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ZIEGLER PAPER MILL

Environmental Report 2004

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ZIEGLER
P A P I E R

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DEAR READERS

A year ago we published our first Environmental Report. This current 2004 edition once again provides you with an overview of our company's environmentally relevant activities and achievements during the past year. As a paper manufacturer, Ziegler Paper Mill is firmly committed to ensuring that it exerts a responsible influence over future environmental developments.

The year under review was hallmarked by the major overhaul performed during the summer on our paper machine (PM 3), which means that our PM 3 now boasts state-of-the-art technology from headbox to pope reeler. As is to be expected with refurbishment projects on this scale, there were certain technical problems when the machine first went back on line which also impacted on our environmental performance. For this reason, comparisons with the previous year's figures are inconsistent. Nevertheless, we are on the right track towards achieving both the goals we have set

ourselves in reducing environmental pollution as well as those that we can expect from the legislators over the medium and long term. The difficulties resulting from the machine overhaul have all been identified and the majority of them already eliminated, while we are working intensively to solve the others.

Using natural resources sparingly and constantly reducing environmental pollution are both aspects of our on-going process of improvement as laid down in the ISO 14001:1996 environmental management system. In addition, the year under review saw FSC certification come into effect, which guarantees ecologically, socially and economically accountable use of forest timber throughout the wood utilisation chain right up to the end-user (chain of custody / COC).

Dr. Reinhard Jäger, Production Manager and Head of the Environmental Management System

1. ENVIRONMENTAL RESPONSIBILITY THROUGH ECOLOGICALLY RELEVANT MEASURES

Ziegler Paper Mill produces premium-quality wood-free fine papers for the printing industry and customised specialty papers for industrial processing at its sole location in Grellingen near Basel, Switzerland. As an independent manufacturer of specialty papers, we have always valued quality over quantity. We have consistently followed a niche strategy and have been successful for this reason, in spite of the increasing concentration within the paper industry.

The paper mill, which was founded in 1861, has been owned by the same family for five generations. Thanks to our innovative spirit and continued development, our company has won the respect of international customers. All the papers in our four product lines - Corporate Design, Natural Design, CAD/Office and Specialties - are of outstanding quality due

to their high processing standards and first-class properties. The brand strategy that is followed meets high expectations. Switzerland and Germany are the principal markets for our premium products and we work together with international trading companies to distribute our papers elsewhere in Europe. Ziegler Paper Mill is also represented in Asian markets and we have our own sales company in the USA which has been marketing our papers there since 2001.

Our services include consulting with individual customers and complete solution support. All of the 180 people who work in our company - management as well as employees - identify strongly with Ziegler Paper Mill. This commitment and the manageable size of our company allow us to serve our customers in a more personal and comprehensive way, one aspect of which we believe is to include reporting on our environmental performance from year to year.

FACTS 2004

Business	Production of premium-quality, wood-free fine papers and specialties
Annual output	65.000 tonnes on one paper machine (PM3, completely modernised in 2004); built-in on-line film press
Wire width	331 cm (trimmed)
Weight range	40-400 g/m ²
Quality assurance	ISO 9001:2000
Environmental quality system	ISO 14001:1996
FSC certification	SQS-COC-24310
Raw stock	Mixture of ECF and TCF pulps; pulp from internationally recognised wood certification programmes; supplied with FSC certificate at customers' request. Transported exclusively by ship and rail.
Water	Recycled through closed-loop recirculation.
Energy	Own power production using hydroelectric plants and gas turbine (combined heat and power plant), with excess power fed to the public power grid
Work force	180 people working days or shift work
Sales	CHF 90 million
Investments	CHF 13 million
Legal form	Family-owned corporation (AG) with share capital of CHF 5 million
Established	1861

2. USE OF RESOURCES

The specific consumption of fresh water, raw materials and energy provides a measure for the efficiency of our utilisation of resources.

2.1 Fresh water

In 2004, we utilised slightly more specific fresh water overall, with peaks in the first half of the year and during August following the start-up of our renovated paper machine. Our specific fresh water consumption is still excellent in comparison with what is normal for our sector.

	UNIT	2004	2003	DIFFERENCE FROM PREVIOUS YEAR
Fresh water usage	m ³	429 577	389 937	+ 10,17 %
Specific fresh water usage	l/kg paper gross	6.39	6.36	+ 0,47%

2.2 Raw materials

During the year under review, 1.036 kg of raw materials was used to produce 1 kg of paper (gross weight) as opposed to 1.034 kg in the previous year.

Wood pulp, filler and potato starch are the three most important raw materials and make up more than 98% of our raw materials in terms of quantity. The environmental impact resulting from the production of raw materials is not relevant in the representation of Ziegler Paper Mill's environmental performance.

Nevertheless, we can influence the area of sustainable forest management through our choice of suppliers: for this reason, Ziegler Paper Mill became one of the first paper manufacturers in the world to commit to the exclusive use of chlorine-free pulp from sustainable timber resources with recognised certification programmes in compliance with FSC, CSA, EMAS, PEFC and ISO 14000.

2.3. Energy

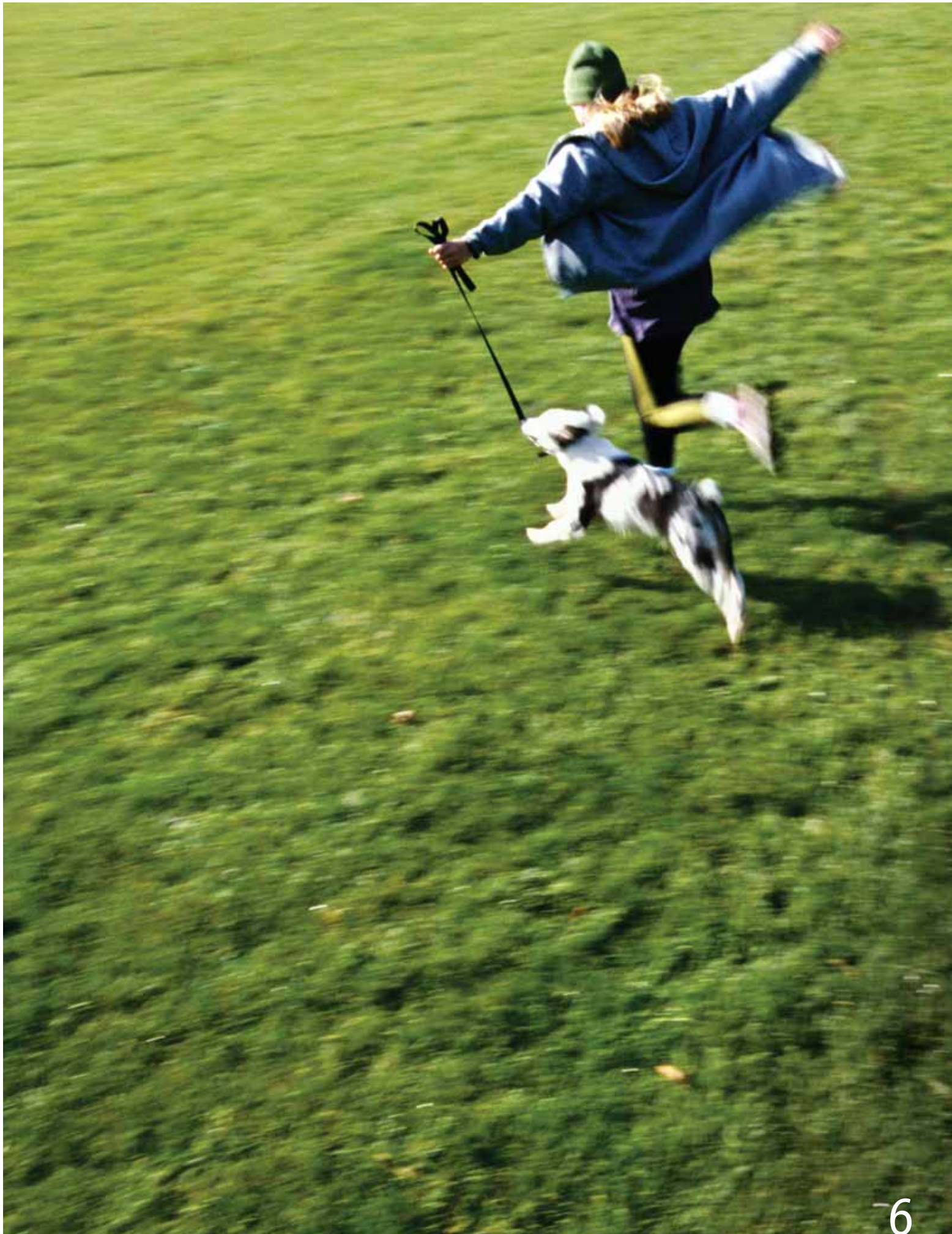
While energy production in our own hydroelectric plants had been adversely affected by the extremely dry weather in 2003, during the year under review it was back at the same level it had enjoyed for many years previously.

Although specific power consumption was reduced in comparison with the year before, specific steam and gas consumption were up by 1.0% and 1.4% respectively. We must assume that this is the result of the renovation of our paper machine, although the reasons have not yet been fully clarified. When the machine was shut down at the end of the year, the first improvement put into effect was to install an additional heat exchanger in the heat recovery plant. Further measures to cut back on steam and gas consumption are planned.

On balance, total specific energy consumption in 2004 was 0.5% higher than for the previous year, whereas in 2003 it had been 3.7% lower than in 2002.

Ziegler Paper Mill continues to attach great importance to increasing its energy efficiency, i.e. more output with less consumption, since in a highly energy-intensive industry like ours energy requirements represent the greatest risk to the environment. Therefore the power generation technologies we use are among the most environmentally safe: in addition to a modern combined heat and power plant fuelled by natural gas, we also operate four hydroelectric plants.

	UNIT	2004	2003	DIFFERENCE FROM PREVIOUS YEAR
Hydroelectric power production	MWh	11 155	8 563	+ 23,2 %
Thermal power production	MWh	28 444	28 405	+ 0,1 %
Power consumption	MWh	33 780	33 822	- 0,1 %
Specific power consumption	kWh/kg paper gross	0.502	0.519	- 3,4 %
Gas consumption	MWh	144 163	137 833	+ 4,4 %
Specific gas consumption	kWh/kg paper gross	2.144	2.115	+ 1,4 %
Specific steam consumption	kg steam/kg paper gross	2.058	2.037	+ 1,0 %
Total specific energy consumption (electricity + gas)	kWh/kg paper gross	2.646	2.634	+ 0,5 %



3. WASTE EMISSIONS

Every industrial activity generates waste products and paper making at Ziegler Paper Mill is no exception. Our on-going objective is to reduce the release of such waste products through a process of continuing improvement.

3.1 Wastewater

The fresh water obtained from the company's own ground-

water catchment system is used over and over again thanks to in-house recycling. After having been used repeatedly, the water is cleaned by Ziegler Paper Mill in its own primary treatment plant. Before the clarified wastewater is returned to the ecosystem through surface water, it is also treated biologically at the municipal treatment plant.

	UNIT	2004	2003	DIFFERENCE FROM PREVIOUS YEAR
Wastewater	m ³	350 101	324 068	+ 7,4%
Specific wastewater	l/kg paper gross	5.21	4.97	+ 4,6 %

The volume of specific wastewater, which correlates with the increased requirement for fresh water, was higher than in 2003, when the amount had fallen to less than 5 l/kg paper (gross) for the first time. The volume of wastewater produced ran parallel to fresh water consumption, with peak values being reached in August when the paper machine started operating again following renovation work.

At the beginning and in the middle of the year, our wastewater drainage to the preliminary mechanical treatment plant at Sennenmatt had to be shut off due to leaks, which led to an increase in effluent sludge at the municipal wastewater clarification plant. This did not, however, affect the efficiency of biological wastewater clarification. The first time

we shut down, a liner was inserted in the leaking pipe, the second leak made it necessary to lay provisional new wastewater drainage.

Added to this, the initial start-up of the refurbished paper machine was accompanied by a high volume of waste due to repeated paper tears and unscheduled standstills which also caused increased volumes of sludge both in our own primary clarification facility as well as in the municipal plant. During the year under review, the Office of Environmental Protection and Energy took six random samples to check the composition of our wastewater and found in all cases that our waste treatment plant and the composition of the wastewater samples conformed to requirements.

3.2 Waste air

The generation of electricity and heat in our central power plant produces waste air which is generally measured every two years on the authority of the Basel Air Pollution Control Office or when any changes are made to the power plant.

When talking about the waste air from our central power plant, a distinction must be made between

- the emission of the air pollutants carbon monoxide (CO), sulphur dioxide (SO₂), nitrogen oxides (NO_x) and soot, all of which tend to have a regional impact and
- the release of the greenhouse gas CO₂ from fossil fuels, which has a global impact.

3.2.1 Air pollutants CO, SO₂, NO_x, soot

Although there was no change during the year under review, long-term monitoring of NO_x emissions was performed at the request of the Air Pollution Control Office. The value of these emissions depends to a very large extent on the injection volume used in the gas turbine. Measurements demonstrated a high level of consistency over the entire period monitored. Not a single limit was exceeded, even when there was a breakdown in the supply of injection water. On the basis of these findings, the Air Pollution Control Office issued authorisation for the gas turbine to operate at 200 litres of injection water per hour.

The natural gas that we use as a fuel contains virtually no sulphur, which means that SO₂ concentration is under the

detection limit. CO concentration and soot volume are less than 10% of the permitted limit.

3.2.2 Release of fossil CO₂

The release of CO₂ is one of the most important environmental issues in the area of climate protection. Alternative technologies that do not depend on fossil fuels are not likely to be available in the near future. This is one more reason for Ziegler Paper Mill to rely on the solution that is the best for the environment at the present time: natural-gas-based cogeneration of electricity and heat with a focus on the best possible energy efficiency.

Swiss CO₂ legislation requires that by 2010 fossil fuel emissions of CO₂ resulting from energy generation are reduced by 15% compared with the 1990 level. To meet this goal, we are actively working on an industry solution under the leadership of the Energy Agency for Industry (EnAW), a Swiss organisation that was founded in 1999. The reduction as a target agreement between the Swiss paper companies collaborating on the industry solution and the Swiss government was successfully audited for the first time last year at Ziegler Paper Mill.

Although the reduction target applies to the industry as a whole, the calculation model devised by the EnAW makes it possible for the results of individual companies to be shown. The current status for Ziegler Paper Mill is given below.

CO ₂ EMISSIONS AT ZIEGLER PAPER MILL AS % [BASED ON ENAW CALCULATION MODEL]					
	LEVEL	TARGET	ACTUAL	REDUCTION	TARGET
	1990	2004	2004		2010
CO ₂ in %	100	80.6	81	- 19	- 15.2

Even though we just failed to achieve the goal in 2004, we are optimistic that we will reach the targeted reduction for 2010 in line with the agreement. However, in order to ensure

this, it is necessary to continue with our efforts to increase energy efficiency undiminished.

3.3 Solid waste

Our waste management programme is governed by the motto: "Prevent – recycle – re-use!".

- The major waste products in paper production are the manufacturer's own paper scrap and paper sludge from the mechanical treatment system. While our own scrap is completely recycled internally, paper sludge can be appropriately treated and used as a porosity agent in the clay-ware industry.
- Waste from packing paper, cardboard, printed matter and spool cores is recycled externally as waste paper.
- Stretch film waste is also recycled externally.
- Wood waste from shipping and packaging is recycled externally in CO₂-neutral thermal processes.
- The vast majority of waste materials from maintaining the infrastructure are separated, collected and recycled externally.
- Our paper products can be completely recycled after use by our customers and contribute to the recovered fibre that is essential for maintaining the waste paper fibre cycle.
- Packaging materials from our paper shipments can also be dealt with by our customers using the same means of recycling and re-use cited above.

3.4 Noise

In the year under review, no noise emission measurements were performed and no complaints were received from local residents. The last measurements taken show full compliance with noise emission limits along the perimeter of the mill site.

4. ACCIDENTS

There were no accidents or other incidents that might have resulted in contamination of the soil or water (River Birs, groundwater) or any other environmental threat.

5. ENVIRONMENTAL IMPACT

Our employees are our company's most important economic

agents. They also guarantee that Ziegler Paper Mill performs top-quality work. In compliance with our legal obligations, but also out of respect for our people and their health, we ensure the best possible protection against pollution within the mill. We therefore attach great importance to improvements, particularly those that benefit our production staff.

There were plans to install sound-proofing during the year under review to improve noise levels in our preparation plant. This target was modified during the course of the year and instead all staff working in areas with troublesome noise levels are to be issued with individual ear protectors. This measure will not only benefit the few people working in the preparation plant, but the majority of employees throughout the mill can profit from these improvements.

During the summer, staff in the machine room and preparation plant can be subjected to high temperatures. Technical measures taken in 2003 had already had a positive effect on heat levels in the machine room. During the year under review, we performed modifications to the ventilation system while the paper machine was being renovated, so that despite higher temperatures in the drying hood, it has proved possible to improve the climate in the machine room.

6. AUDITS AND LEGAL BASIS

With its integrated management system for quality, environment and safety, Ziegler Paper Mill ensures reliable and continuously optimised processes in all areas. Re-certification in accordance with ISO 9001:2000 and first-time certification with ISO 14001:1996 were completed in 2002 and are still valid. In the year under review, a second external audit was performed by the RWTüV in connection with the environmental management system, while the SQS carried out the certification audit internally for the FSC standard for chain of custody. This entitles Ziegler Paper Mill to distribute FSC products that have been comprehensively examined and originate from forests managed in compliance with the principles and criteria of the Forest Stewardship Council (FSC). No significant changes in environmental legislation or regulations came into force during the year under review

ACHIEVEMENT OF GOALS

Ziegler Paper Mill's environmental performance during the year under review was adversely affected by the problems of faulty wastewater drainage and the initial difficulties on start-up of the paper machine after it had been refurbished in the summer. It was also necessary to optimise the new steam and condensate system as well as the new ventilation system. On the one hand, this resulted in larger quantities of undissolved materials and sludge reaching the municipal treatment plant, although this had no impact on cleaning performance. On the other hand, it meant that material and energy efficiency were lower than had been planned.

FUTURE OBJECTIVES

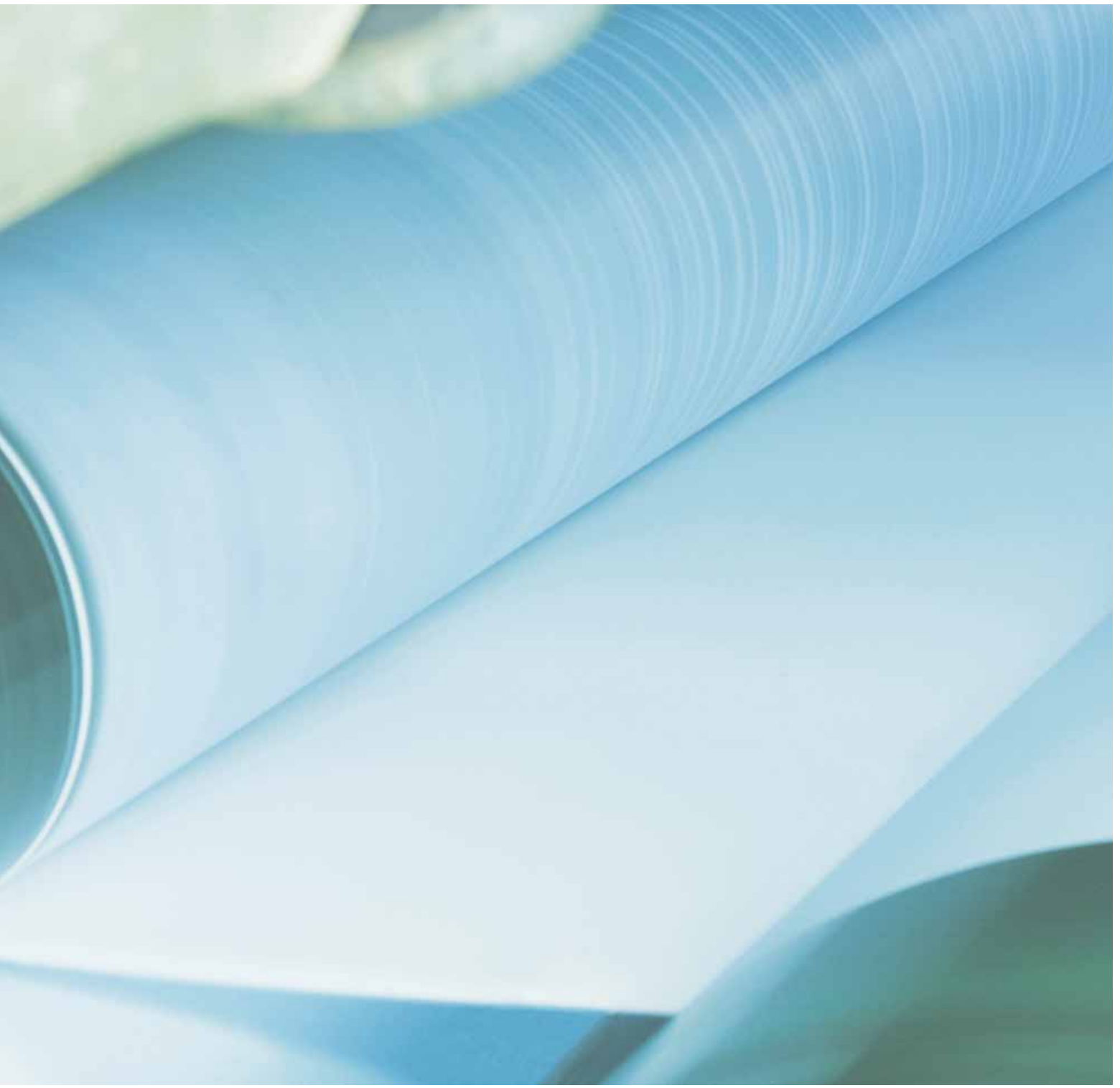
By implementing the ISO 14001 environmental management system, we have committed ourselves to strive continuously for improvement in all environmentally relevant areas. As

long as paper production is based on fossil fuels, our highest priority is the best possible energy efficiency and CO₂ reduction. At the same time, Ziegler Paper Mill will also pay greater attention to the environmental aspects of upstream processes in the production chain, which are also demonstrated by the environmentally friendly and socially responsible use of timber in accordance with the FSC COC standard. Immediate objectives for 2005 include the following measures, which have been planned or are already in the process of implementation:

- Pilot phase with selected employees for the introduction of individual ear protection.
- Compilation of basic data for a new paper sludge filter, which is also an initial prerequisite both for the replacement of our mechanical waste treatment plant by a more efficient unit and for the option of our own biological wastewater treatment system.



At least 30% of the fibre used in the manufacturing process of this paper comes from well-managed forests, independently certified according to the rules of the Forest Stewardship Council.
SOS-COC-24310
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