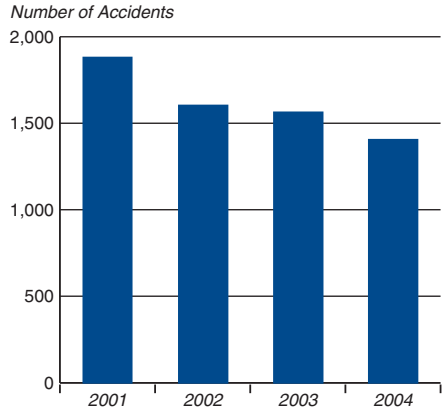
The Pirelli group's ISO 14001 certificate.

The Safety Management System: the Safety Focus programme

The actuation of the Safety Management System to the OHSAS 18001 standard was incorporated within a broader programme entitled *Safety Focus*. Departing from an initial definition of the methodologies for meeting the requisites of this standard and the operational requisites of the Pirelli Group, the programme proposes diverse tools and methodologies regarding safety training and communication within the operational units.

This programme, coordinated by ad hoc committees and having the precise aim of reducing the number and gravity of accidents, was initiated with those operational units in which the statistical trend indicated the greatest need.





$$\text{IF} = \text{Frequency Index} = \frac{\text{No. of accidents}}{\text{hours worked}} \times 100{,}000$$

$$\text{IG} = \text{Gravity Index} = \frac{\text{No. of days lost}}{\text{hours worked}} \times 1{,}000$$

Note: the data relating to 2003 and 2004 also include Pirelli Real Estate.

The experience gained over the past few years has shown:

1) the importance of this project not only in terms of the results achieved, but above all in terms of the development of safety culture at the industrial level;

2) the need to ensure that this programme is not an isolated event but the first step in a process of continuous safety training, supported and integrated with new modes of two-way communication.

It is for this reason that the company has decided to analyse the experience gained in its entirety, to verify new instruments and the realities outside the company and to develop a new project while retaining the founding principles and objective:

- To stimulate awareness of the value of safety and the importance of correct practices;
- To ensure that safety at work becomes an everyday subject, transmitting loudly and clearly the importance attributed to it by the company and therefore taking a further significant step towards excellence in the field.

Along with the prerequisites of the standard, the Safety Focus project lays particular emphasis on *training* through initiatives involving a series of workshops and the involvement of all levels of the company hierarchy.

An example of communication adopted in the Safety Focus project.

At the individual operational unit level, the objective is to explicate management's role as sponsor, reinforce the commitment to actions favouring safety and to sensitize the operational staff to ever safer working practices.

The final area of the Safety Focus programme concerns *communication*.

In this case, the objective has been to reinforce the capacity to communicate in a transparent and constructive fashion the information relating to workplace safety, integrating and completing the work undertaken in other areas.

In the development of the project relating to communication, as well as a number interesting internal initiatives use was also made of the manual relating to the *Campaign for Safety and Health at Work* compiled by the European Agency for Safety and Health at Work on the basis of an investigation conducted throughout Europe.

The frontispiece of the "Campaign for Safety and Health at Work" developed by the European Agency for Safety and Health at Work.

Both the Tyre sector and the two Cables and Systems sectors have decided to use specific logos to distinguish all the initiatives associated with the safety management systems activities.

The Tyre sector safety slogan.

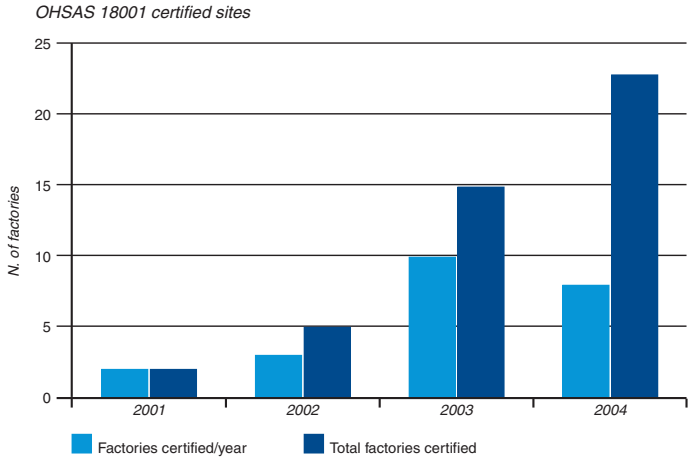
The Tyre sector chose the slogan "*Safety is nothing without control. Let's work together*", to identify all the initiatives connected with the programme, paraphrasing one of the most famous slogans from the sector's advertising campaigns.

The logo features Leonardo's Vitruvian man depicted within a stylised tyre in order to highlight the centrality of the individual and the depth of the programme itself in terms of contents.

The slogan chosen for the *Cables and Systems* sector was instead "*Success is no accident*", picking up on the well-known slogan adopted by the European Agency for Safety and Health at Work a number of years ago.

The Cables and Systems sector safety slogan.

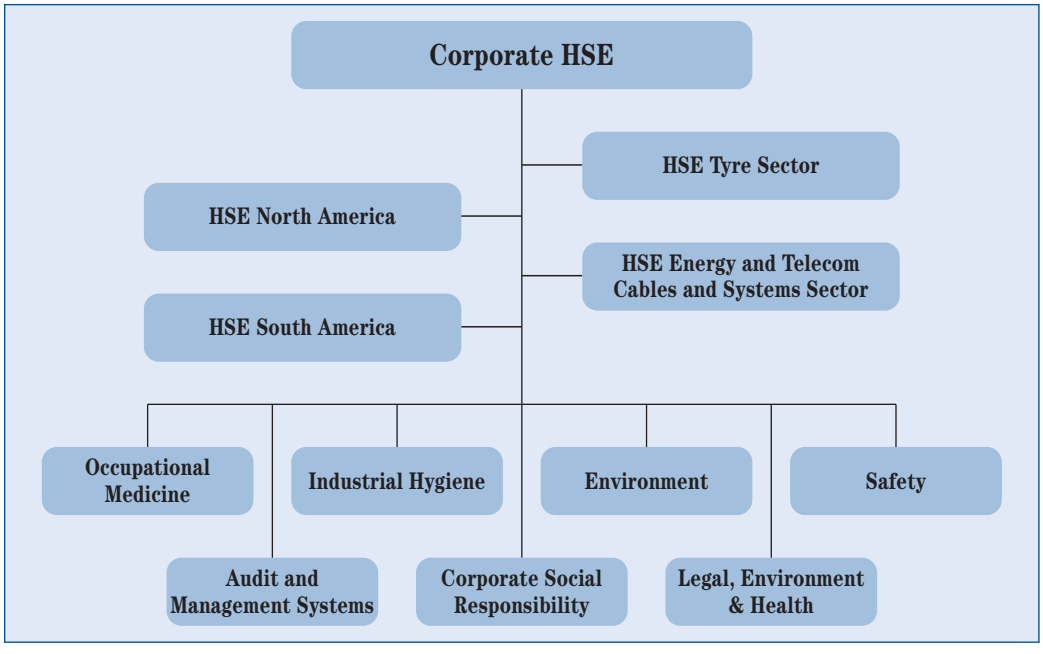
The above has without doubt contributed a notable impetus to the activities required for the OHSAS 18001 standard certification, as can be seen in the following diagram.



Organization of the HSE structures

In order to respond to the requisites of the group's new policy, during 2004 the corporate Health Safety and Environment division (which retains responsibility for direction, coordination and verification as well as representing a centre of excellence for the resolution of particularly complex technical and/or managerial problems) also took on the duties relating to Corporate Social Responsibility.

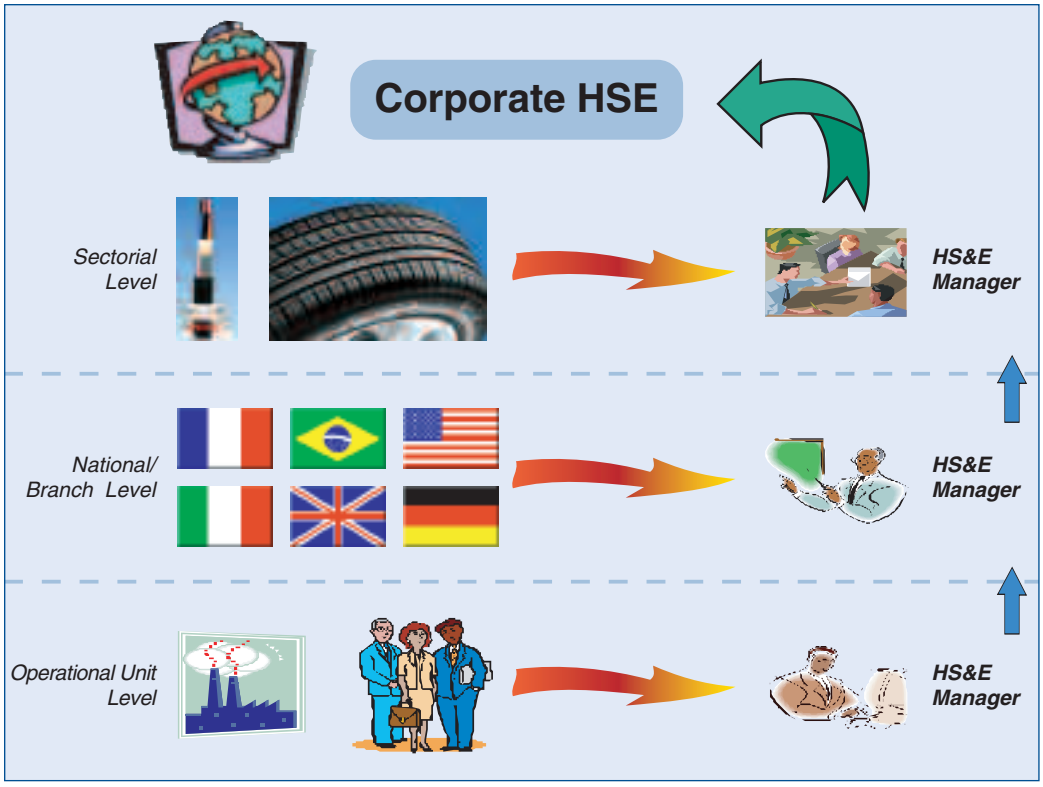
The corporate HSE management structure



In certain geographical areas of significance to the group (in particular, North and South America), specific HSE offices have been operational for some years now, reporting to the corporate HSE management, as do the sectorial HSE departments structured around national and operational unit HSE offices.

As well as performing specific auditing activities, the Corporate HSE management is responsible for updating the General Management of the various sectors with regards to the latest information, promoting – among other activities – the exchange of experience and knowledge regarding the environment, health and safety.

Diagram of the organizational structure of the Pirelli e C. S.p.A. Corporate Health, Safety and Environment offices



The sectorial structures reporting to the operational management of the various sectors and the Corporate HSE management are entrusted with the role of adapting the directives of the centre to the specific operational conditions of the industrial units, guaranteeing their implementation through the operational unit or national HS&E offices.

The operational unit (and/or national) HSE offices are generally located within the manufacturing or human resources areas, and currently have a staff of around 150 HSE specialists.

CORPORATE SOCIAL RESPONSIBILITY

The concept of Corporate Social Responsibility is defined in the European Commission's Green Paper published in 2001 as "the voluntary integration by companies of social and ecological issues within their commercial operations and their relations with stakeholders".

The performance of a company cannot, therefore, be considered in purely economic terms, but should also be seen in light of the contribution made to the quality of the environment and the social system through an awareness of the existing links between the economic, social and environmental spheres and the repercussions that a decision taken in one has, to a greater or lesser extent, on the others.

As already mentioned, for some years the Pirelli group has been developing an environmental management system based on the international ISO 14001 standard and a safety at work management system based on the international OHSAS 18001 standard. Pirelli is, therefore, well aware that "sustainability", understood as the management of the company in such a way that current objectives are achieved while respecting the environmental, economic and social rights of future generations, represents a unique opportunity rather than a restriction.

The "pillars" of Corporate Social Responsibility.

The decision taken by Pirelli, which has industrial plants throughout the world, was that of considering the theme of Corporate Social Responsibility (CSR) in a comprehensive, organic fashion, departing from the true comprehension and significance of the parameters commonly used.

For this reason, the debate initiated within the group has concerned not so much the valuation of the parameters relating to the environmental and safety at work aspects (now adequately clear and well defined at the international level), but rather those concerning the social aspects.

Taking into account the organizational complexity and the geographical distribution of the group's productive sites, Pirelli has tackled the issue organically. 2004 was devoted to organizing a central government structure (the Corporate Social Responsibility Steering Committee) composed of the *Administration and Control* general management, the *Public and Economic Affairs* management, the Personnel management, the Investor Relations management and the Corporate Health, Safety & Environment management. The task of the steering committee is to guide operational developments and evaluate new initiatives inspired by the international CSR principles.

In concrete terms, following the guidelines dictated by the international SA 8000 standard (relating to respect for human rights, protection against the exploitation of children, respect for workers' rights and guarantees of safety and wellbeing in the workplace), in 2004 the Pirelli group conducted an internal audit.

The results are currently being evaluated with the aim of identifying opportunities for improvement.

The group's participation in the Global Compact (an international network under the aegis of six United Nations agencies) may also be seen in this context. The Global Compact is intended to promote responsible corporate citizenship in such a way as to permit the business world to contribute to finding solutions to the challenges of globalization.

Through a letter to the Secretary General of the United Nations, the Pirelli group has formalized its commitment to uphold the "ten principles" relating to human rights, labour, the environment and the fight against corruption.

The letter confirming Pirelli's participation in the Global Compact.

These principles – reproduced below – are universally shared in that they derive from the *Universal Declaration of Human Rights*, the *International Labour Organization's Declaration on Fundamental Principles and Rights at Work*, the *Rio Declaration on Environment and Development* and the *United Nations Convention Against Corruption*.

The Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labour standards, the environment, and anti-corruption:

- Human Rights

Principle I: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle II: make sure that they are not complicit in human rights abuses.

- Labour Standards

Principle III: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle IV: the elimination of all forms of forced and compulsory labour;

Principle V: the effective abolition of child labour; and

Principle VI: the elimination of discrimination in respect of employment and occupation.

- Environment

Principle VII: Businesses should support a precautionary approach to environmental challenges;

Principle VIII: Businesses should undertake initiatives to promote greater environmental responsibility; and

Principle IX: encourage the development and diffusion of environmentally friendly technologies.

The six United Nations agencies involved in the Global Compact.

- Anti-Corruption

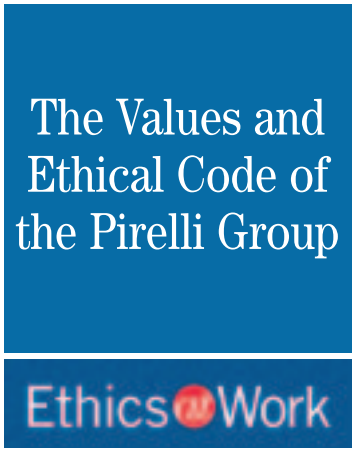
Principle X: Businesses should work against all forms of corruption, including extortion and bribery.

The Values and Ethical Code of the Pirelli Group

With the objective of providing an even stronger and more homogenous focus for the professional practices actions within the life of the company, a document relating to the Pirelli group's *Corporate Code of Ethics and Values* has recently been published, translated into 14 languages and distributed to all the company's employees.

Moreover, in observance of Italian Legislative Decree No. 231 of the 8th of June 2001, the so-called Organizational Model has been distributed throughout the Italian firms through targeted training initiatives. On the basis of the principles contained in the *Code of Ethics*, the Organizational Model coherently revises the processes and procedures used by the companies within the group.

The Organizational Model was approved by the Pirelli & C. S.p.A. board of directors.



The cover and first page of the Pirelli group's Code of Ethics that lends homogeneous definition to company life.

No Smoking Company

In the June of 2003, a letter from higher management to all CEOs announced the firm's decision to become a "*No Smoking Company*", in the interests of both smokers and non-smokers.

This decision, communicated to all employees, is part of Pirelli's policy of protecting the health of its workers in every country in which the group operates.

Posters have thus been placed at the entrances to the factories and in the offices reminding employees and informing of the step taken.

In some branches, the smoking ban had already been in effect for some years; elsewhere it working groups had to be formed to define the details of applying the policy.

In many cases firms opted for an outright ban, in others appropriately equipped areas have been provided for smokers.

Specific training/didactic initiatives have also been set up to illustrate the damage caused by smoking through:

- the distribution of leaflets drafted in collaboration with institutions devoted to fighting the effects of smoking;
- conferences on tobacco addiction, the first step to supporting smoking employees who wish to give up;
- periodical publication via the Intranet of questionnaires on smoking, its motivations and costs and nicotine addiction.

One of the "No Smoking Company" campaign totems.

One of the leaflets illustrating the risks of smoking.

The Partnership with "Children in Crisis"

The gulf between wealth and poverty is notoriously wide, above all when the developed countries are compared with those of the so-called Third World: levelling the differences is a long and arduous task involving complex issues of various kinds such as politics, economics and social culture…

However, by making even a limited contribution we can all do something and it is in this context that Pirelli has established a partnership with the not-for-profit association "Children in Crisis", a charitable body founded by Sarah Ferguson, Duchess of York, in Great Britain in 1993.

The primary objective of the association is to improve the quality of life of those children victims of conflict, poverty, disease or other situations of serious hardship, wherever there is need, working with the local communities to provide education, medical assistance and protection.

Normally, Pirelli's sponsorship was used by Children in Crisi to finance various on-going projects, but from this year it has been decided to create a true partnership, reflecting the group's international nature. By supporting the association, Pirelli intends to help it get its message across, stimulating ordinary people to take an interest in their initiatives in favour of children throughout the world.

The logo of "Children in crisis" Association.

The Progetto Donna

The "*Progetto Donna*" an expression of Pirelli's broader policy regarding equal opportunities, has the aim of ensuring that women have the greatest possible opportunity for professional growth at all levels within the group and providing support for the most efficient management of diversity.

The project involves awareness campaigns through training and internal communication, periodic checks on the equity of gender treatment in the management of human resources and initiatives favouring the return to work of women following maternity.

ENERGY CABLES AND SYSTEMS SECTOR

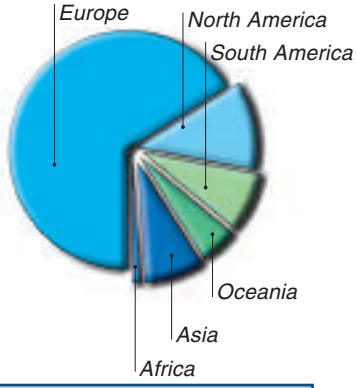
Presentation of the sector

The Energy Cables and Systems sector produces a vast range of electrical cables (from those for low, medium and high voltages to cables for data transmission, cables for robotics and special-purpose cables…), components and accessories, offering the market an integrated range of products and engineering services (cabling, "turn-key" installations, submarine systems and so on).

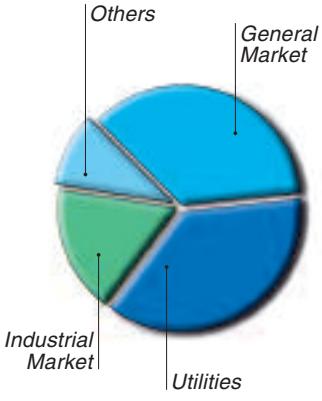
The consolidated turnover of the sector as at 31.12.2004 (the distribution of which is illustrated in the graph below) generated sales to the value of € 2,888 million, with an increase of 9.5% compared with the previous year.

The fields in which the products of the Energy Cables and Systems sector are used principally consist of:

- the generation, transportation and distribution of electrical energy;
- the powering and control of industrial plants, railway lines, petrochemical and extraction installations, infrastructures and offshore platforms;
- the equipping of machinery, ships, lifting systems, rolling stock, machine tools and domestic appliances.



Energy Cables and Systems: 2004 sales by geographical area and product category.



In terms of geographical area and product type, sales were distributed as follows:

Geographical Area	2004	2003
Europe	67%	66%
North America	12%	12%
South America	8%	8%
Oceania	5%	5%
Asia	7%	8%
Africa	1%	1%

Product Category	2004	2003
General Market	36%	32%
Utilities	37%	42%
Industrial Market	17%	18%
Others	10%	8%

In this report we have taken into consideration 49 operational units (including four that are involved in "mixed" production and are therefore shared with the Telecom Cables and Systems sector), naturally identified in accordance with the criteria outlined above. These operational units are distributed geographically across four continents as follows:

– 36 operational units in Europe,

– 3 in North America,

– 5 in South America,

– 5 between Australia and Asia.

As of 31 December 2004, the sector had 10,385 employees, with a reduction of around 360 units with respect to 2003.

Terrestrial Systems Research and Development: testing completed after the laying of the Barajas cable.

As was the case with the previous report, this year too we have identified three production categories with homogeneous characteristics in terms of industrial process and consequent environmental impact:

- Energy cables,
- Wire rod,
- Accessories.

In the following paragraphs we have illustrated the principal features of these three categories. Please see the Quantitative Data appendix of this report for quantitative information regarding the environmental impact indicators taken into consideration for the Energy Cables and Systems sector.

As at 31 December 2004, 41 Energy Cables and Systems sector operational units were ISO 14001 certified, while three were certified in accordance with the OHSAS 18001 safety management system.

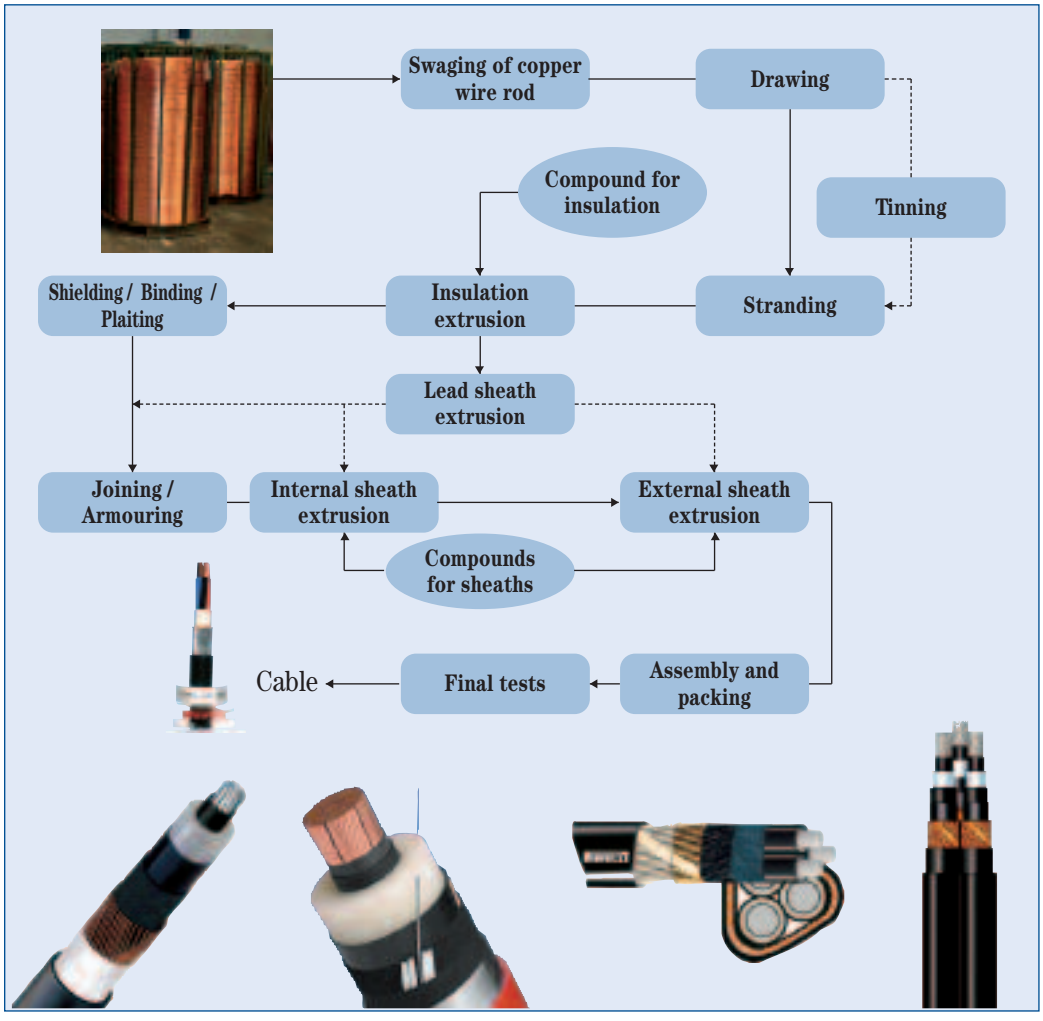
Production of energy cables

As mentioned above, the Energy Cables and Systems sector produces a vast range of cables for the carrying of very high to low voltage energy, for terrestrial, submarine and overhead applications.

In general terms, the principal phases in the process of producing an electrical cable are summarized in the following diagram, in which a number of procedures are indicated (with a dotted line) that are not relevant to every type of cable production.

Pirelli Energy Cables and Systems is to upgrade the Singapore power grid.

Principal phases in the production of an energy cable



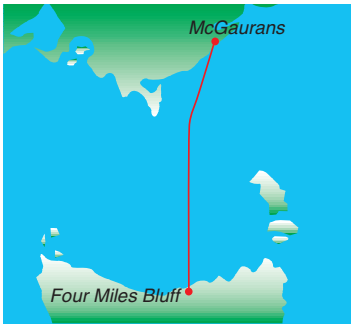
Submarine Energy Cables and Systems

Over the last 20-30 years, there has been increasing use of submarine cables for carrying energy. In short, there are four factors that have contributed to this development:

- The rapidly increasing demand for electrical energy: in the middle of the last century demand actually doubled every ten years.

  Currently, the rate of growth has dropped, although it is still significant in the industrialized nations and is still considerable in the developing nations.

- The energy crisis, in that the increase in the price of oil in the 1970s accelerated two long-term trends: the tendency to construct ever more powerful stations to improve generating efficiency and the tendency to interconnect existing grids in order to share reserve capacities and consequently rationalize the efficiency of utilisation of the existing capacity.



The Australian Basslink contract for the link between Tasmania and the State of Victoria remains one of the main projects occupying the Centre for Stratified and Submarine Technologies.

The two factor have led to an increase in the demand for high voltage transmission, which has in turn meant the installation of aerial and subterranean cables, and submarine cable where stretches of sea had to be crossed.

Other factors associated with the use of these cable are as follows:

- The environmental impact, which has recently led to a search for sources of clean and renewable energy such as hydroelectric and geothermal power, frequently found on islands far from the centres of consumption.

  This fact necessitates the use of submarine cables, often of great length and high voltage and at times laid at unprecedented depths.

- Offshore extraction, in that the oil crisis of the 1970s led to an acceleration in the search for and production of submarine oil and natural gas.

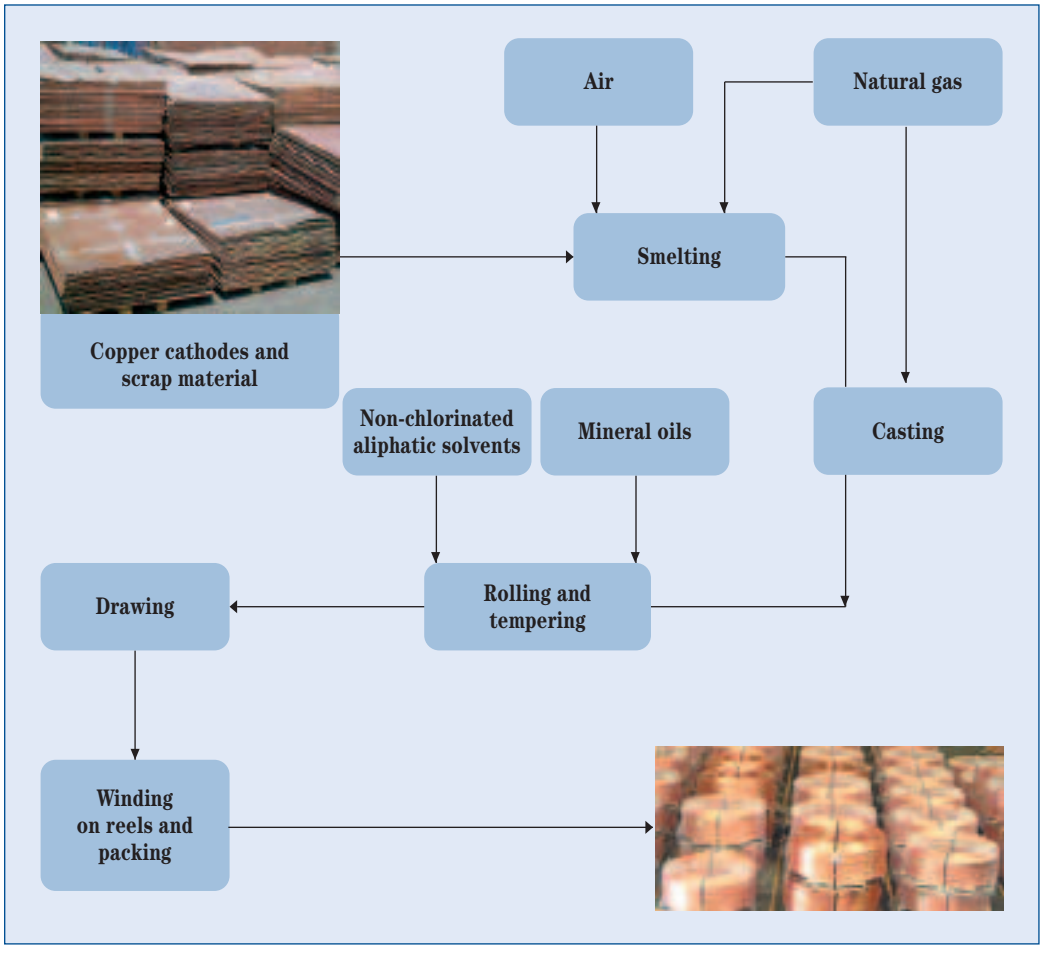
  This has also led to a significant increase in the use of medium voltage submarine cables and a demand for highly advanced cable and accessory technology.

Production of copper wire rod

Copper wire rod (used in the manufacture of the conductors of the energy cables and, in part, for the transmission elements in telephone cables) is produced in the group's three plants located at Jacarei (Brazil), Prescot (Great Britain) and Quilmes (Argentina).

In industrial terms, the production of copper wire rod follows a fairly "standard" model, the principal phases of which are shown below.

Principal phases in the production of copper wire rod



Production of accessories

Within the context of production activities associated with Accessories, there is a vast range of solutions supplied to clients, above all within the ambit of the "High Voltage" projects and in particular with regard to joints and glands for offshore installations, but also the casting and turning of metals, the production of resins, the assembly of joints and the preparation of joint kits.

Joint for a high voltage system.

As was the case with the 2003 Report, and even though accessories are also produced by other operational units, the separate environmental data contained in the Appendix refer only to the plants at Bishopstoke and Prescot (Great Britain), Livorno (Italy) and Neuf Prè (France).

As was the case with the 2003 report, due to the diverse and variable nature of these activities, in the Quantitative Data appendix an absolute value alone has been indicated rather than environmental indicator values per product units.

The Gron plant in France where accessories for ultra-high voltage cables (380 kV) are produced.

Research and Development in the Energy Cables sector

In line with the company's constant attention to respect for the environment, in 2004 research and development activities again continued to focus on the introduction of high technology products with minimal environmental impact.

Around 300 people were involved in these activities that accounted for investments of around 32 million Euros; in this context, the sector's research and development continued to operate with the dual objectives of reducing product costs and introducing technological breakthroughs in segments with high added value (high voltage, ultra-high voltage, submarine and special and industrial cables).

In 2004, the company continued to work with both university bodies and consortia (Milan Polytechnic, the University of Bologna, the University of Naples and the University of Stuttgart) and the group's own research and development centres.

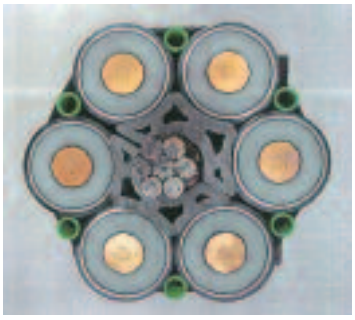
A number of the major projects conducted in 2004 are described in the following table:

Technological Centre	Activity
Extruded Systems Technology Centre	• Development of cables with an Airbag™ Polilam composite protection system capable of resisting mechanical stress in chemically aggressive environments
	• Technological implementation of "Compact" insulation for the production of high and ultra-high voltage cables in China
	• Development of an electrical connection system for industrial automation through and cable with non-conventional geometry ("Roundflat")
	• Study of the rheology of extrusion systems for the production of ultra-high performance LS0H ("Low Smoke Zero Halogen") cables
Multi-purpose Modules Centre	• New technology for fire-resistant cables
	• Development of compounds for high temperature cable (in the transport field)
Experimental Electrical Laboratories Centre	• In the field of submarine systems, ratification of the 500 kV system ("Neptune Project")
	• Ratification of the extruded insulation 200 kV system

Furthermore, with regard to the activities of the **Power Networking** research centre, mention should be made of:

Optopower™: the development of a system for monitoring and managing transmission systems such as the one developed for Madrid's Barajas airport and within the ambit of the realization of the "Basslink" submarine cable between Australia and Tasmania.

Network Components: production of cable, joints and terminals for the 400 kV class continued, with application in the Wienstrom system in Vienna where cross-city links were created with high reliability buried Compact™ Cable Systems.



Cable with tubes for the housing of optical monitoring sensors (Optopower™) incorporated in the structure.

Also worthy of mention is the extension of the existing range of LSOH AFUMEX™ cables destined for industrial uses in mechanically hostile environments (heavy industry, subways, etc…) to include the so-called building wires, medium and high voltage cables for special installations (wells and so on…).

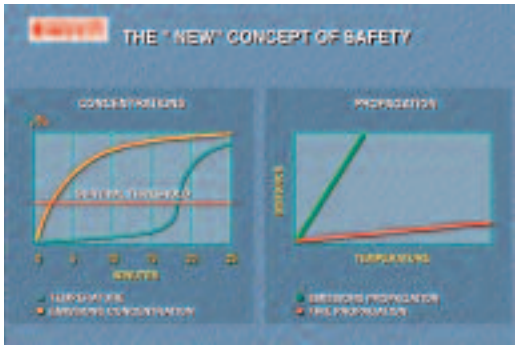
The advantage of these cables lies in the elimination of those halogenated polymers and additives used as protection against the propagation of fires, without sacrificing the level of fireproofing.

In this way, in the case of fire, no toxic or corrosive gases are produced (for example, HCl and HBr), while the formation of dense smoke is prevented, allowing people affected by the fire to be evacuated swiftly.

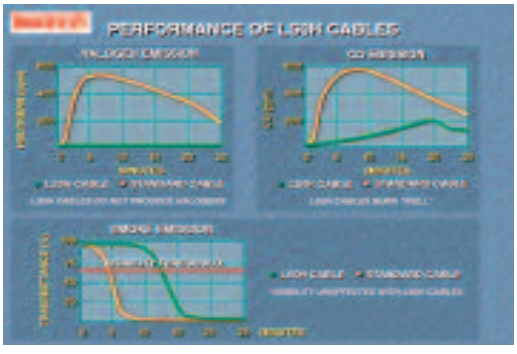
In order to evaluate the performance of AFUMEX™ cables from the point of view of emissions, Pirelli subjected them to a number of laboratory tests, comparing them with standard cables.

In particular, diverse "fire models" were adopted in order to obtain results that were as independent as possible from the test methodology. The emissions were analysed with the mass spectrometer method and the results were tabulated in order to evaluate the increase in the concentrations over time; time is, in fact, the most significant parameter for identifying the potential dangers of emissions.

CONCENTRATIONS: in the case of fire, the temperature rises much more slowly than the concentration of toxic substances, which may reach dangerous levels very rapidly.



The "new" concept of safety.



Performance of LS0H cables.

PROPAGATION: smoke and gas constitute a significantly greater danger than fire, propagating swiftly and for great distances.

HALOGEN EMISSIONS: LS0H cables do not emit halohydric acids because they are virtually free of halogens. This means that the highly toxic and corrosive effects associated with such substances are avoided.

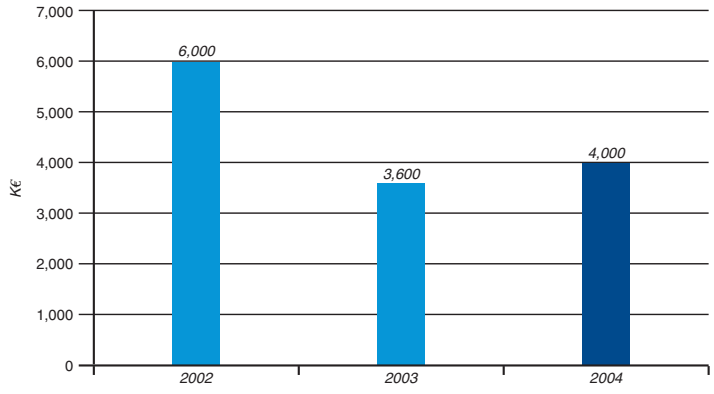
CO EMISSIONS: given its elevated toxicity and the fact that it is always present in great quantities, carbon monoxide is considered to be the principal cause of death in the case of fires. In this type of cable, the emission of CO is ten times lower than with standard cables.

SMOKE EMISSIONS: the thick, opaque smoke that is emitted during fires not only drastically reduces the possibility of escape, but also hampers the work of rescue teams. The use of LS0H cables allows optimum visibility to be maintained for long periods.

In the context of the use of substances and products that are ever less hazardous for human health and the environment, the establishment of a programme to progressively replace the lead compounds used as additives in PVC-based compounds for low and medium voltage cables is also worthy of mention and has resulted in the elimination of such substances in 75-80% of the compounds in question.

Lastly, in recent years there has been a significant commitment by the sector in terms of investments intended in improving the safety conditions in factories and controlling/minimizing environmental impacts.

HSE Investments in the Energy Cables and Systems Sector



TELECOM CABLES AND SYSTEMS SECTOR

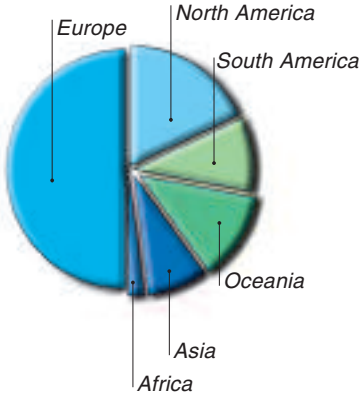
Presentation of the sector

A strong emphasis on research is the great strength of a sector focussing on design and production excellence.

Pirelli's long history in the telecommunications sector dates back to 1879, with the production of the first telegraph cable in the factory in Milan: since then, during the course of a century of growth and innovation, Pirelli has become a worldwide leader in the supply of products for telecommunications networks.

The consolidated turnover of the sector as at 31.12.2004 (the distribution of which is indicated in the following table) saw sales amounting to € 430 million, a slight increase (+0.7%) with respect to 2003.

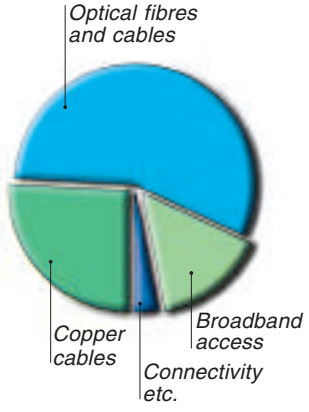
The distribution of sales was as follows:



Product Category	2004	2003
Copper cables	26%	24%
Optical fibres and cables	56%	53%
Submarine cables	–	13%
Broadband Access	15%	7%
Connectivity etc.	3%	3%

Geographical area	2004	2003
Europe	50%	50%
North America	20%	18%
South America	8%	10%
Oceania	12%	12%
Asia	9%	8%
Africa	1%	3%

Telecom Cables and Systems: 2004 sales by geographical area and product category.



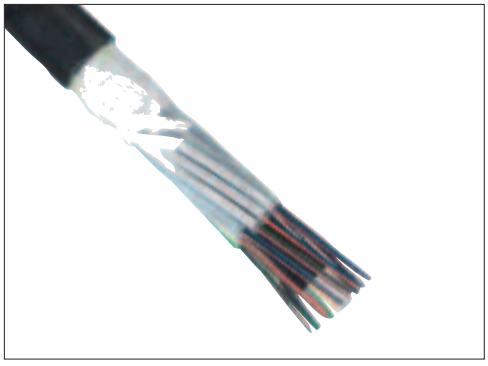
This report takes into consideration 10 operational units (all certified to the ISO 14001 standard, with one also certified to the 0HSAS 18001 standard), identified on the basis of the criteria mentioned above and with the following geographical distribution:

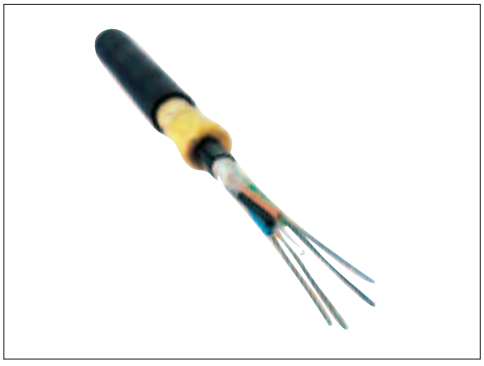
- 5 operational units in Europe, of which one wholly dedicated to the production of optical fibres;
- 1 in North America;
- 2 in South America;
- 1 in Australia;
- 1 in Asia.

As at 31 December 2004, the personnel numbered 2,058, with a decrease of 160 units with respect to 2003.

As with the Energy Cables and Systems sector, for the purposes of this report two types of production were identified with homogeneous characteristics in terms of industrial processes and consequent environmental impact:

- "Telecom Cables and Systems",
- "Optical Fibres".





In the optical cables category products have been developed that are particularly resistant to tension, pressure and the propagation of water.

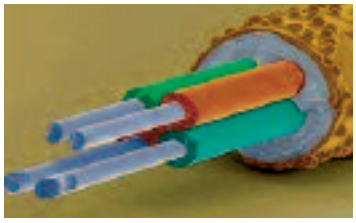
The principal characteristics of these two categories are illustrated in the following paragraphs. Please see the "Quantitative Data" appendix for statistical information regarding the environmental impact indicators taken into consideration.

The Mudanya factory (Turkey), an important industrial plant for the production of telecom cables.

Production of telecom cables

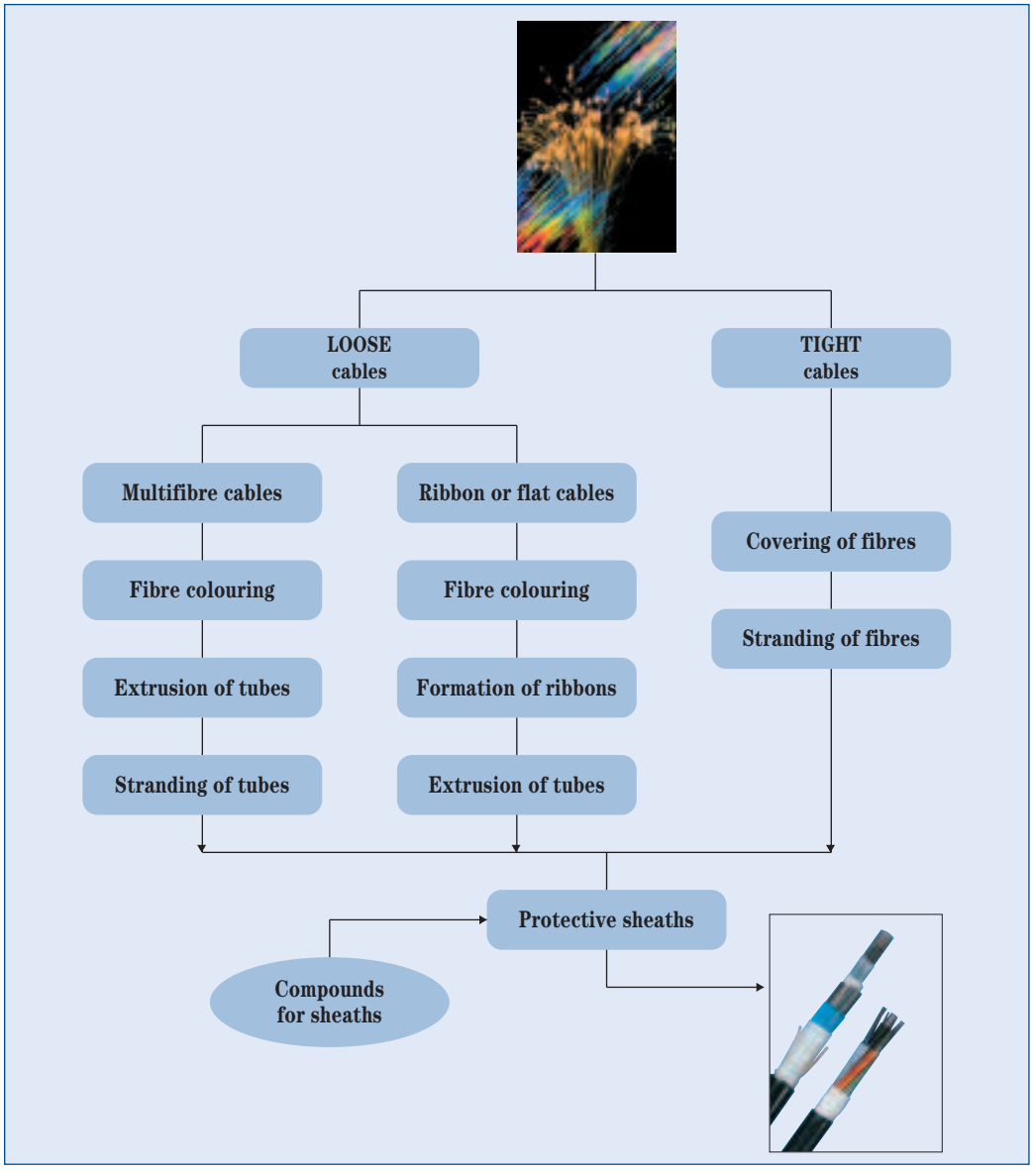
While there are a number of different processes according to the type of cable and its function, the following diagram illustrates the principal phases in the production of a fibre-optic telecommunications cable.

This report considers 9 operational units dedicated to the above-mentioned production activities.



The Blown Fibre Sirocco™ system.

Principal phases in the production of fibre-optic cables for telecommunications



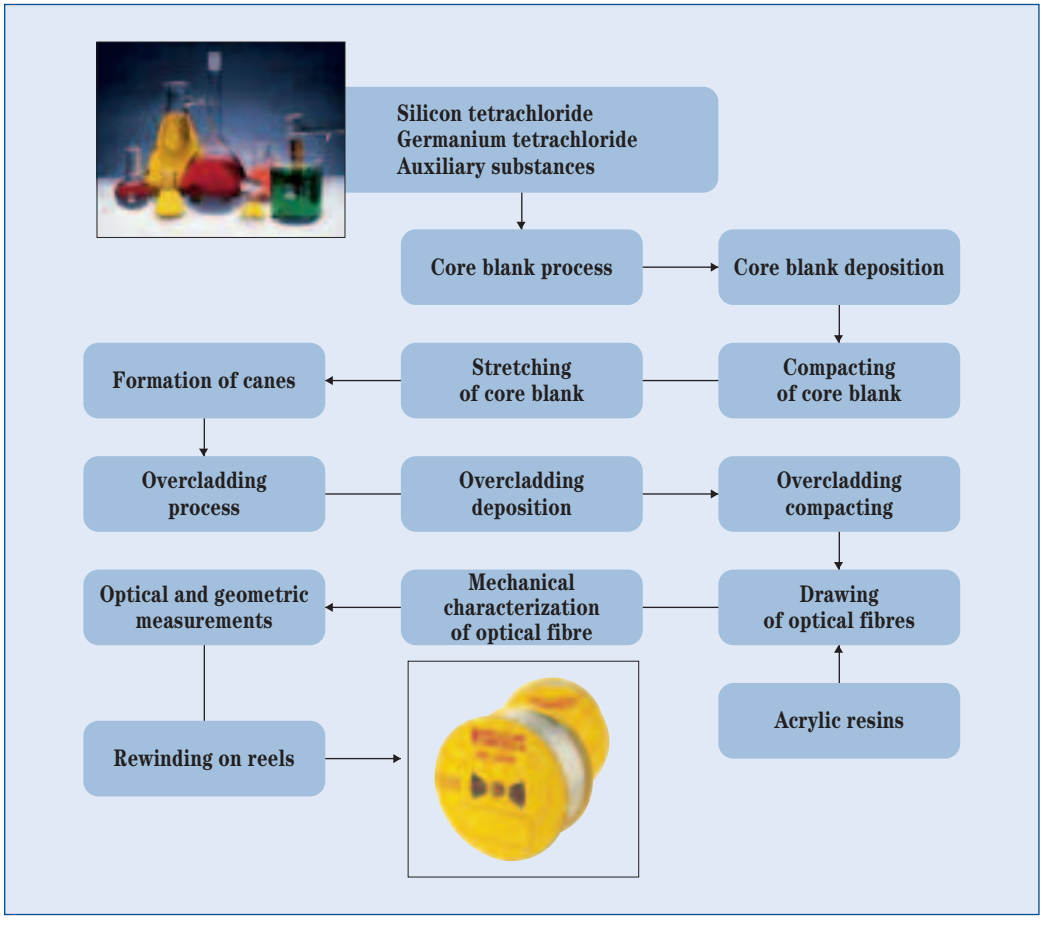
Production of optical fibres

The market for cables – both optical and copper – continued to be depressed and as a consequence, the demand for optical fibre was affected by the trend in the demand for telecom cables, translating into, above all, notable pressure in terms of product types.

In 2004, the Pirelli group again had two production units working in this sector, one at Sorocaba (Brazil) and one at Battipaglia (Italy), both certified to the ISO 14001 standard.

A phase in the production of optical fibre.

Diagram of Optical Fibre Production



Research and Development in the Telecom Cables sector

During 2004, research and development in the sector was conducted by an integrated network of research centres and development and engineering units in various countries.

Over 110 people were involved in activities that accounted for investments of around 25 million Euros, the equivalent of 6% of sales in the sector.

In the field of optical fibre production, an example of development aiming at applications in the distribution network was represented by the work on optical fibres with lower than normal coating diameters (200 µm instead of 250 µm), providing a significant saving in terms of prime materials and an increase in the quantity of fibre that can be inserted into a particular optical cable.

Research also focussed on the development of products associated with the “BBA” (Broad Band Access) distribution network.

One particular example of this activity is represented by the development of a product capable of providing “Triple Play” distribution (TV, Internet and Voice) that is also particularly suitable for the transmission of analogue signals (for example, analogue TV transmission via cable).

The improvement in performance in terms of both product (optical properties) and process (production efficiency) continued with the MagniLight fibre.

TYRE SECTOR

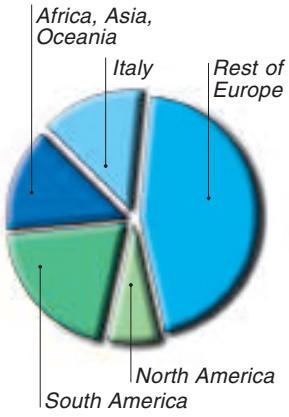
Presentation of the sector

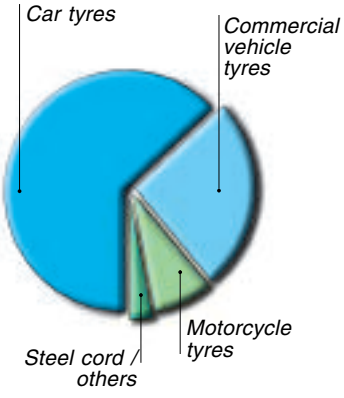
The Tyres sector operates 22 plants with over 21,500 employees (as at 31 December 2004) in Argentina, Brazil, Egypt, Germany, Great Britain, Italy, Spain, the United States, Turkey and Venezuela, flanked by a global sales network covering over 120 countries. The company is one of the five largest tyre producers in the world with a turnover in 2004 of 3,255 million Euros (an increase of 9.6% with respect to 2003).

The product range, one of the industry's most comprehensive, includes tyres for cars (standard, high performance and sport), industrial vehicles, buses, motorcycles and other two-wheeled vehicles, while the sector also produces a significant quantity of metal cord used principally as structural reinforcement in the tyres.

From a technical-technological point of view, the company has always enjoyed international leadership, making a significant contribution to the performance and qualitative evolution of the products. Similar progress has also been made in terms of production technology: with a broad-based investment plan, the group's factories have been transformed over the last few years, with the widespread introduction of third generation automated processes.

Sales were distributed as shown in the table below and the graphs on the right.





Tyres: 2004 sales by geographical area and product category.

Geographical Area	2004	2003
Italy	13%	14%
Rest of Europe	43%	45%
North America	8%	7%
South America	23%	21%
Africa / Asia / Oceania	13%	13%

Product Category	2004	2003
Car tyres	62%	62%
Commercial vehicle tyres	28%	27%
Motorcycle tyres	7%	8%
Steel cord / others	3%	3%

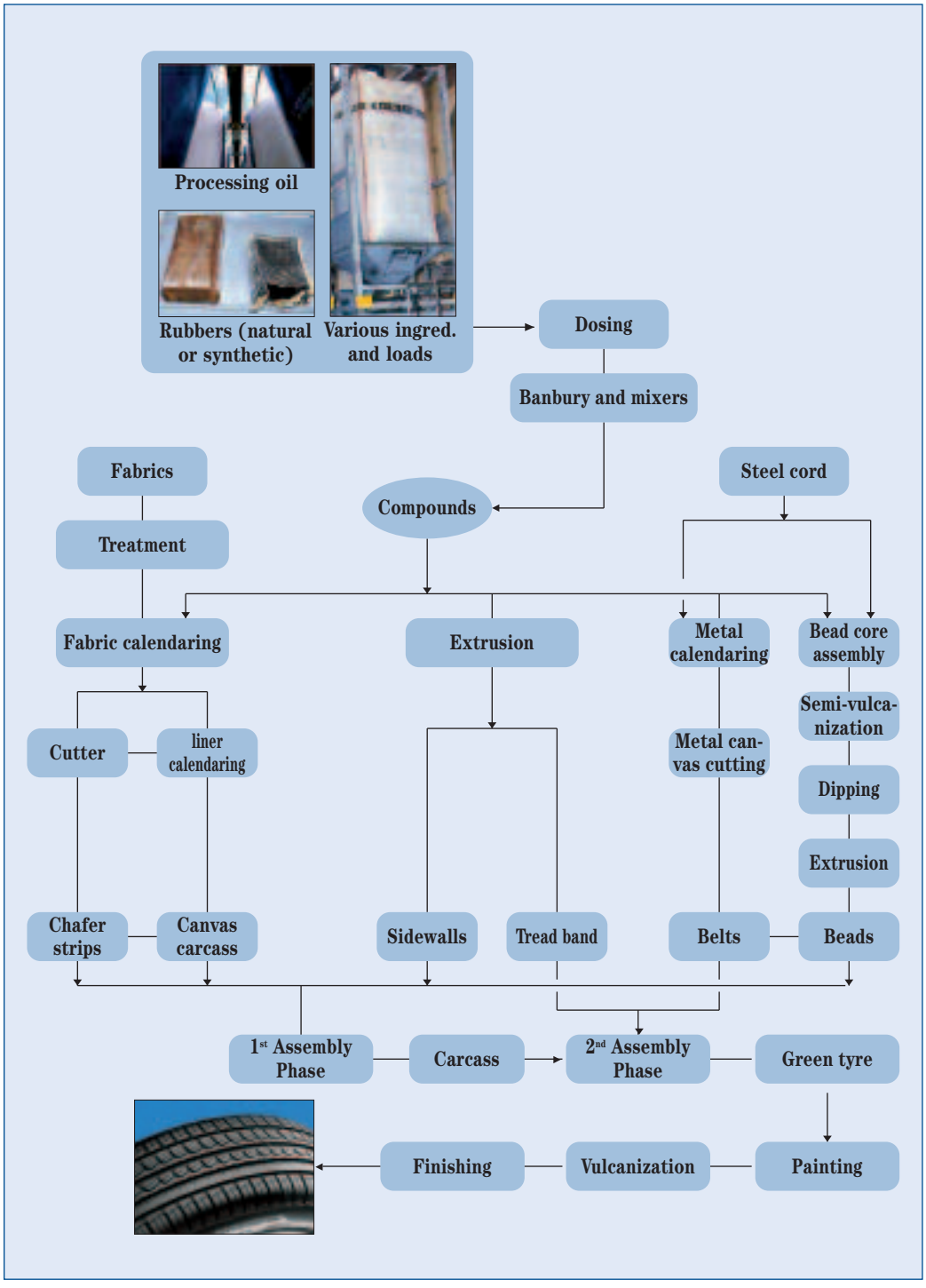
It should be pointed out that in this report 21 operational units have been taken into consideration (15 producing tyres, 1 producing compounds, 4 producing steel cord and 1 producing vulcanizing bladders), subdivided into two production categories: tyre production and steel cord production.

The following paragraphs present the principal characteristics of the two categories, while the quantitative data relating to the environmental impact indicators are, as with the other sectors, collated in the Quantitative Data appendix.

Production of tyres

The following diagram illustrates the principal phases of a standard process relating to the production of a car tyre.

Diagram of standard tyre production



Within the ambit of tyre production, mention has to be made of the MIRS™ technology ("*Modular Integrated Robotized System*"), with which Pirelli has totally revolutionized traditional tyre production technologies and processes.

The new process is based on the concept of highly flexible *production modules* (capable of producing a single tyre per size), which may be strategically located according to the demands of the reference market.

At a speed unprecedented in this production sector, the work conducted by the robots covers the entire production cycle with no interruptions, no part-finished goods to be shifted nor intermediate stocking phases, and with no wastage of energy.

The MIRS™ robots are capable of building a tyre every three minutes. This permits the average transit time for the materials from the material store to the finished product store to be reduced from the six days of the traditional process to the 72 minutes of the MIRS™ process.

In terms of process, the MIRS™ technology permits significant optimization of the productive phases, passing from the 13-14 phases normally involved in the production of tyres to just three:

- preparation of the part-finished components,
- building-vulcanizing,
- finishing.

In practice, integrated software controls all production phases: the movements of the robots, the automatic supply of materials, the choice of tyre size and therefore building drum, the building of the tyre, the vulcanization, the quality control and the stocking of the finished product.

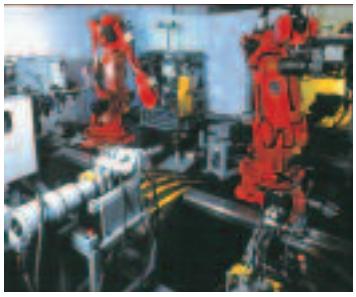
This software is itself part of a global programme that, upstream of the manufacturing phase, presides over the engineering process through to the initial design.

This architecture is unique and, from the definition of the product specifications, automatically determines the design of the mould, the choice of materials and the design of the building drum.

The MIRS™ logo .

A phase in the MIRS™ process.

This innovative production technology allows Pirelli to offer a product that is radically innovative in terms of its structural composition.

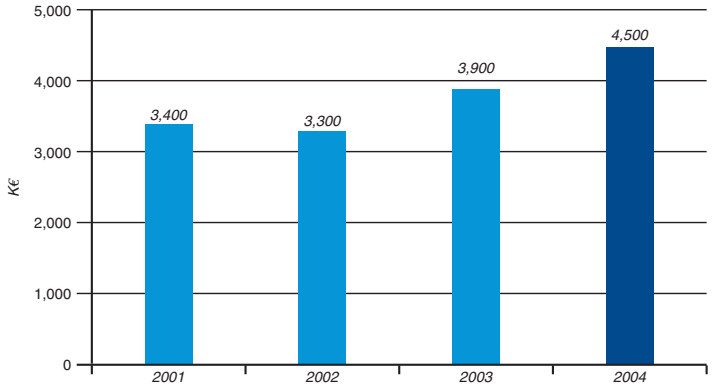


MIRS™ technology.

The elimination of factors of discontinuity in fact allows the qualitative parameters of reference for the product to be redefined given that every discontinuity, every human intervention, constitute potential opportunities for product deformity, from the thermal shocks suffered by part-finished goods during moving and stocking to the presence of building joints and through to uneven thermal distribution during vulcanization.

As shown in the graph below, 2004 saw confirmation of the commitment demonstrated over the last few years to investment in improving the conditions of safety in the factories and controlling/minimizing environmental impacts.

HSE investments in the Tyre Sector



It should also be pointed out that the above graph does not take into consideration investments relating to Loss Prevention, which are also of significance in terms of safety and the environment.

In the field of "Safety", another important initiative concerns the decision to adopt – as the sectorial standard in those countries in which the group is present – of European Directives 89/392/EC and 98/37/EC (referring to the reconciliation of the member states' legislation relating to machinery) for all machinery and plant acquired or produced.

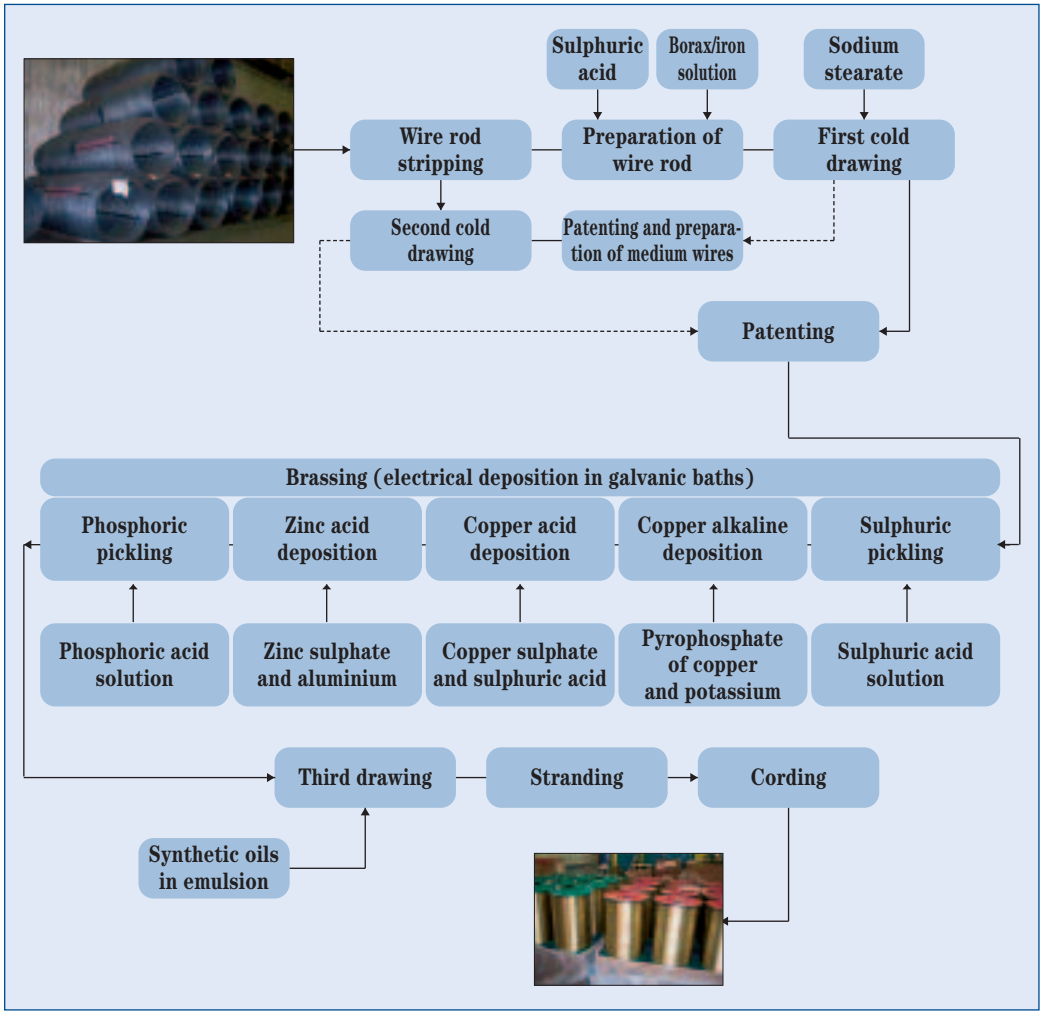
Production of steel cord

As mentioned above, steel cord is a part-finished product used both in the production of tyres and in metal fabrics and bead cores.

Currently, steel cord production takes place in 4 operational units, located at Figline Valdarno (Italy), Izmit (Turkey), Merzig (Germany) and Sumarè (Brazil).

The following diagram illustrates the principal phases in a standard steel cord production process.

Diagram of steel cord production



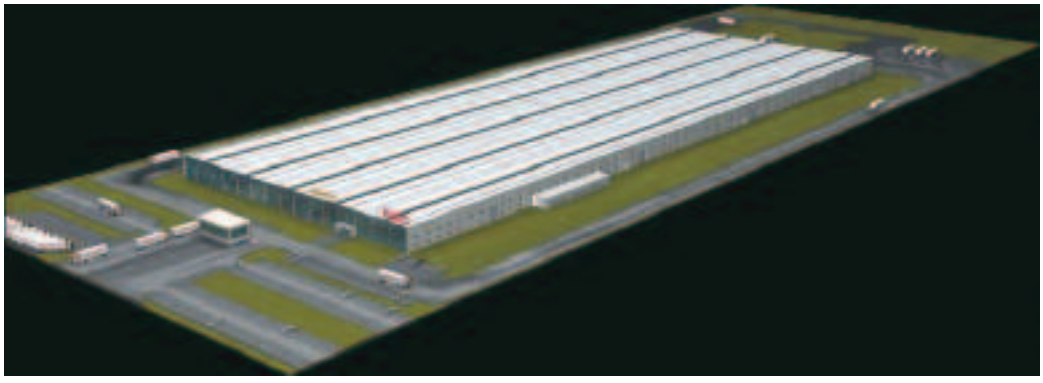
Within the ambit of the Steel Cord business unit, it should also be pointed out that in the month of October the operation was defined that led to the creation of a joint venture for the production of steel cord in Romania, with Pirelli holding 80% and Continental 20%.

The joint venture, S.C. Cord Romania S.r.L., will be directly responsible for the building of a new plant at Slatina that will serve the rapidly expanding markets of Eastern Europe.

The joint venture S.C. Cord Romania was created at the end of October 2004 for the production of steel cord.

It is foreseen that the new company will develop rapidly, investing up to € 40 million over the next three years in order to allow it to produce, at full capacity, around 30 thousand tonnes of metal cord per annum, employing around 350 people.

S.C. Cord Romania will therefore be capable of satisfying the growing demand – which today exceeds supply by a factor of almost two – for this important component for tyres.



A computer-generated view of the future steel cord plant at Slatina (Romania).

Research and Development in the Tyre sector

In line with past years, research and development in the tyres sector played a significant role in 2004, accounting for investments of around 124 million Euros (3.8% of the sector's turnover).

These activities have traditionally focussed on the development of new "high range" products (tyres for Ultra High Performance cars, runflat tyres and tyres for the Sports Utility Vehicle segment, radial truck tyres) exploiting the most advanced technological components and know-how, the results of intensive research in the areas of materials (also in collaboration with Pirelli Labs), modelling and the design of new profiles and tread patterns.

CCM technology

Based on two twin-screw extruders working continuously for the preparation of the compounds, the so-called *CCM ("Continuous Compound Mixing")* technology integrated in the MIRS™ plant is a computer-controlled pneumatic distribution system allowing ingredients to be transported directly from the storage silos to the extruders.

From the hygienic-environmental point of view this system, as well as featuring the adoption of powder capture systems that permit the collection and recycling of the powders, permits dust levels within the departments to be maintained at significantly lower levels with respect to those normally found in factories with "traditional" Compound Rooms.

CCM (Continuous Compound Mixing) technology integrated in the MIRS™ plant at Milano Bicocca.

Aromatic oils

In 2004, the Pirelli group continued to participate – along with other tyre producers – in the working group constituted by the BLIC (the European Union's "*Bureau de Liaison des Industries du Caoutchouc*") with the aim of defining the technical and toxicological characteristics of alternative products to the process oils currently used, coordinating activities with other industrial sectors involved and providing support for institutions, above all at the EU level.

This is because the oils in question present recognised risks due to their PAH (Polycyclic Aromatic Hydrocarbon) content, substances considered to be hazardous for both human health and the environment.

Evaluating New Raw Materials

In accordance with the group's internal standards, in 2004 work continued on the programmes initiated in late-2001 regarding the evaluation of the eco-toxicological characteristics of any new material prior to its introduction to the production cycles

In particular, and in the light of recent European normative requirements regarding the classification, labelling and packing of hazardous substances and compounds, the list of those substances that must not be used in production processes, or for which programmes of research for their replacement have been established, was updated.

In this context, around 200 new raw materials were analysed and evaluated during the course of 2004.

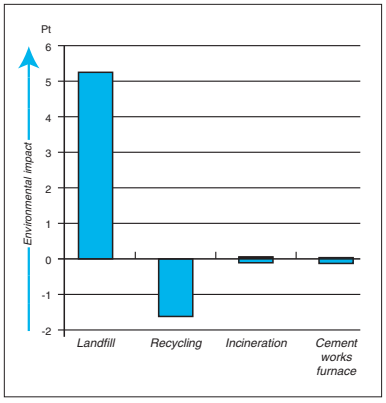
Work continued on the evaluation of new raw materials in 2004.

End-of-Life Tyres

During the course of 2004, Pirelli reinforced its commitment with regards to End-of-Life Tyres (ELTs), one of the group's research objectives for a number of years.

As is well known, the End-of-Life scenario makes only a modest contribution to the overall impact of the entire lifecycle of the tyre and, among the various final disposal options, burial in landfill sites is without doubt the one that is least compatible from an environmental point of view.

Furthermore, it should be pointed out that the European Directive 1999/31EC has prohibited the disposal of whole ELTs in landfill sites since 2003 (with landfill disposal of fragmented ELTs being prohibited from 2006), hence this type of disposal should soon be abandoned in favour of alternatives, a number of which are shown in the following diagram.



Final disposal options.

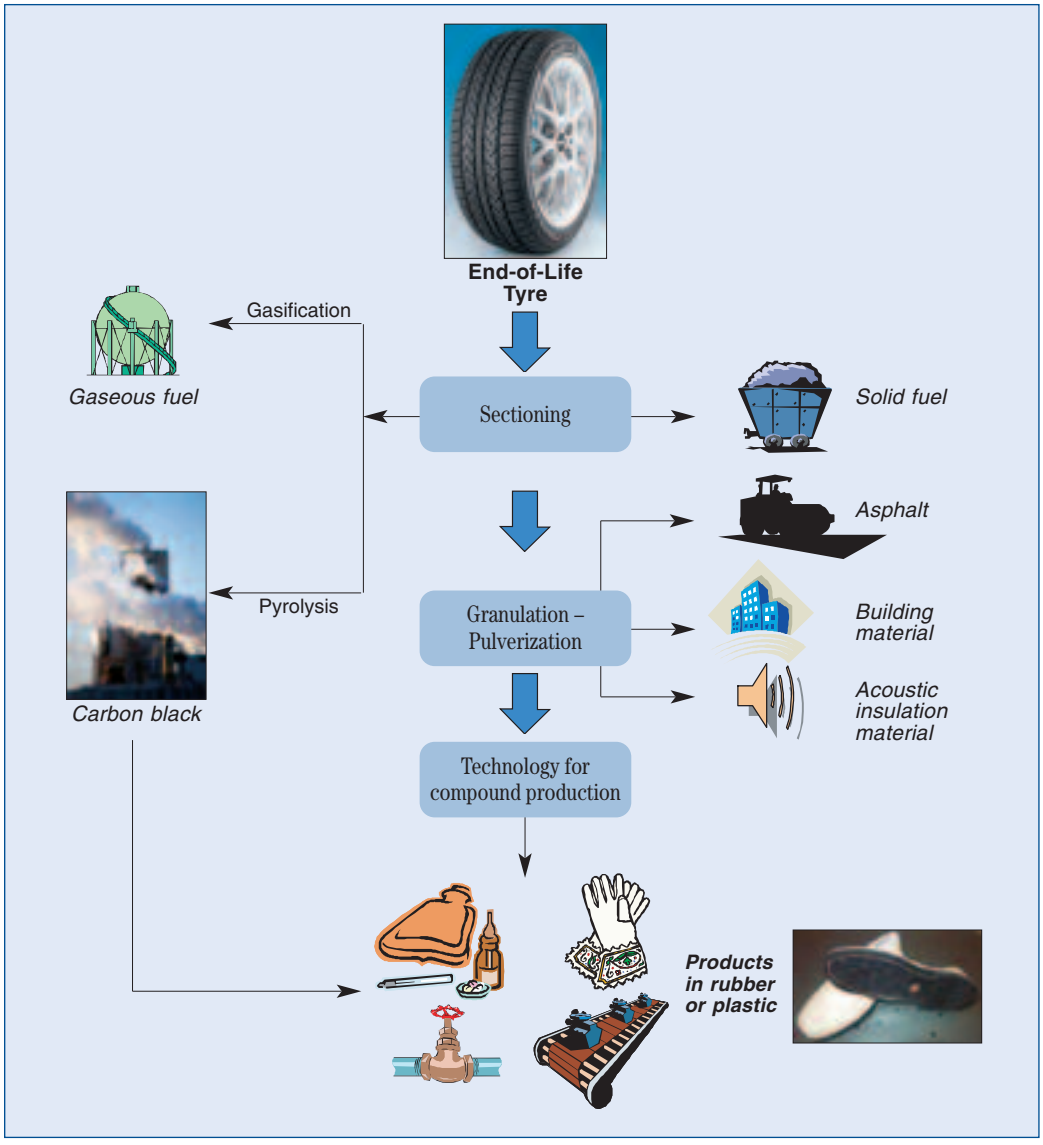
In any case, End-of-Life tyres may be recycled either to recover the materials of which they are composed (*materials recovery*), or by using them as fuel (*energy recovery*), exploiting their high calorific power (see table on the right) as a valid alternative to the use of solid fuels, above all in terms of improving atmospheric emissions.

Average characteristics of End-of-life tyres [1]

	Average values
Ferrous materials	15%
Ashes	2%
Fuel	81.5%
Sulphur	1.5%
Inferior calorific power	> 7,400 Kcal/kg
Volatile materials (regarding the fuel component)	> 70%

[1] U. Ghezzi, M. Giugliano, M. Grosso, S. Pollo, G. Zerbo: *"Tyres used as fuel within a cement work furnace" (Original title: "L'impiego di pneumatici come combustibile in un forno da cemento").*

Diagram of tyre recycling



The activities in question are focussed on the recovery of materials (for example, through granulation that, once the "textile" and "metal" fractions are separated, provides a rubber granulate that may in turn be ground further to produce a finer powder), a field still underdeveloped, above due to the technical difficulty inherent in breaking the bonds established between the polymers during the vulcanization phase that make the material virtually impossible to process thermally.

The Environmental Vendor Rating

During the course of 2004, work began on a new corporate Vendor rating model that better responds to real needs, including those relating to integration with other data management systems already in use.

With specific regard to the HSE area, advantage was taken of the opportunity to integrate the pre-existing environmental aspects with those relating to safety and health and to extend the number of indicators taken into consideration such as:

- the use of HSE performance indicators and plans for their improvement,
- the publication of an annual HSE report,
- the presence of a certified management system (for example, ISO 14001, OHSAS 18001 or equivalents),
- the implementation of systems for the reduction of the impact associated with packaging and logistics.

This new integrated system will be implemented in 2005 on an annual basis, with the clear objective of progressively replacing the pre-existing system.

The recyclability of tyre powder

The compounds required for the manufacture of tyres currently contain an average 2-4% of recycled powder deriving from the granulation and regeneration of end-of-life tyres.
In 2004, Pirelli again restated its commitment in this area with a research and development project aiming to increase the quantity of usable recycled product.

QUANTITATIVE DATA

1. The Environment: results

1.1 Analysis of the data at the group level

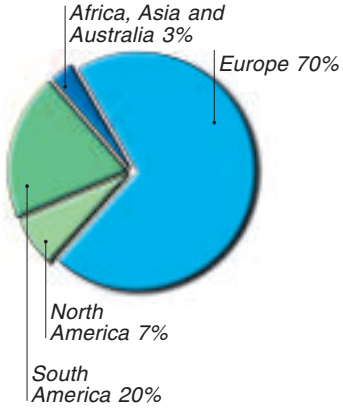
In accordance with the reports prepared in previous years, in this year's edition the environmental data at the group level refer to all the operational units of the three industrial sectors (Energy Cables and Systems, Telecom Cables and Systems and Tyres).

This aggregation allows us to analyse and evaluate – on a geographical basis – the overall environmental burden, expressed through the parameters taken into consideration, and in particular:

- the consumption of water,
- the consumption of energy,
- the consumption of organic solvents,
- the production of hazardous and non-hazardous waste,
- the percentage of total recycled waste and recycled hazardous waste,
- the quantities of dielectric oil containing PCB/PCT,
- the quantities of ozone-depleting substances,
- CO_2 and NO_x emissions.

As in previous years, the environmental data presented in this section of the report are expressed as absolute values or as percentages.

Geographical breakdown of water consumption in 2004 (Total 27,103,573 m³)



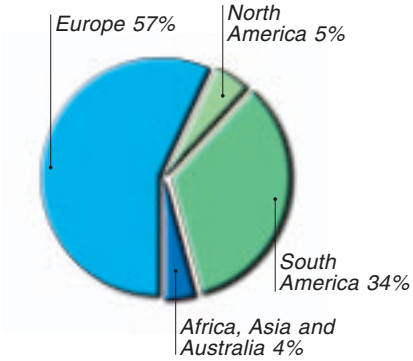
1.1.1 Consumption of water

Consumption of water [m³]

	2000	2001	2002	2003	2004
Europe	19,471,284	20,019,126	20,226,483	20,336,608	18,832,529
North America	2,700,602	2,331,495	2,249,650	2,004,201	2,002,161
South America	4,873,805	4,749,713	5,053,207	5,193,969	5,335,885
Africa, Asia, Australia	684,433	1,050,570	873,808	927,852	932,998
Total	**27,730,124**	**28,150,904**	**28,403,148**	**28,462,630**	**27,103,573**

In absolute terms, there was a significant decrease (- 4.8%) in the consumption of water at the group level with respect to 2003, the total consumption being the lowest for the last five years.

Geographical breakdown of energy consumption in 2004 (Total 12,982,107 GJ)



1.1.2 Consumption of energy

Consumption of energy [GJ]

	2000	2001	2002	2003	2004
Europe	7,865,935	9,387,532	8,926,406	8,810,231	7,440,668
North America	820,125	594,249	584,910	550,145	665,269
South America	4,012,615	3,787,648	3,675,538	4,201,940	4,369,810
Africa, Asia, Australia	427,477	530,094	630,098	655,779	506,360
Total	**13,126,152**	**14,299,523**	**13,816,952**	**14,218,095**	**12,982,107**

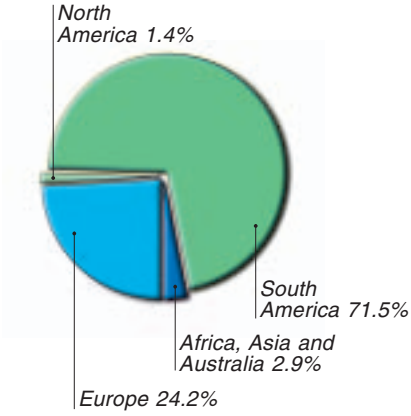
As with the consumption of water, there was also a significant fall in the consumption of energy with respect to 2003 (-8.7%) and 2000, with the total figure being the lowest for the last five years.

1.1.3 Consumption of organic solvents

Consumption of organic solvents [tonnes]

	2000	2001	2002	2003	2004
Europe	3,446	3,008	1,010	1,021	1,004
North America	103	60	49	41	59
South America	3,626	3,400	2,777	3,180	2,973
Africa, Asia, Australia	53	78	62	97	120
Total	**7,228**	**6,546**	**3,898**	**4,339**	**4,156**

Geographical breakdown of organic solvent consumption in 2004 (Total 4,156 tonnes)

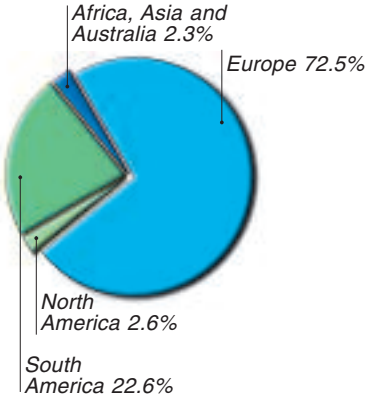


1.1.4 Production of waste

As was the case with previous editions of this report, in 2004 we have retained the subdivision – for the entire group – of total waste into ***hazardous waste*** and ***non-hazardous waste***, as required by the European norms in this field (in particular, the Decision of the European Commission, No. 532 of 3rd May 2000 and successive modifications and integrations).

In this context, the trends relating to the percentages of waste destined for recycling are also recorded and are generally positive.

Hazardous waste geographical breakdown 2004 (Total 21.233 tonnes)



Hazardous waste

Hazardous waste [tonnes]

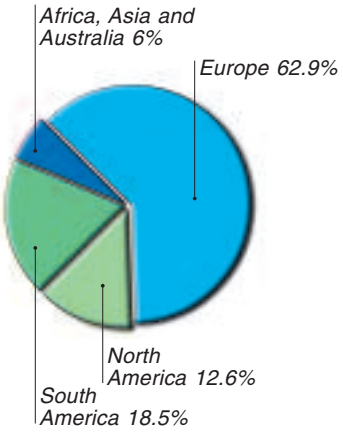
	2000	2001	2002	2003	2004
Europe	10,587	12,854	12,784	12,973	15,392
North America	1,331	452	812	306	560
South America	3,631	3,724	2,962	2,960	4,801
Africa, Asia, Australia	253	578	612	593	480
Total	**15,802**	**17,608**	**17,170**	**16,832**	**21,233**

Non-hazardous waste

Non-hazardous waste [tonnes]

	2000	2001	2002	2003	2004
Europe	56,003	87,196	88,185	95,761	96,563
North America	7,914	8,793	10,254	16,776	19,295
South America	13,034	17,844	19,342	24,552	28,418
Africa, Asia, Australia	3,258	6,401	11,295	9,353	9,164
Total	**80,209**	**120,234**	**129,076**	**146,442**	**153,440**

Non-hazardous waste geographical breakdown 2004 (Total 153,440 tonnes)

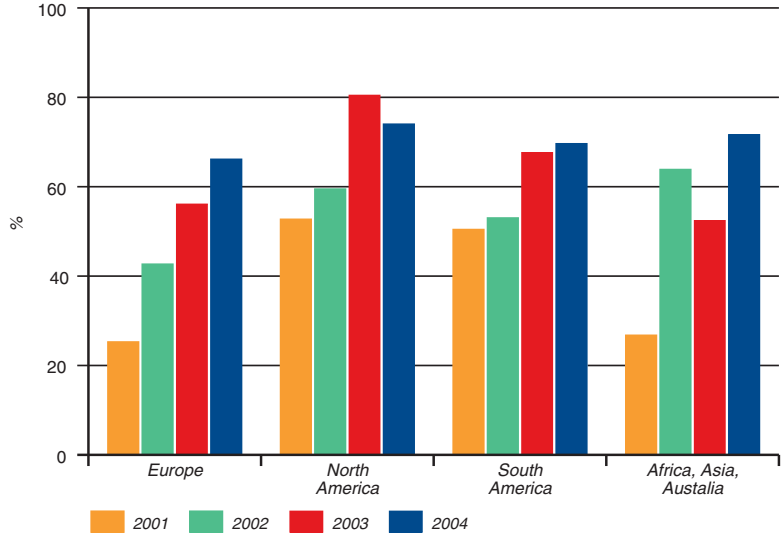


Recycled waste with respect to total waste

Recycled waste with respect to total waste [%]

	2001	2002	2003	2004
Europe	25.5	43.0	57.0	66.6
North America	53.1	59.9	81.0	74.5
South America	50.8	53.4	68.1	70.1
Africa, Asia, Australia	27.0	64.3	54.4	72.1
Total	**31.4**	**47.6**	**61.2**	**68.5**

Geographical breakdown of the ratio between the quantities of recycled waste and total waste generated by the group



With respect to the data published in the previous report, there was an increase in the production of both *hazardous* (+26.3%) and *non-hazardous* (+4.6%) waste; however, it also has to be pointed out that these figures are comfortably balanced by the notable increase in the proportion of waste subjected to recycling, which last year exceeded 68%.

1.1.5 Dielectric oils containing PCB / PCT

In relation to the data presented in the following table, it should be noted that the quantities referred to in the 2001 and 2002 reports comprised all the dielectric oils containing PCBs in any concentration found in equipment that was either in use (essentially transformers and capacitors) or idle.

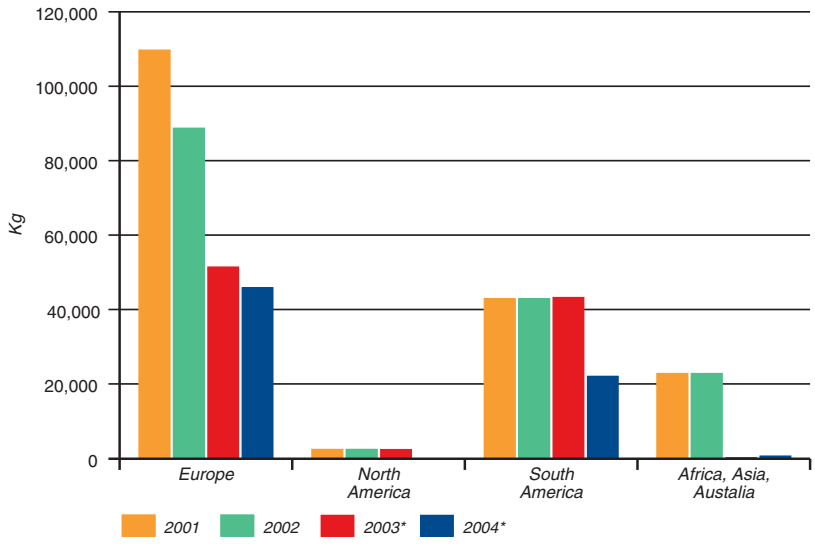
However, this data did not take into account the limits of significance of the presence of PCBs. In many cases, the concentration of PCB/PCT is very low, either because it has been reduced by topping up with dielectric oils not containing PCBs or because this is a feature of the equipment containing them.

Taking as a point of reference the most restrictive European normatives, the concentration of PCB held to be significant is equal to 50 ppm: below this concentration, devices containing this substance are not held to be critical, their use being permitted through to the end of their useful lives.

In view of the above, in line with the 2003 report and with the aim of providing an overview that is closer to the true environmental risk represented by this type of substance, the situation presented in this report refers solely to the quantities of dielectric oils in concentrations of over 50 ppm.

For motives of completeness and transparency, it should be pointed out that the values declared also comprise the quantities of PCB/PCT for which the quantities but not the concentrations are known.

Geographical breakdown of quantities of dielectric oils containing PCB/PCT



** From 2003 only dielectric oils with quantities of PCB/PCT over 50 ppm are taken into consideration.*

In this context, as at 31/12/2004 a total of 69,962 kg of dielectric oils containing PCB/PCT in concentrations over 50 ppm were present, with a reduction of over 29% with respect to the quantities present in 2003 (98,540 kg).

1.1.6 Ozone depleting substances

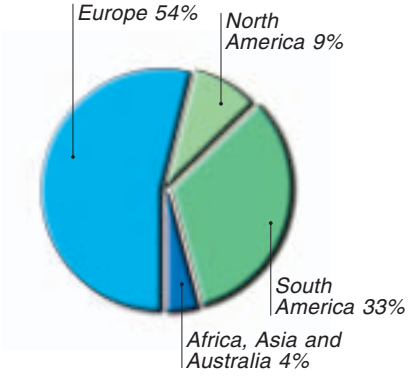
This category contains all those substances internationally recognised as detrimental to the ozone layer: halon, the chlorofluorocarbons, the hydroflurocarbons and so on…

There was a 6.6% decrease in these substances (19,111 kg) with respect to the figure recorded in the previous report (20,453 kg).

Ozone depleting substances [kg]

	2001	2002	2003	2004
Europe	15,751	12,238	10,810	10,367
North America	2,050	687	662	1,739
South America	5,409	5,399	7,185	6,232
Africa, Asia, Australia	1,580	1,421	1,797	773
Total	**24,790**	**19,745**	**20,454**	**19,111**

Geographical breakdown (2004) of the quantities of ozone depleting substances (Total 19,111 Kg)



1.1.7 CO_2 and NO_x emissions

In general, the emissions of CO_2 and NO_x refer to the processes of combustion determined by the use of energy by the operational units. For the purposes of this report, the CO_2 and NO_x values have been subdivided as follows:

- the "internal" component, referring to the processes of combustion taking place within the Pirelli operational units;
- the "external" component, referring to the part emitted in the generation of electrical energy used by the operational units but produced beyond their confines.

This type of subdivision is valid for all the product categories that follow (the factors of conversion used for calculating the quantities of kg of CO_2 and NO_x from energetic quantities to kg of CO_2 and NO_x emitted are detailed in the chapter entitled "*2004 Report Compilation Criteria*").

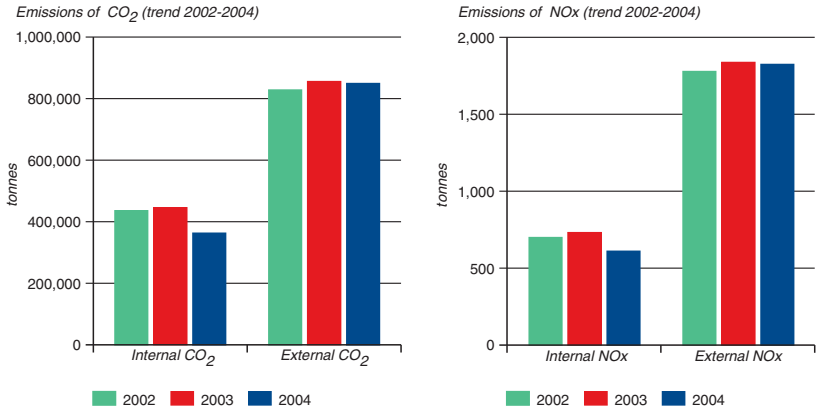
Geographical breakdown of emissions of CO_2 attributable to the Pirelli group [tonnes]

	Internal CO_2	External CO_2	Total CO_2
Europe	180,585	536,987	717,572
North America	14,086	50,123	64,209
South America	163,150	210,555	373,705
Africa, Asia, Australia	4,961	51,482	56,443
Total	**362,782**	**849,147**	**1,211,929**

With regard instead to the emission of NO_x:

Geographical breakdown of emissions of NO_x attributable to the Pirelli group [tonnes]

	Internal NO_x	External NO_x	Total NO_x
Europe	290	1,153	1,443
North America	19	108	127
South America	290	452	742
Africa, Asia, Australia	11	111	122
Total	**610**	**1,824**	**2,434**



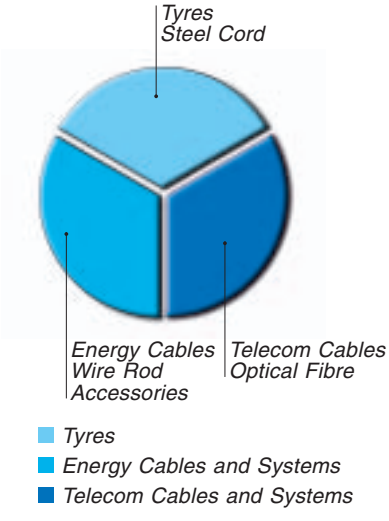
It should be pointed out that the significant decrease in the amount of energy consumed (see Chapter 1.1.2) is reflected in the amount of CO_2 emitted, which also dropped significantly.

The NO_x trend mirrors that of CO_2 as both share the basic parameters of the processes of internal and external combustion.

At the group level, the comparison between the emissions of CO_2 and NO_x recorded in 2004 and those from 2003 is shown in the following table:

CO_2 Trend		**NO_x Trend**	
Total CO_2:	-6.9%	Total NO_x:	-5.3%
Internal CO_2:	-18.7%	Internal NO_x:	-16.7%
External CO_2:	-0.8%	External NO_x:	-0.8%

Pirelli & C. - Industrial sectors



Tyres
Energy Cables and Systems
Telecom Cables and Systems

2. Analysis of the data subdivided by product category

The term *category* is used to define a product type presenting clear characteristics of homogeneity, both from the point of view of the industrial processes and with regards to the values of the various environmental impact indicators considered.

In particular, the *categories* taken into consideration in this report are indicated in the picture (left).

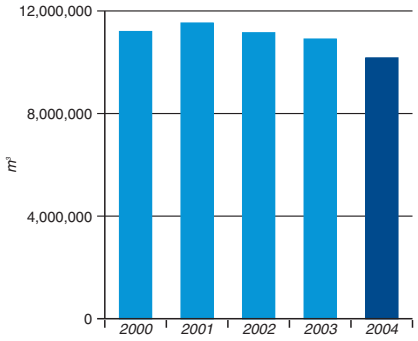
2.1 "Energy Cables" category

In line with the trend of the last few years, in 2004 there was a reduction in the production of energy cables, albeit a less significant drop than in recent years (-1.8%).

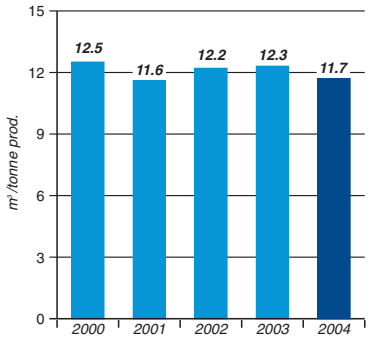
2.1.1 Consumption of water

In 2004 there was fall in the consumption of water (closely tied to the decrease in production), but also a significant reduction (- 4.9%) in consumption per product unit from 12.3 m^3/tonne to 11.7 m^3/tonne.

Consumption of water by the Energy Cables category

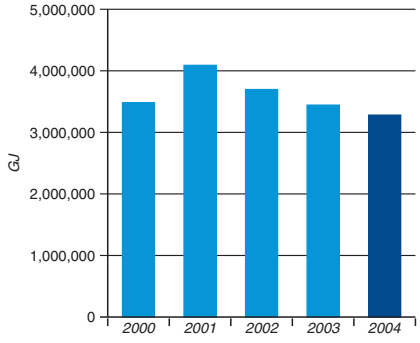


Specific consumption of water by the Energy Cables category

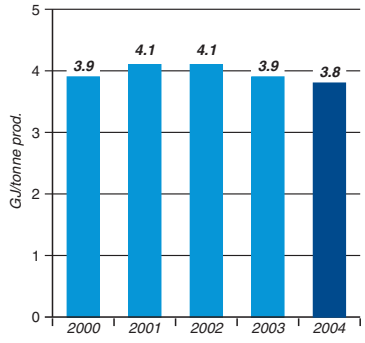


2.1.2 Consumption of energy

Consumption of energy by the Energy Cables category

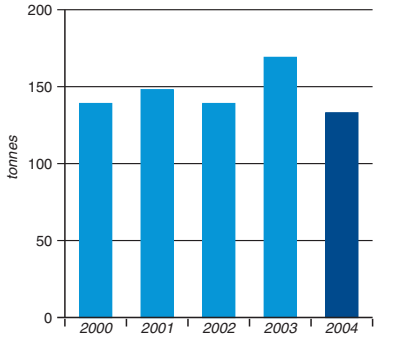


Specific consumption of energy by the Energy Cables category

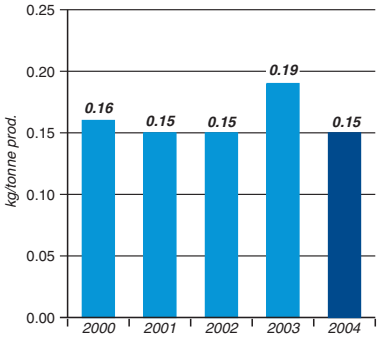


2.1.3 Consumption of organic solvents

Consumption of organic solvents by the Energy Cables category



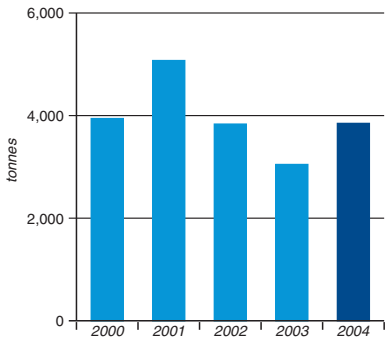
Specific consumption of organic solvents by the Energy Cables category



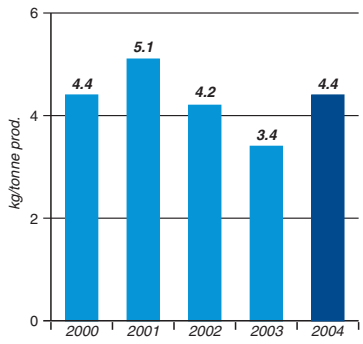
2.1.4 Production of waste

Hazardous waste

Production of hazardous waste by the Energy Cables category

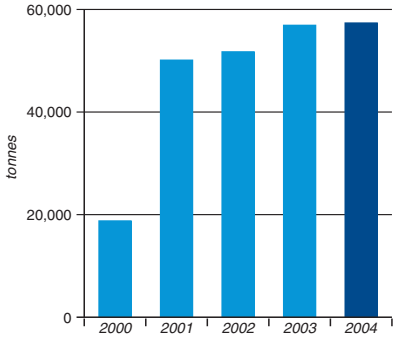


Specific production of hazardous waste by the Energy Cables category

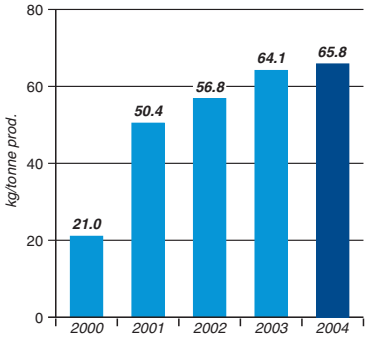


Non-hazardous waste

Production of non-hazardous waste by the Energy Cables category

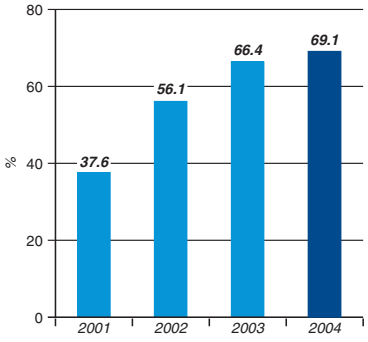


Specific production of non-hazardous waste by the Energy Cables category



Recycled waste

Percentage of recycled waste with respect to total waste in the Energy Cables category

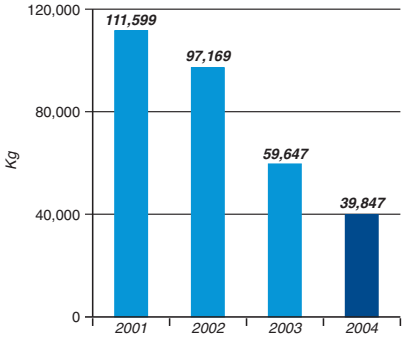


2.1.5 Dielectric oils containing PCB/PCT

In the light of what has already been described in paragraph 1.1.5, in 2003 it was decided to adopt different criteria for the quantification of dielectric oils containing PCB.

In this category, as at 31.12.2004, 39,847 kg of oils containing PCB/PCT in concentrations of above 50 ppm were recorded, a reduction of over 33% with respect to the quantities recorded at 31.12.2003.

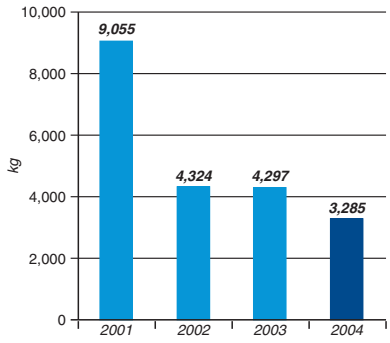
Dielectric oils containing PCB/PCT present in the Energy Cables category



2.1.6 Ozone depleting substances

As at 31.12.2004, 3,285 kg of ozone depleting substances were recorded for the Energy Cables category, a quantity 63% lower than that recorded in 2001 (9,055 Kg) and 23.5% lower than that recorded in the previous edition of this Report.

Quantities of ozone depleting substances used by the Energy Cables category



2.1.7 CO_2 and NO_x emissions

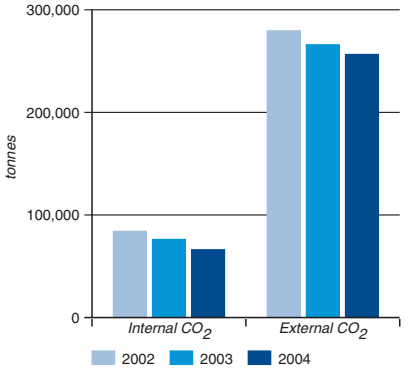
CO_2 emissions attributable to the Energy Cables category [tonnes]

	2002	2003	2004
Internal CO_2	84,147	76,278	66,204
External CO_2	279,612	266,019	256,559
Total	**363,759**	**342,297**	**322,763**

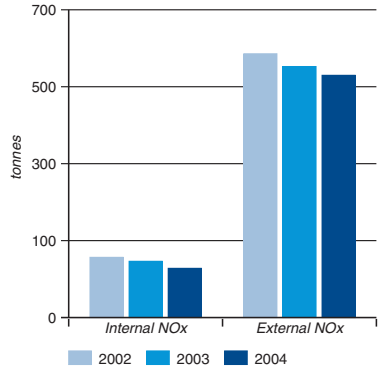
NO_x emissions attributable to the Energy Cables category [tonnes]

	2002	2003	2004
Internal NO_x	137	127	112
External NO_x	600	571	551
Total	**737**	**698**	**663**

CO_2 emissions attributable to the Energy Cables category



NOx emissions attributable to the Energy Cables category



The 2004 trends for the Energy Cables category are summarized in the following table:

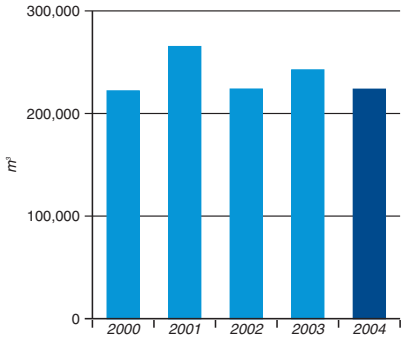
CO_2 Trend		NO_x Trend	
Total CO_2:	-5.7%	Total NO_x:	-5.1%
Internal CO_2:	-13.2%	Internal NO_x:	-11.8%
External CO_2:	-3.6%	External NO_x:	-3.5%

2.2 "Cable Accessories" category

As mentioned earlier in this report and in line with the previous years, in the Cable Accessories category absolute values for the Environmental parameters taken into consideration are presented, omitting the specific values per production unit given that for the extremely varied range of products such *specific* values would have no significance.

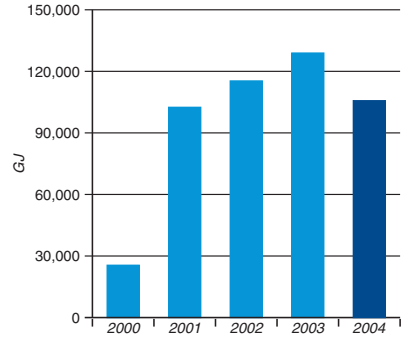
2.2.1 Consumption of water

Consumption of water by the Cable Accessories category



2.2.2 Consumption of energy

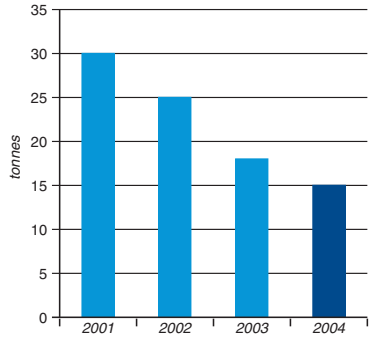
Consumption of energy by the Cable Accessories category



2.2.3 Consumption of organic solvents

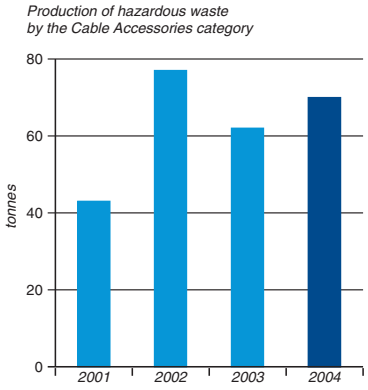
2004 saw confirmation of the progressive improvements in the consumption of organic solvents, principally due to operational changes that allowed consumption to be halved in 2004 with respect to the figure recorded in 2001.

Consumption of organic solvents by the Cable Accessories category

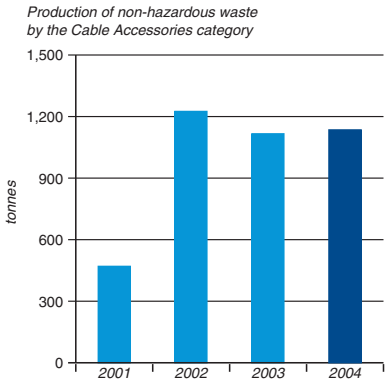


2.2.4 Production of waste

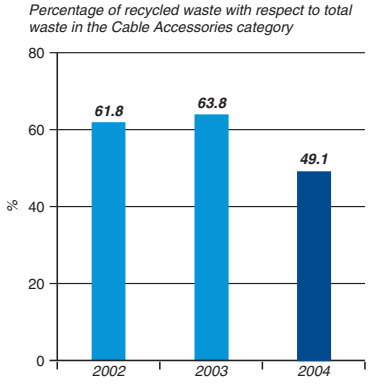
Hazardous waste



Non-hazardous waste



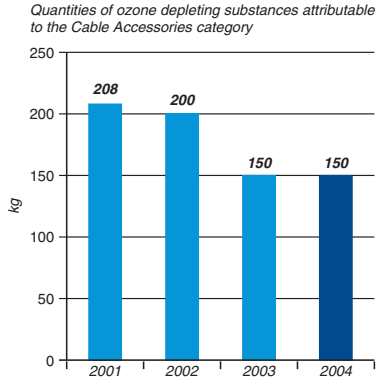
Recycled waste



2.2.5 Dielectric oils containing PCB/PCT

In the four operational units belong to this category there is no equipment containing oils with PCB/PCT in concentrations greater than 50 ppm.

2.2.6 Ozone depleting substances



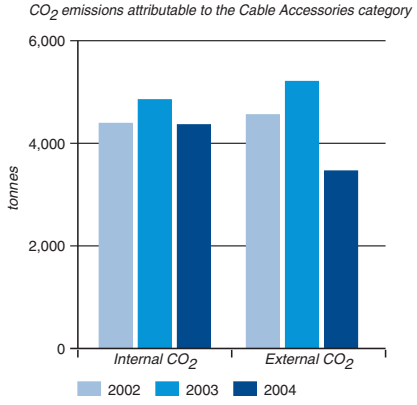
2.2.7 CO_2 and NO_x emissions

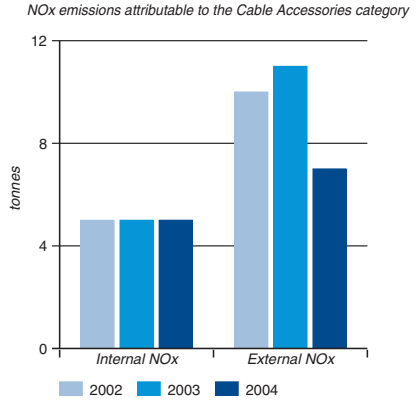
CO_2 emissions attributable to the Cable Accessories category [tonnes]

	2002	2003	2004
Internal CO_2	4,390	4,851	4,363
External CO_2	4,558	5,207	3,462
Total	**8,948**	**10,058**	**7,825**

NO_x emissions attributable to the Cable Accessories category [tonnes]

	2002	2003	2004
Internal NO_x	5	5	5
External NO_x	10	11	7
Total	**15**	**16**	**12**





In conclusion, the emissions of CO_2 and NO_x attributable to the Cable Accessories category in 2004 are summarized in the following table:

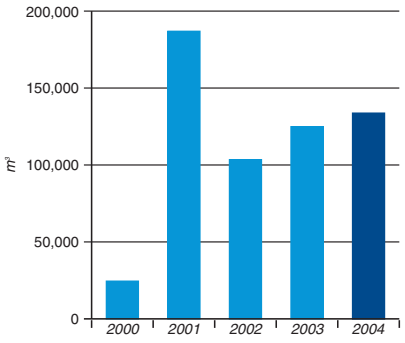
CO_2 Trend		**NO_x Trend**	
Total CO_2:	-22.2%	Total NO_x:	-25%
Internal CO_2:	-10.1%	Internal NO_x:	=
External CO_2:	-33.5%	External NO_x:	-36.4%

2.3 "Copper Wire Rod" category

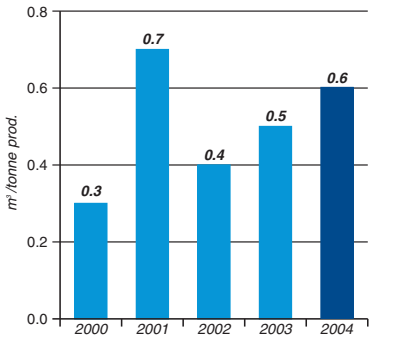
For the year ending 31.12.2004 a total output of 239,255 tonnes of copper wire rod was recorded, around 1.8% up with respect to the production figure for 2003 (235,041 tonnes).

2.3.1 Consumption of water

Consumption of water by the Copper Wire Rod category



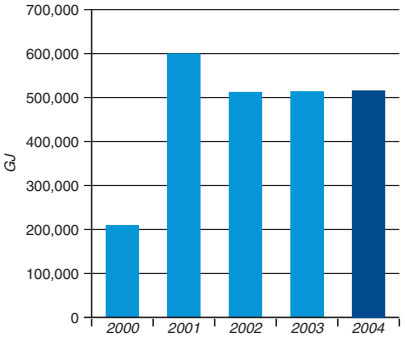
Specific consumption of water by the Copper Wire Rod category



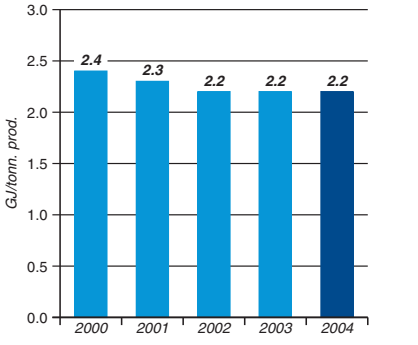
2.3.2 Consumption of energy

In line with the slight increase in production recorded in 2004, the absolute consumption of energy for the category also rose from 513,011 GJ of the previous year to the 514,987 GJ of 2004, while specific consumption remained stable.

Consumption of energy by the Copper Wire Rod category

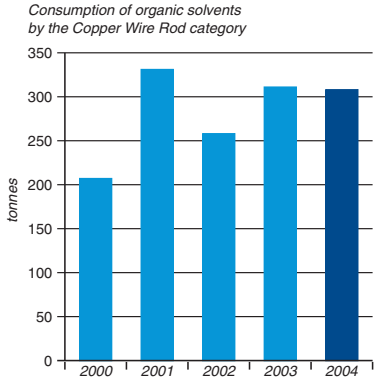


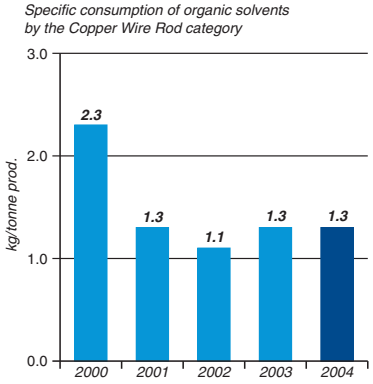
Specific consumption of energy by the Copper Wire Rod category



2.3.3 Consumption of organic solvents

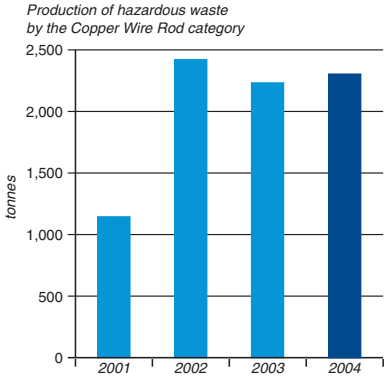
Despite the slight rise in production, 2004 saw a slight decrease in the consumption of organic solvents (-0.8%).

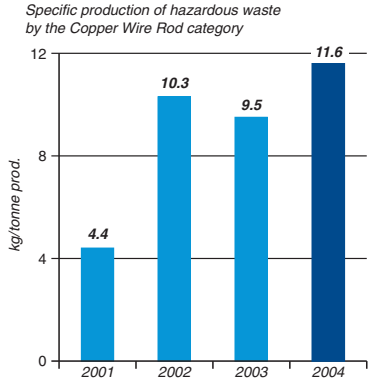




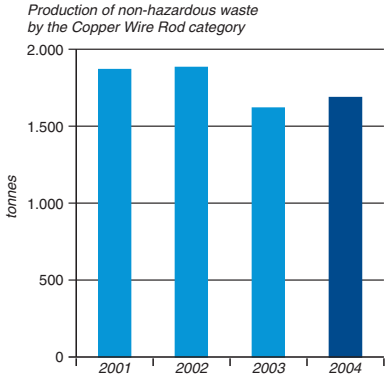
2.3.4 Production of waste

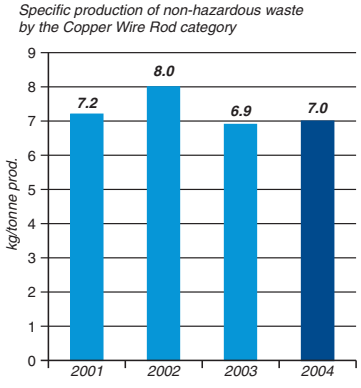
Hazardous waste



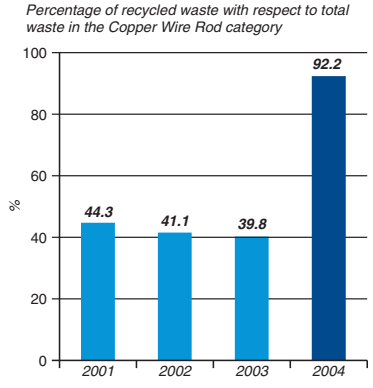


Non-hazardous waste





Recycled waste

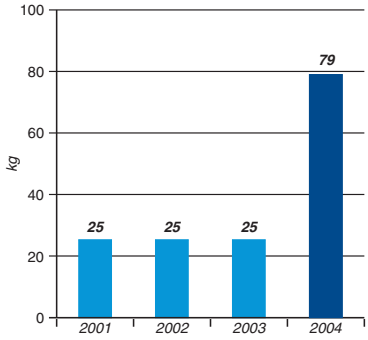


2.3.5 Dielectric oils containing PCB/PCT

In the operational units belonging to this category, there was no equipment containing PCB/PCT in concentrations greater than 50 ppm.

2.3.6 Ozone depleting substances

Ozone depleting substances attributable to the Copper Wire Rod category



As can be seen from the following diagram, as at 31.12.2004, 79 kg of ozone depleting substances were recorded for the Copper Wire Rod category.

In the context of this report, it should be pointed out that the increase in 2004 was due to the acquisition of equipment containing HCFCs (hydrochlorofluorocarbons), which have a detrimental effect on the ozone layer that is tens of times lower than that internationally recognised for halons (bromofluorocarbons) and CFCs (chlorofluorocarbons).

The degree of danger is currently defined by the so-called ***Ozone Depletion Potential*** or ***ODP factor***, a figure referring to the amount of zone depletion caused by a certain substance.

In particular, with the substance generally taken as the reference (trichlorofluoromethane, better known as CFC-1) having an ODP of 1, for the HCFCs the ODP is variable between a minimum of 0.014 (for HCFC-123) and a maximum of 0.1 (for HCFC-141b).[2]

[2] PRè Consultants B.V., "*The Eco-indicator 99 – A Damage Oriented Method for Life Cycle Impact Assessment (Methodology Annex)*", The Netherlands, October 1999.

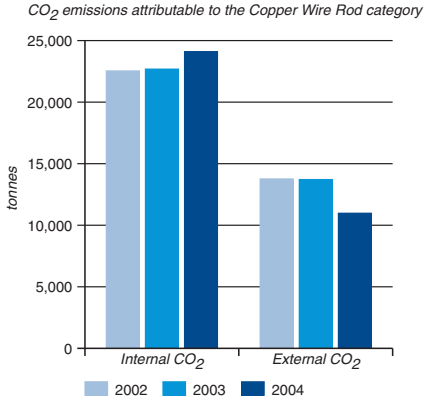
2.3.7 CO_2 and NO_x emissions

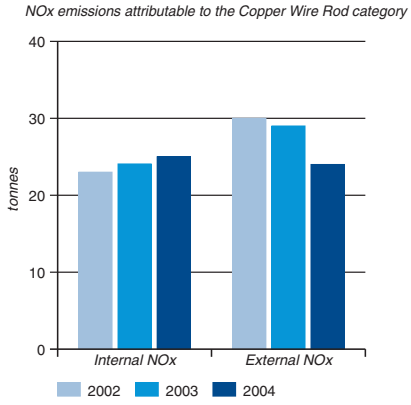
CO_2 emissions attributable to the Copper Wire Rod category [tonnes]

	2002	2003	2004
Internal CO_2	22,544	22,688	24,105
External CO_2	13,767	13,717	10,981
Total	**36,311**	**36,405**	**35,086**

NO_x emissions attributable to the Copper Wire Rod category [tonnes]

	2002	2003	2004
Internal NO_x	23	24	25
External NO_x	30	29	24
Total	**53**	**53**	**49**





The 2004 trends for the Copper Wire Rod category with respect to the previous year are summarized in the following table:

CO_2 Trend		NO_x Trend	
Total CO_2:	-3.6%	Total NO_x:	-7.5%
Internal CO_2:	+6.2%	Internal NO_x:	+4.2%
External CO_2:	-19.9%	External NO_x:	-17.2%

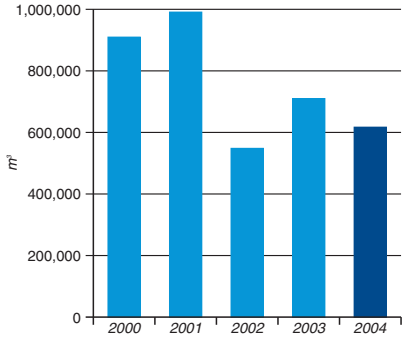
2.4 "Telecom Cables" category

In 2004 there was a particularly significant rise (+27% of product by weight) in the production of Telecom Cables (both optical and copper), output increasing from 52,370 tonnes in 2003 to 65,304 tonnes as at 31.12.2004.

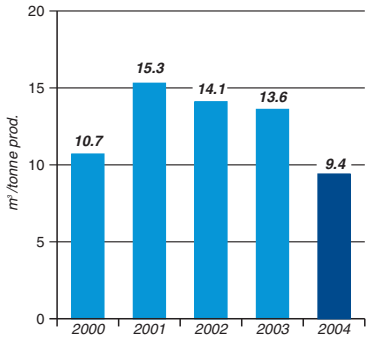
2.4.1 Consumption of water

Despite the significant rise in production output and as confirmation of the validity of the design decisions made in recent years, 2004 saw the consolidation of the positive trend in relation to the consumption of water in this category, with a reduction of over 13% in absolute terms (from 709,629 m^3 to 616,633 m^3) and of 44.6% in specific terms per product unit (from 13.6 m^3/tonne to 9.4 m^3/tonne).

Consumption of water by the Telecom Cables category

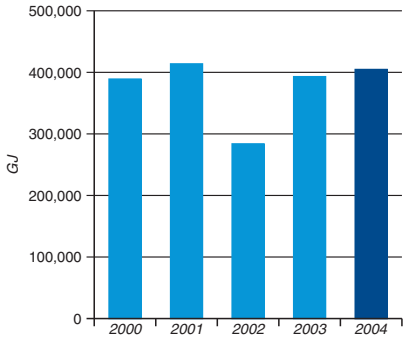


Specific consumption of water by the Telecom Cables category

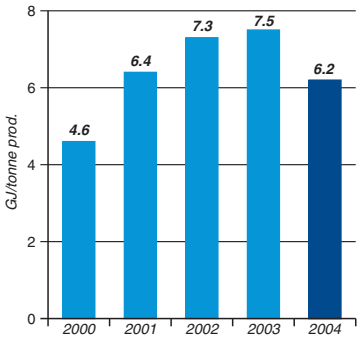


2.4.2 Consumption of energy

Consumption of energy by the Telecom Cables category

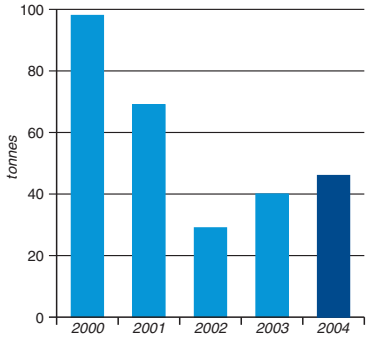


Specific consumption of energy by the Telecom Cables category

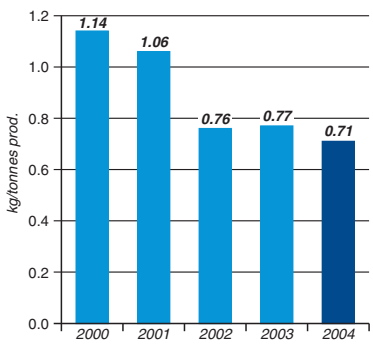


2.4.3 Consumption of organic solvents

Consumption of organic solvents by the Telecom Cables category



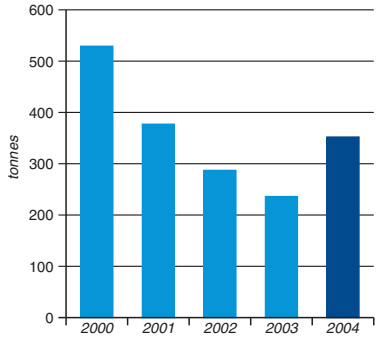
Specific consumption of organic solvents by the Telecom Cables category



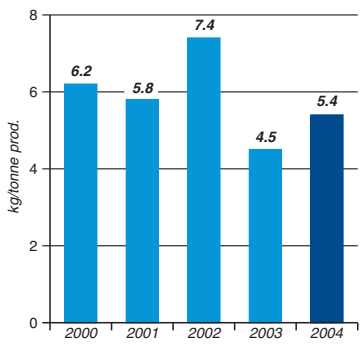
2.4.4 Production of waste

Hazardous waste

Production of hazardous waste by the Telecom Cables category

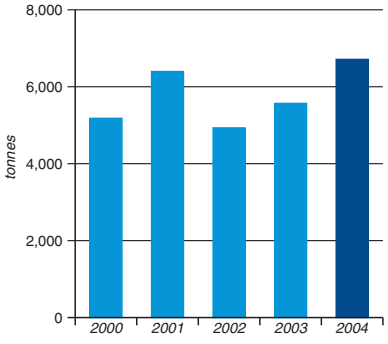


Specific production of hazardous waste by the Telecom Cables category

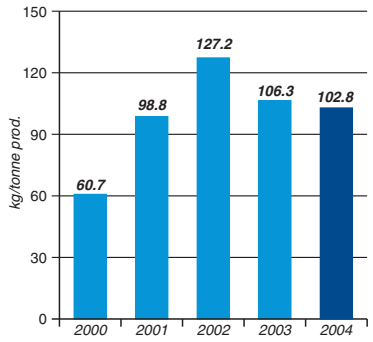


Non-hazardous waste

Production of non-hazardous waste by the Telecom Cables category

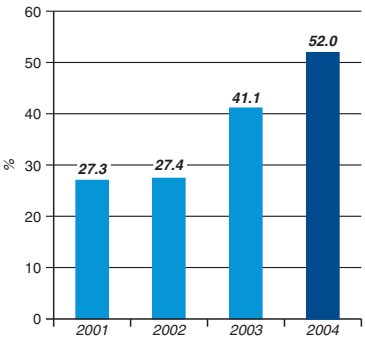


Specific production of non-hazardous waste by the Telecom Cables category



Recycled waste

Percentage of recycled waste with respect to total waste in the Telecom Cables category



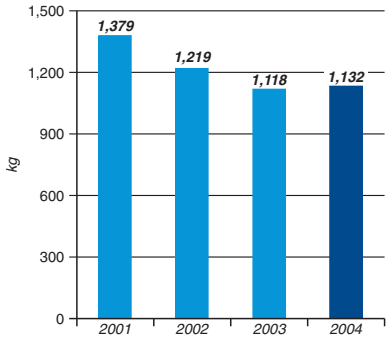
2.4.5 Dielectric oils containing PCB/PCT

As in the other categories, with regard to Telecom Cables, equipment containing PCB/PCT in concentrations greater than 50 ppm was taken into consideration, with 3,380 kg being recorded, to which have to be added 5,280 kg of oils containing PCB/PCT in concentrations that are currently unknown.

Overall, this category saw a substantial decrease in the quantities of oils containing these substances, from 11,560 kg in 2003 to the 8,660 kg of 2004.

2.4.6 Ozone depleting substances

Quantities of ozone depleting substances used by the Telecom Cables category



2.4.7 CO_2 and NO_x emissions

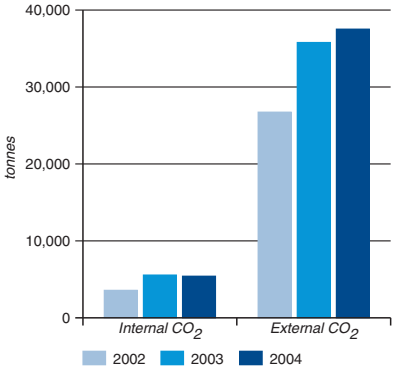
CO_2 emissions attributable to the Telecom Cables category [tonnes]

	2002	2003	2004
Internal CO_2	3,581	5,567	5,418
External CO_2	26,739	35,793	37,528
Total	**30,320**	**41,360**	**42,946**

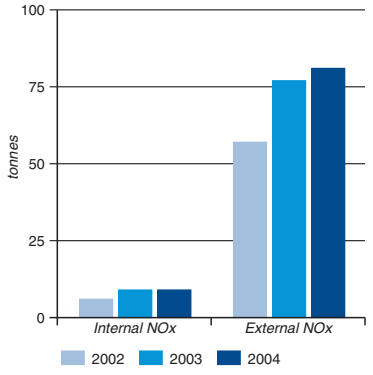
NO_x emissions attributable to the Telecom Cables category [tonnes]

	2002	2003	2004
Internal NO_x	6	9	9
External NO_x	57	77	81
Total	**63**	**85**	**90**

CO_2 emissions attributable to the Telecom Cables category



NOx emissions attributable to the Telecom Cables category



The 2004 trends for the Telecom Cables category are summarized in the following table:

CO_2 Trend		NO_x Trend	
Total CO_2:	+3.8%	Total NO_x:	+4.7%
Internal CO_2:	-2.7%	Internal NO_x:	=
External CO_2:	+4.8%	External NO_x:	+5.2%

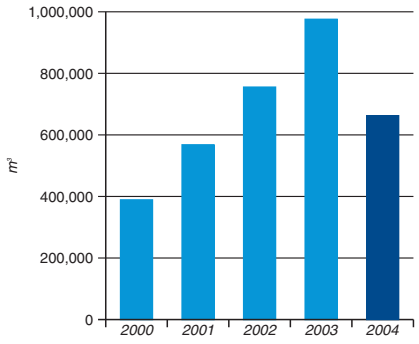
2.5 "Optical Fibre" category

In 2004, there was a significant revival in production of optical fibre (by two operational units), output increasing from 2,815,000 km in 2003 to 3,664,000 km in 2004, an increment of over 30%.

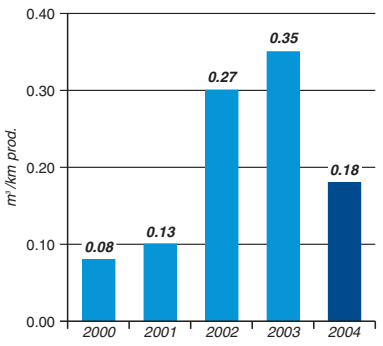
2.5.1 Consumption of water

In the case of the Italian operational unit, the early months of 2004 saw the completion of an important project regarding the rationalization of the industrial use of water, which led to a drastic reduction in both absolute consumption (-32.1%) and specific consumption (virtually halved), with clear benefits for the entire category.

Consumption of water by the Optical Fibre category



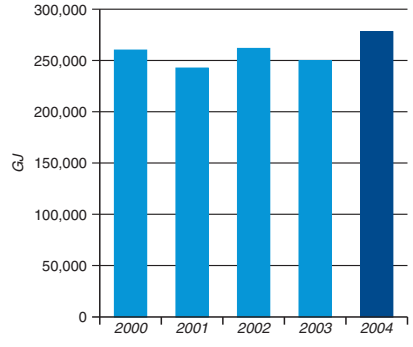
Specific consumption of water by the Optical Fibre category



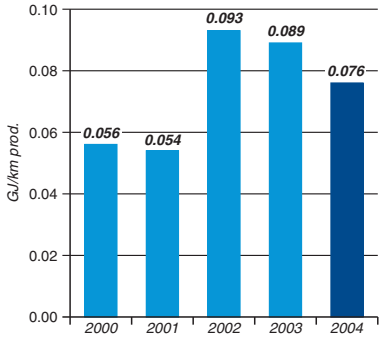
2.5.2 Consumption of energy

In spite of the over 30% increase in production in 2004 with respect to the previous year, energy consumption saw an increase in *absolute* terms of 11.2% while *specific* consumption dropped by 14.6%.

Consumption of energy by the Optical Fibre category



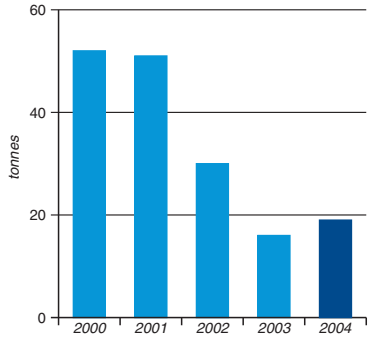
Specific consumption of energy by the Optical Fibre category



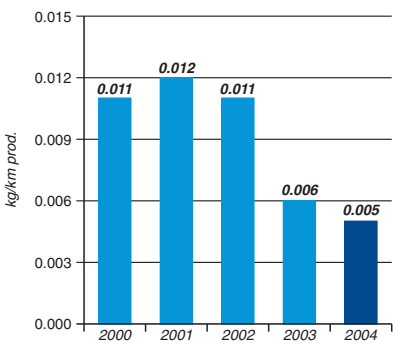
2.5.3 Consumption of organic solvents

2004 saw substantial confirmation of the figures from the previous year, with the increase in consumption in *absolute* terms nonetheless lower than the above-mentioned 30% increase in production.

Consumption of organic solvents by the Optical Fibre category



Specific consumption of organic solvents by the Optical Fibre category

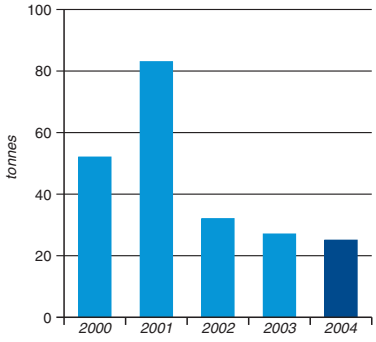


2.5.4 Production of waste

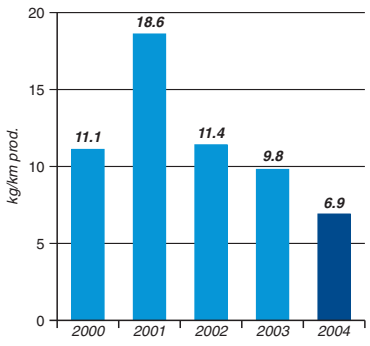
Although in 2004 there was confirmation of the quantities of hazardous waste produced, in specific terms it is worth pointing out the excellent result achieved in 2004, with a decrease of 29.9% with respect to 2003.

Hazardous waste

Production of hazardous waste by the Optical Fibre category

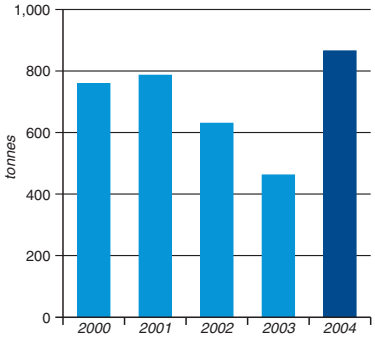


Specific production of hazardous waste by the Optical Fibre category

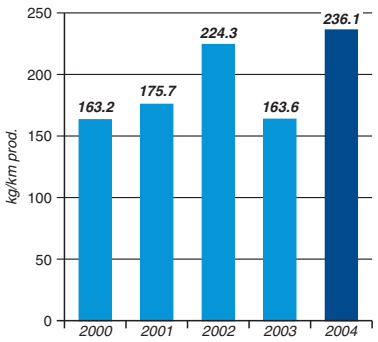


Non-hazardous waste

Production of non-hazardous waste by the Optical Fibre category

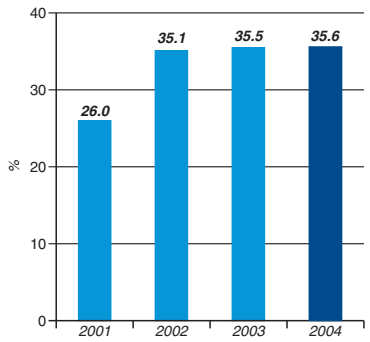


Specific production of non-hazardous waste by the Optical Fibre category



Recycled waste

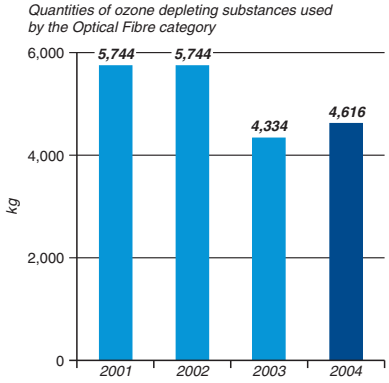
Percentage of recycled waste with respect to total waste in the Optical Fibre category



2.5.5 Dielectric oils containing PCB/PCT

As was the case in previous years, there was no equipment with oils containing PCB/PCT in the two operational units producing optical fibre.

2.5.6 Ozone depleting substances



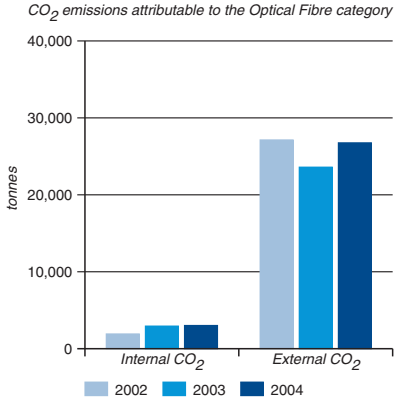
2.5.7 CO_2 and NO_x emissions

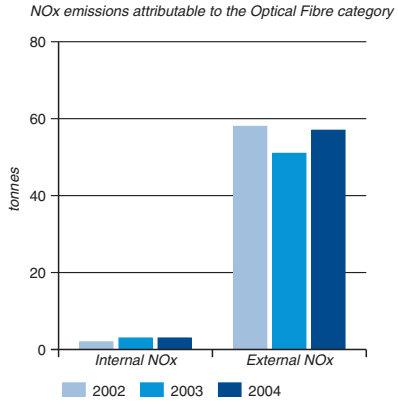
CO_2 emissions attributable to the Optical Fibre category [tonnes]

	2002	2003	2004
Internal CO_2	1,925	2,946	3,026
External CO_2	27,141	23,602	26,766
Total	**29,066**	**26,548**	**29,792**

NO_x emissions attributable to the Optical Fibre category [tonnes]

	2002	2003	2004
Internal NO_x	2	3	3
External NO_x	58	51	57
Total	**60**	**54**	**60**





The 2004 trends for the Optical Fibre category are summarized in the following table:

CO_2 Trend		NO_x Trend	
Total CO_2:	+12.2%	Total NO_x:	+12.9%
Internal CO_2 :	+2.7%	Internal NO_x:	=
External CO_2:	+13.4%	External NO_x:	+11.7%

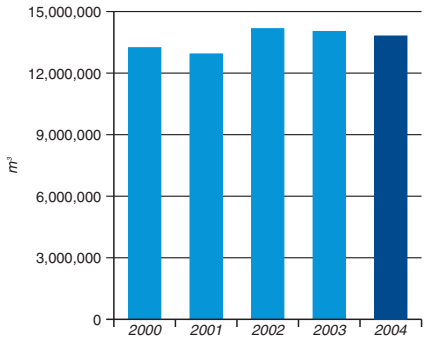
2.6 "Tyres" category

As already mentioned in the descriptive part of this report, various types of production are included in this category: tyres for cars, industrial vehicles, commercial vehicles and motorcycles.
With respect to the figure recorded in the previous edition, total production in 2004 was 741,947 tonnes, an increase of almost 3.5%.

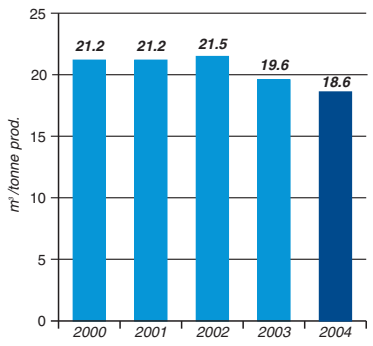
2.6.1 Consumption of water

In *absolute* terms there was a slight improvement in the consumption of water (-1.6%) with respect to 2003, while in *specific* terms the drop was much more significant (-5.1%), with a specific consumption of 18.6 m^3/tonne in 2004 compared with the 19.6 m^3/tonne recorded in 2003.

Consumption of water by the Tyres category



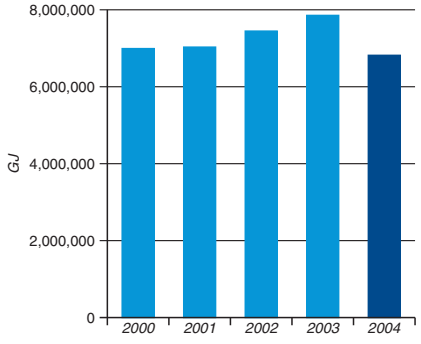
Specific consumption of water by the Tyres category



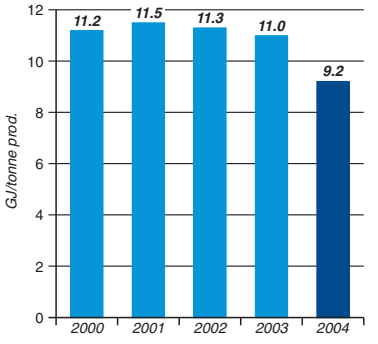
2.6.2 Consumption of energy

With regard to the consumption of energy there was also a clear improvement over 2003, both in *absolute* terms (-13.2%) and in relation to product units (-16.4%) despite the increase in production recorded during 2004.

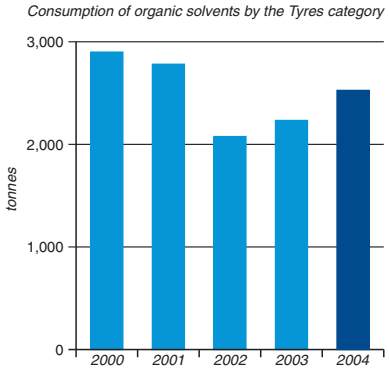
Consumption of energy by the Tyres category

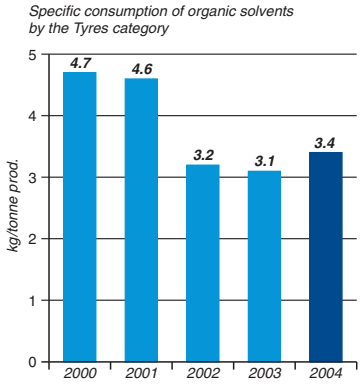


Specific consumption of energy by the Tyres category



2.6.3 Consumption of organic solvents

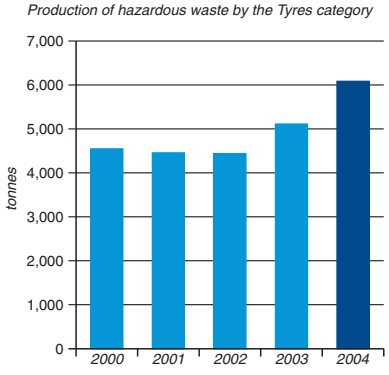


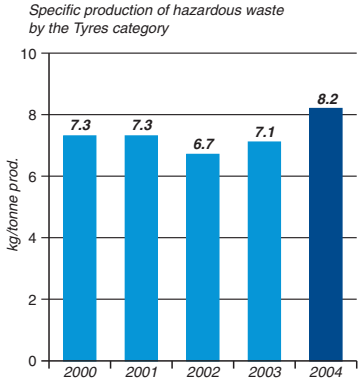


2.6.4 Production of waste

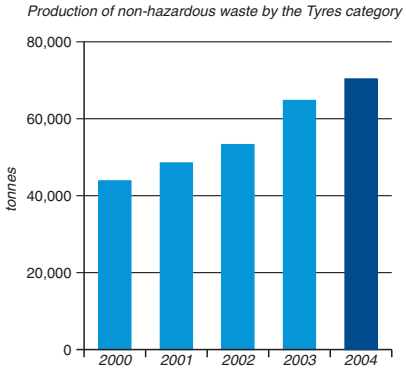
2004 saw an increase in the quantities of waste produced (both hazardous and non-hazardous), comfortably balanced by the clear increase in the proportion of waste subjected to recycling, which passed from the 60.6% of the previous year to 71.9% in 2004.

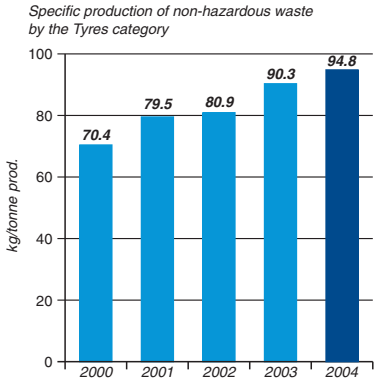
Hazardous waste



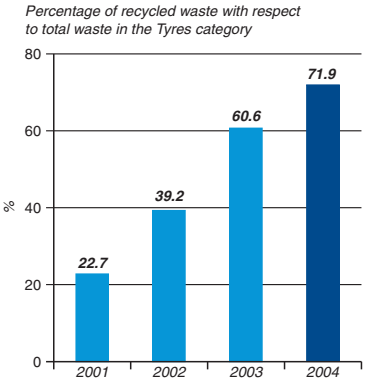


Non-hazardous waste





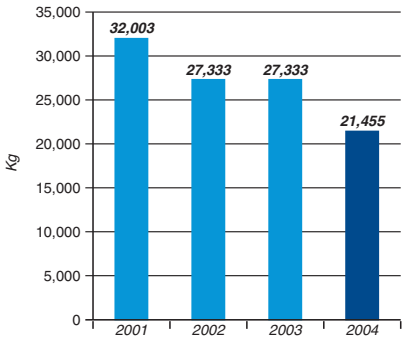
Recycled waste



2.6.5 Dielectric oils containing PCB/PCT

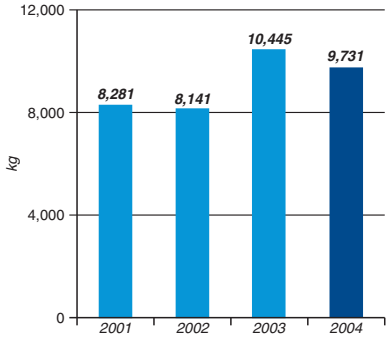
2004 again saw a progressive diminution (-21.5%) of the quantities of dielectric oils containing PCB in concentrations greater than 50 ppm: currently, records show the presence of 21,455 kg of such substances in the operational units belonging to this category.

Quantities of dielectric oils containing PCB/PCT present in the Tyres category



2.6.6 Ozone depleting substances

Tyres category: quantities of ozone depleting substances



2.6.7 CO_2 and NO_x emissions

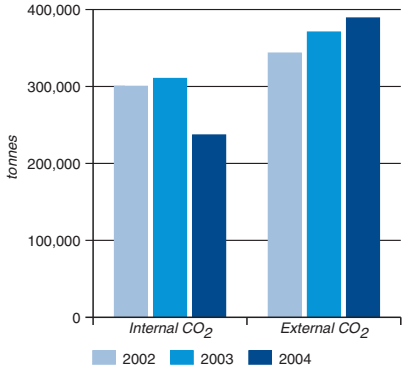
CO_2 emissions attributable to the Tyres category [tonnes]

	2002	2003	2004
Internal CO_2	300,334	310,526	237,100
External CO_2	343,530	370,878	389,155
Total	**643,864**	**681,404**	**626,255**

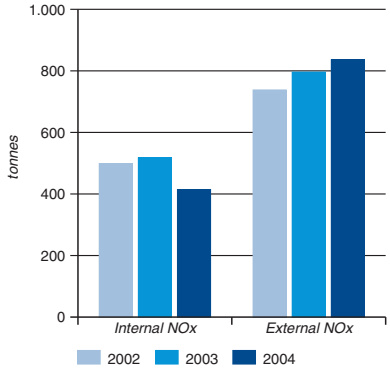
NO_x emissions attributable to the Tyres category [tonnes]

	2002	2003	2004
Internal NO_x	498	518	414
External NO_x	738	796	836
Total	**1.236**	**1.314**	**1.250**

CO_2 emissions attributable to the Tyres category



NOx emissions attributable to the Tyres category



The 2004 trends for the Tyres category are summarized in the following table:

CO_2 Trend		NO_x Trend	
Total CO_2:	-8.1%	Total NO_x:	-4.9%
Internal CO_2:	-23.6%	Internal NO_x:	-20.1%
External CO_2:	+4.9%	External NO_x:	+5.0%

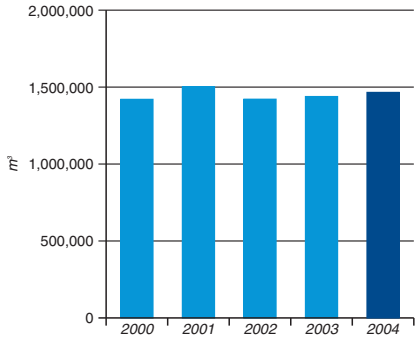
2.7 "Steel Cord" category

2004 saw the continuation of the positive trend in relation to production by the group's 4 operational units, which recorded a rise in output of over 6.3%, passing from the 123,913 tonnes of 2003 to the 131,722 tonnes referred to in this report.

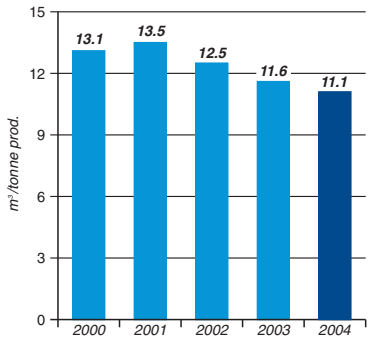
Comparison between the progress of the *absolute* and *normalized* value reflects this trend in as much as many of the environmental parameters, while perhaps registering increases in *absolute* terms, have almost always seen significant reductions in *specific* terms.

2.7.1 Consumption of water

Consumption of water by the Steel Cord category

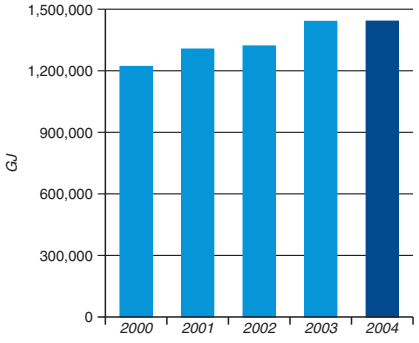


Specific consumption of water by the Steel Cord category

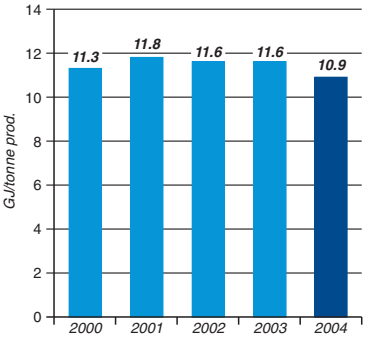


2.7.2 Consumption of energy

Consumption of energy by the Steel Cord category



Specific consumption of energy by the Steel Cord category

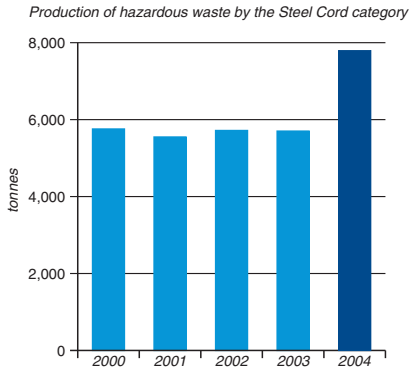


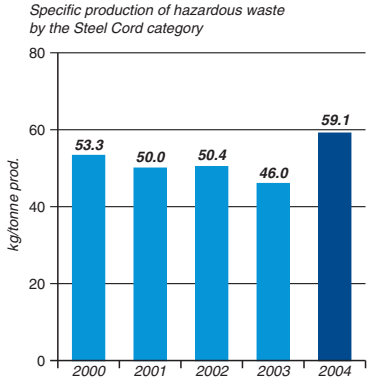
2.7.3 Consumption of organic solvents

Data regarding organic solvents have not been recorded for this category as the substances in question are not used in the production process, but only in modest quantities for general maintenance operations.

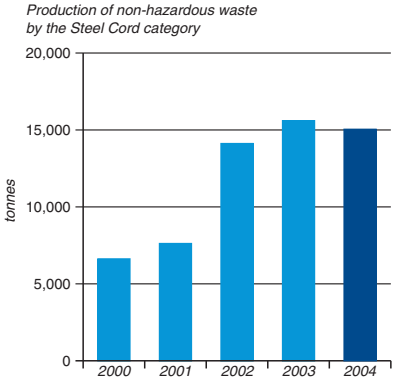
2.7.4 Production of waste

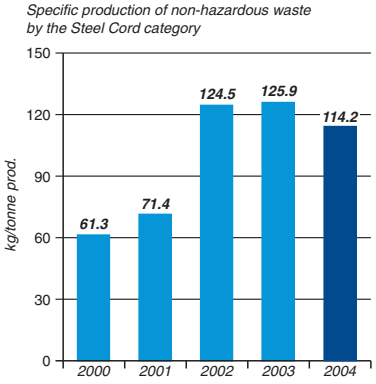
Hazardous waste



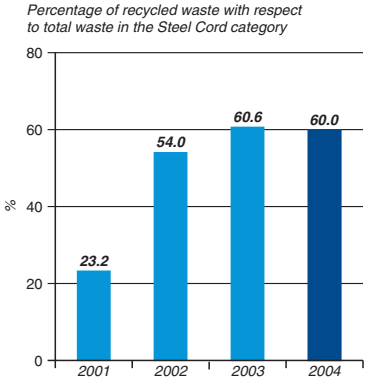


Non-hazardous waste





Recycled waste



2.7.5 Dielectric oils containing PCB/PCT

There is no equipment containing oils with PCB/PCT in concentrations greater than 50 ppm in the four operational units involved in the production of steel cord.

2.7.6 Ozone depleting substances used by the Steel Cord category

As at 31.12.2004, 120 kg of ozone depleting substances were recorded, a sharp increase with respect to the figure recorded in 2003 (70 kg).

As reported above with regard to the Copper Wire Rod category, it should be pointed out that the increase in 2004 was essentially due to the acquisition of equipment containing HCFCs (hydrochlorofluorocarbons), which have a detrimental effect on the ozone layer that is tens of times lower than that internationally recognised for halons (bromofluorocarbons) and CFCs (chlorofluorocarbons).

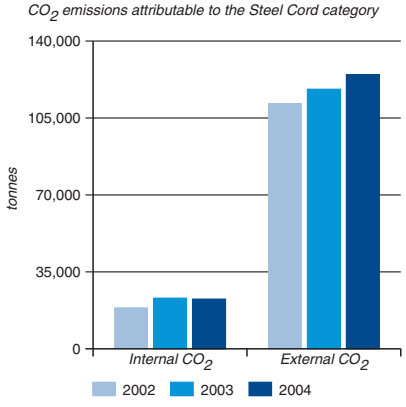
2.7.7 CO_2 and NO_x emissions

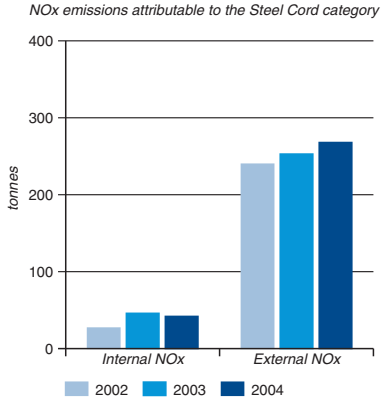
CO_2 emissions attributable to the Steel Cord category [tonnes]

	2002	2003	2004
Internal CO_2	18,651	22,994	22,565
External CO_2	111,565	118,028	124,696
Total	**130,216**	**141,022**	**147,261**

NO_x emissions attributable to the Steel Cord category [tonnes]

	2002	2003	2004
Internal NO_x	27	46	42
External NO_x	240	253	268
Total	**267**	**299**	**310**





The 2004 trends are summarized in the following table:

CO_2 Trend		NO_x Trend	
Total CO_2:	+4.4%	Total NO_x:	-3.3%
Internal CO_2:	-1.9%	Internal NO_x:	-8.7%
External CO_2:	+5.6%	External NO_x:	+5.9%

GLOSSARY

Abrasion	The cause of tyre tread (see entry) wear. Determined by the phenomena of friction between the tread itself and the ground. Heavily influenced by temperature and abnormal tyre inflation pressures.
Acrylic resins	Organic substances used in the production of optical fibres as a protective sheath for the fibres themselves. Applied in a liquid state and then solidified through a process of reticulation in which the optical fibres pass through ovens with UV lamps.
ADSL	Acronym of *Asymmetric Digital Subscriber Line. Asymmetric* technology that provides greater bandwidth for downloading data in the last section of the connection from the service provider to the user's home (downstream) than is possible for uploading from the user's home to the provider's network node (upstream).
Armouring	Mechanical protection for metal conductors obtained by applying appropriate ribbons or straps or galvanized or prebituminized steel wire.
Aromatic hydrocarbons	Stable organic compounds whose structures are characterized by the presence of at least one benzene ring.
ASPI Eurozone	Acronym for *Advanced Sustainable Performance Index*, an ethical index investing in 120 companies belonging to the expanded DJ EuroSTOXX Index.
Atmospheric emission	Any solid, liquid or gaseous substance introduced to the atmosphere from an industrial plant or any other source that may produce atmospheric pollution.
Banbury	A machine for the preparation of polymeric compounds used as raw materials for the production of plastic- or rubber-based components. In the Banbury, the various ingredients are introduced according to pre-determined quantities and timings, mixed at pre-determined conditions of temperature and pressure to form compound subsequently extruded in granules or strips.
Bead	Part of a tyre composed of a number of steel wire rings, usually composed of a single wire wound number of times to form layers. Has the function of anchoring the tyre to the wheel rim and transferring the stresses of the car to the road and vice versa.
Bead core	Metal ring composed of a number of rubber-covered parallel wires around which the body-plies of the carcass are wound from the inside to the outside so that the plies are securely locked in place and cannot unwind under pressure.
Belt	Positioned beneath the tread, the belt is designed to stabilise the carcass in the footprint area, distribute the stresses throughout the tyre section and contribute to the handling characteristics.
Binding	The operation whereby paper ribbons are wound around the conductor. The winding is generally helicoid.
Body-ply	Basic element on which the resistant structure of the tyre carcass is constructed.
Brassing	Deposition on the steel wire of a very thin layer of brass (around 0.002 – 0.004 mm), necessary for the adhesion of the rubber compound to the metal cords.
Building	In the production of tyres, the assembly of the various part-finished components to obtain a "green" tyre subsequently subjected to the vulcanizing process.
Cable splices	Joints required to unite two cables of the same type on two separate spools in order to cover the desired distance.
Calendering	Operation that permits a sheet of rubber of a constant thickness to be obtained, or to cover one or both sides of a length of fabric with a constant thickness of rubber.
Calorific power	Quantity of thermal energy (or heat) released by a determined mass of fuel burning in standard conditions. Subdivided into Superior Calorific Power (SCP) representing all the energy developed in combustion, and Inferior Calorific Power (ICP) which instead represents the difference between the total heat released and that lost through the evaporation of the water produced during combustion. Usually expressed in Joules per kilogramme (J/kg) or kilocalories per kilogramme (Kcal/kg) for solid fuels and liquids and in Joules per cubic metre (J/m^3) or kilocalories per cubic metre ($Kcal/m^3$) for gases.

Capacitor	Component in an electrical circuit designed to transform energy from electricity (with moving loads) to static electricity (with static loads) and vice versa. A capacitor is composed of two flat or cylindrical conductors known as armatures, separated by a dielectric insulator.
Carbon dioxide (CO_2)	Natural colourless, odourless and flavourless component of the atmosphere. One of the end products of the process of combustion of materials containing carbon. Contributes to the so-called "greenhouse effect" (see entry).
Carcass	Load-bearing structure of the tyre, composed of one or more layers of fabric or rubberized steel cords.
Chlorofluo-rocarbons	Also known as CFCs or Freon. Practically odourless and non-inflammable substances highly suitable for use as fluids in the cooling circuits of refrigerators and air conditioners and as propellants in aerosol canisters, as solvents in the electronics and mechanical industries and as reagents in the chemical industry. The widespread use of CFCs (in particular in the '60s and '70s) has led to their accumulation in the atmosphere and their diffusion towards the stratosphere where the action of ultraviolet radiation has provoked a progressive deterioration of the ozone layer (see entry) and the consequent drafting of a number of international agreements regarding the gradual outlawing of these substances.
Cold-drawing	In the case of energy cables, the reduction of the copper wire rod to the dimensions required for the various types of cable is completed through cold-drawing.
Compacting	In the production of optical fibres, a heating process whereby the residual traces of water vapour present in the porous material are eliminated in order to guarantee the required transparency of the fibre.
Copper wire rod	Part-finished metal component obtained through hot-rolling; usually has a circular section with a diameter of between 5 and 5.5 mm.
Core blank process	An activity that leads to the definition of the optical profile of the optical fibre. In this phase, glass blanks are produced in which small quantities of germanium dioxide (GeO_2) are inserted.
Corporate Social Responsibility	The integration on a voluntary basis of the companies' social and ecological concerns with their commercial operations and their relations with interested parties.
Deposition	A fundamental process in the production of optical fibres, that consists of synthesizing silicon dioxide (SiO_2) and germanium dioxide (GeO_2) starting out with primary materials in the liquid phase. The powder thus obtained is deposited on a rod rotating around its axis and also moving in a longitudinal direction order to obtain glass blanks.
Dielectric oil	Oil with a very low factor of conductivity used as insulation in electrical apparatus (transformers, capacitors…).
Dipping	The immersion of the bead cores (see entry) in a solution of heptane and rubber designed to favour the successive application of the bead (see entry).
Dow Jones STOXX Sustainability Index	Family of indices created in the September of 1999 by the Swiss ethical rating agency, SAM Sustainability Group, together with the Dow Jones stock index of New York, in order to evaluate at a European and global level the share performance of those companies oriented towards sustainability.
Drawing	The final process in the manufacture of optical fibres. The fibre is created by the controlled drawing of a glass blank heated to softening temperature (around 2,000°C) in a special furnace. During this phase a special protective coating is also applied to the optical fibre using particular organic substances (see ***Acrylic resins***).
Environmental audit	Systematic and documented verification process analysing and evaluating, with objective evidence, whether the methods of dealing with environmental questions and the procedures conform to the requisites established and accepted by an organization or parts of the same.

Environmental Due Diligence	Systematic verification of the environmental conditions of a site in order to establish the current or potential environmental liabilities.
Environmental impact	Any modification to the environment, detrimental or beneficial, total or partial, as a consequence of the activities, products or services of an organization.
Environmental indicator	A parameter or numerical value describing the impact of a human activity on the environment.
Environmental Management System	Part of the overall management system comprising the organizational structure, the planning activities, the liabilities, the practices, the procedures, the processes and the resources for developing, implementing, creating, verifying and maintaining the environmental policy.
Extrusion	The process of assembling the compounds on part-finished components (such as cables), through specific processes involving the fusion of the compounds themselves.
Finishing and control	Operations following vulcanization during which a tyre is subjected to trimming (to remove any excess rubber that alters its appearance) and an internal and external visual inspection. In tyres with metal structures (or metal belts) there is also a control phase to verify the correct positioning of the belt and the fabric mesh.
Flat cables	Telecommunications cables made by inserting one or more strands of optical fibres within a channelled nucleus or special tubes. The types of protection available for the channelled nucleus or the tubes (which may be stranded) include aramid and/or glass fibres, metal armour or special plastic sheaths.
FTSE4Good	An index designed to monitor the ethical, environmental and social performance of individual companies. The selection of the firms included in this index is entrusted to an independent body, the Advisory Committee, which works on the basis of the data provided by a British research institute, the Ethical Investment Research Service (EIRIS).
Fuel cell	Electrochemical devices that convert chemical energy into electrical energy; they are classified according to the electrolyte used in the process. Various fuels may be used (natural gas, hydrogen…).
Greenhouse effect	The phenomenon of rising terrestrial temperatures due to the excessive atmospheric presence of certain gases (mainly carbon dioxide and a number of nitrogen and ozone oxides) that prevents the dispersion of heat.
Halon	Organic substances containing, along with carbon and hydrogen, fluorine, chlorine, bromine and iodine. As well as actively contributing to the so-called greenhouse effect (see entry), they are also considered to be powerful ozone depleting agents.
Hazardous waste	Categories of waste of actual or potential danger to human health or the environment, classified on the basis of specific European norms (see also ***Non-hazardous waste***).
Hydrofluo-rocarbons	Known as HCFCs, these organic substances contain chlorine and fluorine, along with hydrogen and carbon. Although they are ozone depleting substances, they are far less damaging than CFCs and halons (see entry). They are generally used as alternatives to CFCs.
Industrial accident	Damaging event due to violent causes during work and leading to death or permanent invalidity (absolute or partial) or a temporary invalidity causing absence from work.
ISO 14001	A standard drawn up by the International Organisation for Standardization (ISO), specifying the requisites of an Environmental Management System that permits an organization to formulate an environmental policy and to establish objectives, taking into account legislative factors and information concerning significant environmental impacts.
Kyoto Protocol	An international agreement on the reduction of the atmospheric emission of the greenhouse gases (see entry) responsible for global warming.
Layering	An operation whereby a number of insulated cables are consolidated by winding them around a common axis. Each core, composed of an insulated conductor carries a single phase of electrical current.

Life Cycle Analysis, LCA	A method of evaluating the overall environmental impact of a product, taking into consideration its entire life cycle, from the activities relating to the extraction and treatment of the raw materials, through to the manufacturing processes, transportation, distribution, use, recycling and re-use and disposal.
Loose cables	Telecommunications cables created by loosely inserting one or more optical fibres in extruded plastic tubes. These tubes are then protected with appropriate coverings (see also ***Flat cables***).
LS0H	Acronym for *Low Smoke Zero Halogen*. Electric cables constructed with special compounds that, in the case of fire, emit very low quantities of smoke and toxic and corrosive gases when burning.
Mechanical and optical profiling	A process for verifying the optical and mechanical characteristics of the optical fibre with the aim of identifying and eliminating any defects present in the finished product.
Nanocomposite	A mixture of materials (ceramic, metals, etc.) with dimensions on the nanometric scale (10^{-9} m).
Nanomaterials / Nanoparticles	Materials/solid particles with dimensions on the nanometric scale.
Nanotechnology	Technology with the aim of developing applications based on nanomaterials.
Newton	A unit of force in the International System (N), equal to the force required to produce acceleration of 1 m/s^2 when exerted on a mass of 1 kg.
Nitric oxides	Gases produced by the combustion of fossil fuels. They contribute to the formation of ozone in the lower atmosphere and "acid" depositions during normal rainfall.
Non-hazardous waste	Categories of waste that are not dangerous to human health or the environment, classified on the basis of European Decision 2000/532/EC, modified by Decisions 2001/118/EC, 2001/119/EC and 2001/573/EC.
NO_x	See ***Nitric oxides***
OHSAS18001	An international certification standard relating to safety at work and industrial hygiene. This standard establishes the requisites for a Health and Safety at work management system, in order to allow companies to manage its liabilities in this respect and improve its performance in the field.
Optical fibre	In the field of telecommunications, very thin glass thread (with a diameter of around 125 µm) and an elevated index of refraction. The fibre is composed of silicon dioxide (SiO_2) and extremely small quantities of germanium dioxide (GeO_2), used above all to increase the index of refraction. The end product is completely transparent to allow light to propagate and to reduce unwanted phenomena to a minimum.
Organic solvent	Any VOC (see entry) used alone or in combination with other agents in order to dissolve primary materials, products or waste materials, without being subject to chemical transformation, or used as cleaning agents to dissolve contaminants, or used as a solvent, a means of dispersion, a corrector of viscosity, as a corrector of surface tension, as a plasticizer or a preservative.
Over-cladding	The production of glass blanks to which a further layer of silicon dioxide (SiO_2) has been added in order to ensure that the finished optical fibre has adequate transmission properties.
Ozone	An allotropic form of oxygen with the chemical symbol O_3. It is found in small quantities throughout the atmosphere and is formed by the action of electrical discharges and ultraviolet light that convert oxygen molecules into ozone. At around 25 km from the earth's surface there is a concentrated layer of ozone that absorbs ultraviolet rays and represents a vital shield (the ozonosphere). The diminution of the thickness of and creation of holes in the ozone layer appears to be linked to human activities releasing nitric oxides (see entry) and chlorofluorocarbons (see entry) into the air.
Painting	A chemical treatment that prevents the adhesion of the non-vulcanized tyre (the so-called "green" tyre) to the moulds and/or the vulcanizing chamber.
Pascal	An international unit of pressure equal to 1 Newton per square metre (Pa = N/m_2).
Patenting	The thermal treatment necessary to restore the structure of steel wire so as to make it suitable for further deformation via cold drawing.

PCB/PCT	Acronyms for polychlorinated biphenyls and polychlorinated terphenyls, substances that are potentially dangerous, bioaccumulable, with insulating and fire-resistant characteristics, principally used in electrical equipment (transformers and/or capacitors – see entry).
PE	Polyethylene. A synthetic polymer composed of ethylene monomers.
Photochemical smog	Atmospheric pollution principally caused by the exhaust emissions of urban vehicular traffic; it is the result of a complex chain of photochemical oxidation reactions triggered by sunlight and favoured by particular meteorological conditions (inversion…). One of the consequences of photochemical smog is an increase in ozone in the troposphere (see entry), which thus becomes a secondary pollutant. Furthermore, the relatively non-volatile organic compounds that form may condense, creating a characteristic mist of tiny droplets.
Photonics	Science and technology relating to a class of devices using photons. The term photonics was introduced as an analogy with the term electronics in reference to the replacement of the electron with the photon in operations typical of electronics such as the processing, transmission and memorization of data.
Photovoltaic cell	An elementary device for the conversion of solar energy into electrical energy based on the photovoltaic effect (see entry). Photovoltaic cells are composed of thin layers of semi-conductors (mainly silicon). They are commonly used, for example, in sun-powered calculators and clocks.
Photovoltaic effect	The conversion of electromagnetic radiation (above all, light) into electrical current that is produced in certain materials, such as silicon and germanium, the so-called semiconductors (see entry). Devices that function on the basis of this effect are called photovoltaic cells.
Pickling	The elimination of the oxidization formed on metal surfaces (for example, copper and steel). The operation is generally conducted in baths containing solutions of phosphoric or sulphuric acid.
Pressure	A physical measurement expressing the ratio between the intensity of a force (expressed in Newtons) exerted on a surface in the normal direction and the area of that surface (expressed in square metres).
PVC	Polyvinylchloride. A synthetic polymer with a structure similar to that of PE, but with a chlorine atom replacing one of hydrogen.
Resistivity	A measure of a material's resistance to the conduction of electricity, in reference to a body of uniform section and length. In the International System, resistivity is expressed in ohms per metre (Ωm). Resistivity is the opposite of conductivity, which expresses a material's ability to conduct electricity. When the temperature descends to values approaching absolute zero (- 273 °C), the resistivity of conductors tends to be nullified: hence the phenomenon known as superconductivity.
Rolling resistance	The component of resistance to the advancement of a vehicle wholly attributable to the tyres.
SA 8000	An international standard developed by the CEPAA (Council of Economical Priorities Accreditation Agency) regarding respect for human rights, workers' rights, safeguarding against exploitation of minors and guarantees of health and safety at work.
Safety and Health at Work Management System	Part of the global management system facilitating the handling of risks relating to health and safety at work associated with a company's activities. This includes the organizational structure, the planning activities, the responsibilities, the practices, the procedures, the processes and the resources for the development, actuation, realization, revision and maintenance of the policy for health and safety at work.
Semiconductors	Substances of a crystalline nature presenting electrical conductivity (and therefore a resistivity. See entry) mid-way between that of the metallic conductors and that of insulators. In contrast with what occurs in the case of conductors, with semiconductors conductivity increases as the temperature rises. The materials that possess the properties of semiconductors are elements such as silicon, germanium, selenium and certain compounds (indium phosphide, gallium arsenide, indium antimonide, …).

Semi-vulcanization	Within the ambit of the production of bead cores (see entry), a thermal process conducted in dedicated autoclaves with the aim of preventing subsequently movement of the steel wires making up the bead core.
Shielding	The process of applying a protective shield to energy cables. As well as providing protection for the cable, the shield is also designed to interrupt the electric field generated by the passage of current.
Sidewall	That part of a tyre between the bead (see entry) and the shoulder of the tread (see entry). The sidewalls are generally composed of strips of rubber that are very resistant to repeated flexure and oxidation ("ageing") and serve to protect and give strength to the carcass, as well as to absorb part of the dynamic stresses to which the tyre is subjected.
Sipes	Thin grooves, generally of an angular and closely paced pattern, cut into the tread of a tyre. They are designed to improve grip especially on smooth or wet road surfaces.
Stranding	In the production of cables, an operation that involves the combining of a number of individual wires by twisting then around a common axis. This confers flexibility on the finished product while maintaining the desired physical-mechanical qualities. Also the mechanical process of assembling brassed wires.
Sustainable development	Development capable of satisfying the needs of current generations without compromising the capacity of future generations to satisfy their own. This type of development does not represent a state of pre-established harmony but rather a process of change in which the exploitation of resources, the pattern of investments and the institutional changes are rendered compatible with both the needs of the future and those of the present.
Swaging	A mechanical process in which the wire rod (copper, aluminium or steel) is reduced in diameter, usually through cold drawing.
Tight cables	Telecommunications cables created by tightly inserting one or more optical fibres into extruded plastic tubes. Tight fibres may subsequently be stranded and protected with special coverings (see also ***Flat cables***).
Tinning	In cables with insulation in rubber, an operation that permits the depositing of a thin layer of tin between the metal (copper) conductor and the insulation, protecting both from possible mutual attack.
Transformer	A static electrical device (with no moving parts) that transfers electrical energy from one *primary* circuit to another *secondary* circuit, modifying its voltage and current. In its simplest form it is composed of a closed magnetic circuit made with ferrosilicon blades and two coils made by helically winding two conductors onto an insulating support.
Tread	That part of a tyre in direct contact with the ground when rolling; it is composed of special compounds of rubber resistant to abrasion and laceration while providing good roadholding and guaranteeing a certain level of comfort (quietness on the move…). The *tread* pattern is in turn composed of a deliberate arrangement of solids (blocks) and voids (grooves, slots…) (see entry).
Troposphere	The lowest part of the atmosphere, between the ground and the stratosphere. This is the home of the most common meteorological phenomena.
Volatile Organic Compounds (VOC)	Any natural or anthropic organic compound that at a temperature of 20°C has a vapour tension of 10 Pascal or greater, or that has a corresponding volatility in particular conditions of use. They may contribute to the production of photochemical smog (see entry), with impacts on human health and the environment.
Vulcanization	An irreversible thermal process in the solid phase through which the elastomers present in a compound pass from a prevalently "plastic" state to one that is essentially "elastic". This is due to the formation of a series of bonds between the various polymeric chains that lead to the formation of three-dimensional molecular structures.

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- Pirelli Labs
- Pirelli Ambiente Holding
- Pirelli Real Estate
- Personnel Affairs
- External Communications
- Corporate Affairs
- MIRS, Production and Technical Services
- Pirelli Cables & Systems - Operations
- Manufacturing - Industrial Planning & Investments (TLC Cables and Systems Sector)
- Industrial Systems, Planning & Efficiency (Tyre sector)
- R&D (Energy Cables and Systems Sector)
- Product Marketing and Design (Energy Cables and Systems Sector)
- Sales e Marketing (Energy Cables and Systems Sector)
- HSE & Quality Business Unit Steel Cord
- HSE Alexandria (Egypt)
- HSE Argentina (La Rosa, Merlo, Quilmes)
- HSE Australia (Dee Why, Liverpool)
- HSE Brazil (Campinas, Feira de Santana, Gravataì, Jacarei, S. Andrè, Sorocaba, Sumarè)
- HSE Bratislava (Slovak Republic)
- HSE Bukit Indah (Indonesia)
- HSE Canada (Prescott, S. Jean)
- HSE China (Baosheng, Tianjin, Wuxi)
- HSE Delft (Holland)
- HSE France (Amfreville, Angy, Charvieu, Chavanoz, Gron, Neuf Prè, Paron, Vologne, Xoulces)
- HSE Germany (Breuberg, Merzig, Neustadt, Schwerin)
- HSE Great Britain (Aberdare, Bishopstoke, Burton o/T, Carlisle, Eastleigh, Prescot, Wrexham)
- HSE Guacara (Venezuela)
- HSE Hungary (Balassagyarmat, Kistelek)
- HSE Italy (Arco F, Ascoli, Battipaglia, Bollate, Figline V., Giovinazzo, Livorno F., Livorno, Merlino, Pignataro, Quattordio, Settimo T.)
- HSE Pikkala (Finland)
- HSE Shah Alam (Malaysia)
- HSE Slatina (Romania)
- HSE Spain (Manresa, S. Vicenç dels Horts, Villanueva y la Geltru)
- HSE Turkey (Izmit, Mudanya)
- HSE United States (Abbeville, Lexington, Little Rock, Rome)
- HSE Valadares (Portugal)

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