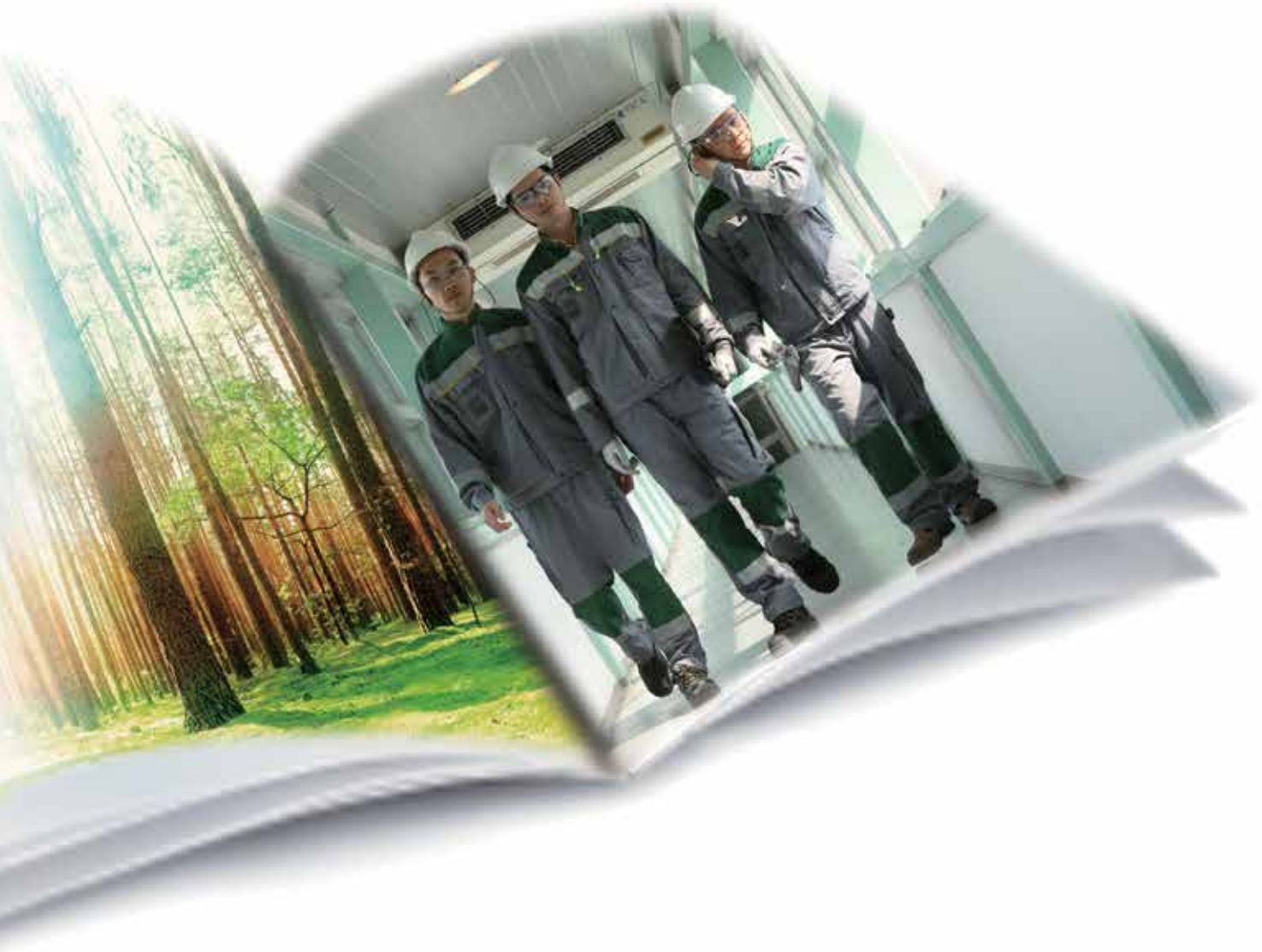
The Biofore Company UPM

ENVIRONMENTAL
performance in 2014



UPM Changshu

Through the renewing of the bio and forest industries, UPM is building a sustainable future across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Paper Asia, UPM Paper Europe and North America and UPM Plywood. Our products are made of renewable raw materials and are recyclable. We serve our customers worldwide. The group employs around 20,000 people and its annual sales are approximately EUR 10 billion. UPM shares are listed on NASDAQ OMX Helsinki. UPM – The Biofore Company – www.upm.com

UPM Changshu

UPM Changshu paper mill, a subsidiary of UPM-Kymmene Corporation, is situated at Changshu Economic & Technological Development Zone against south bank of Yangtze River, approximately 90 km west of Shanghai.

Founded in 1995, the mill started its operation in early 1999. After the second paper machine start-up in 2005, the mill currently produces wood-free uncoated and wood-free coated paper with two paper machines (PM). Pulp, which is used as raw material originate from sustainably managed forests. Calcium carbonate is used as a filler of paper and kaolin is additionally applied for coated paper as a pigment. A new paper machine PM3 is under construction and is scheduled for operation by the end of 2015.

The mill is also equipped with auxiliary facilities including an in-house combined heat and power plant, a fresh water plant and a waste water treatment plant. These facilities supply electricity, steam and fresh water for paper-making and purify the waste water and boiler flue-gas from the processes. Water used for paper production is taken from and discharged after purification to the Yangtze River.

In addition to the paper mill, UPM Changshu site accommodates other two UPM units, UPM Asia R&D centre and UPM Raflatac label plant. UPM Raflatac label plant is excluded from the scope of this report.

Production capacity	800,000 tonnes of wood-free uncoated and coated paper		
Personnel	674		
Products	Office Paper Products:		Graphic Paper Products:
	UPM Jetset	UPM Office	UPM Finesse Classic Matt
	UPM Copykid	SOHO	UPM Finesse Classic Gloss
	UPM Yes	Horizon	UPM Fine
	Future		
Certificates	EMAS – EU Eco-Management and Audit Scheme ISO 14001 – Environmental Management System Standard ISO 9001 – Quality Management System Standard OHSAS 18001 – Occupational Health and Safety System Standard PEFC™ Chain of Custody – Programme for the Endorsement of Forest Certification FSC® Chain of Custody – Forest Stewardship Council® Certificate for Measurement Assurance of Jiangsu Province *All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility)*		
Environmental labels	China Green Labelling for copy paper		

UPM Changshu paper mill Environmental performance in 2014 is a supplement to the Corporate Environmental Statement of UPM's pulp and paper mills (available at www.upm.com) and provides mill-specific environmental performance data and trends for the year 2014. The annually updated mill supplements and the UPM Corporate Environmental Statement together form the joint EMAS Statement of UPM Corporation. The next Corporate Environmental Statement and also this supplement will be published in 2016.

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Environmental year 2014

It is the mill's long-term commitment to achieving and maintaining a world-class environmental performance. In the past years, great efforts have been made to minimize the impact on the environment in its business operations.

The most important progress in 2014 was the successful upgrading of boiler flue-gas cleaning system. This newly upgraded system started serving the mill's two coal boilers in September 2014 and has significantly reduced the amount of sulphur dioxide, nitrogen oxides and particulate emissions into the air. As a result, the emissions of air pollutants are now clearly below the new, much stricter limits imposed by the local environmental authorities in the second half of 2014.

In the water treatment area, the short-term solution to the high total nitrogen (TN) load was to replace the urea-containing chemical with a urea-free chemical in paper-making process, after a successful trial with substitute chemical in March 2014. A long-term solution for the TN issue, however, is still under development.

Most of the mill environmental parameters were within the optimum ranges indicated in the Best Available Techniques (EU BAT BREF 2014) except for the electricity consumption, where further improvement is still expected. For this purpose, many energy-saving initiatives were taken during the year to minimize the consumption of energy across the mill. By implementing the energy saving actions, electricity saving targets for both paper machines were achieved.

As part of group-wide program, UPM Changshu paper mill fulfilled its Clean Run targets for 2014. In order to promote the environmental awareness throughout the organization, Clean Run deviation flash reports were duly communicated with employees all over last year.

Environmental Monitoring

The following environmental monitoring activities are carried out in the mill area

A. Yangtze River water quality nearby the mill: bi-monthly test by Changshu Water Bureau
B. Measurement of mill waste water
   – pH, COD, TSS, BOD_5, P, N, NH_4-N: daily by mill laboratory
   – flow, pH, COD and NH_4-N: continuously by on-line meters
   – pH, TSS, BOD_5, P, N, AOX, colour: monthly by third party
   – all above data quarterly tested by authority
C. Air (mill boiler stack)
   – SO_2, NOx, particulates and CO: continuous measurement
   – Sampling of SO_2, NOx and particulates: quarterly by authority
D. Continuous measurement of air quality in Changshu city centre by authority
E. Quarterly test of mill border noise by third party
F. Monthly site inspections by local authority

Mr. Jin Lisheng
Mill environment manager

Mr. Pentti Putkinen
Mill general manager

Air

UPM Changshu power plant is a combined heat and power (CHP) plant. It is equipped with two coal-fuelled boilers rated at 241t/h each and four gas boilers rated at 56 t/h each. The coal-fuelled boiler's flue-gas is purified through processes of denitrification, desulphurization and particulate removal.

In July and August 2014 each, due to desulphurization chemical jams, a one-hour concentration deviation above the permitted limits of the sulphur dioxide emission was recorded. Corrective and preventive actions were taken for the chemical and its feeding system to avoid jam again in the future.

Air pollutants emissions for UPM Changshu power plant are limited both by the total volume and unit concentration specified in the tables below by the local and national authorities.

Air Pollutant Permit Quota 2014

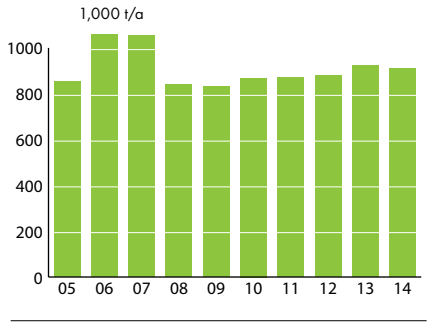
Sulphur dioxide, SO_2	3,328 t/a
Particulates	554 t/a
Nitrogen oxides, NOx	not defined

Air Pollutant Concentration Limits (hourly mean value, unit mg/nm^3)
– specified by national standard GB13223-2011 for thermal power plant emissions

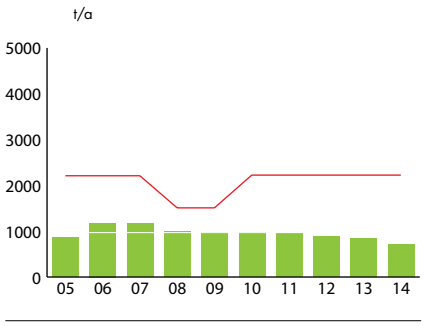
Item	Limit before June 30, 2014	Limit after July 1, 2014
Sulphur dioxide, SO_2	1200 (400*)	50
Particulates	100	20
Nitrogen dioxide, NO_2	650	100

**local government limit*

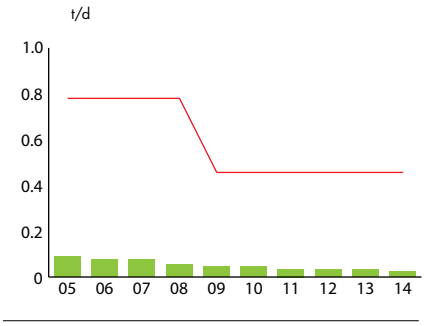
FOSSIL CARBON DIOXIDE, CO_2



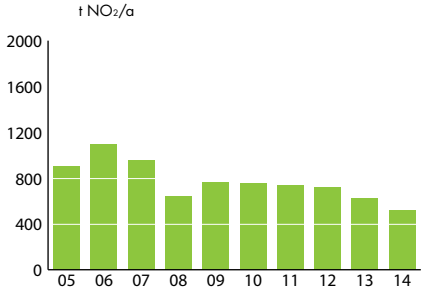
SULPHUR DIOXIDE, SO_2



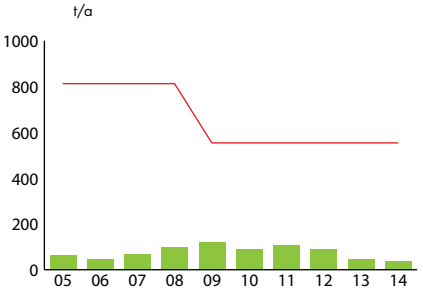
BIOLOGICAL OXYGEN DEMAND, BOD_5



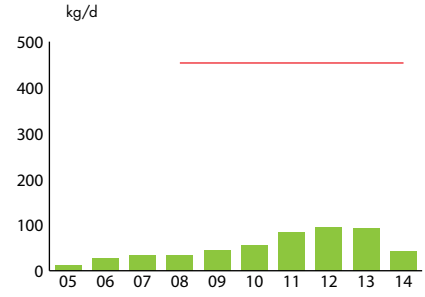
NITROGEN DIOXIDE, NO_2



PARTICULATES



TOTAL NITROGEN, TN



Remark1: Above measurements are done according to Chinese standards which are derived from ISO standards, but they might not be fully comparable.
Remark2: NOx are monitored by measuring NO and calculated into NO_2

— Permit limit

Water

In the mill's fresh water usage in 2014, a reduction of 0.26 m^3 was achieved per tonne of paper compared with previous year.

Mill waste water treatment plant (WWTP) was running smoothly and the key parameters in the purified waste water were all at optimum levels. Trouble-shooting continued for the total nitrogen (TN) concentration, which exceeded the permitted limit slightly for a few days in 2013. The root cause of the problem was found to be the use of urea-containing chemical in paper-making process and the year-on-year reduction of the total volume of water usage. The problem was for the time being resolved in March 2014 by using urea-free substitute chemicals in the paper-making processes. A long-term solution for solving TN issue, which might be an additional denitrification stage at WWTP, is under study.

The limits of both the quantity and the concentration of the water pollutants of an industrial enterprise is mandatorily set by the local or national authorities (quantity: by local permit; concentration: by table 3 in "Discharge Standard of Water Pollutants for Pulp & Paper Industry", standard code GB3544-2008. Table 3 is in China the strictest limit that is only applicable to Tai-lake basin, an area of 36,900 square kilo meters within Yangtze River delta).

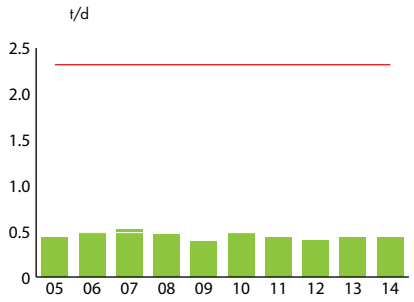
Water Pollutant Permit Quota 2014 (t/a)

Chemical oxygen demand, CODcr	834.0
Total suspended solid, TSS	166.7
Ammonia nitrogen, NH_4-N	83.3
Total nitrogen, TN	not defined
Total phosphorus, TP	8.3

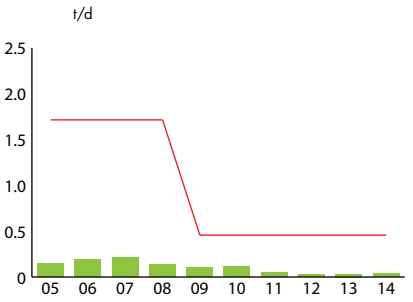
Water Pollutant Concentration Limit (daily average in mg/l)

Item	Limit	2014 mean value
CODcr	50	32.5
TSS	10	2.7
NH_4-N	5	0.6
TN	10	3.1
TP	0.5	0.1
AOX	8	0.05

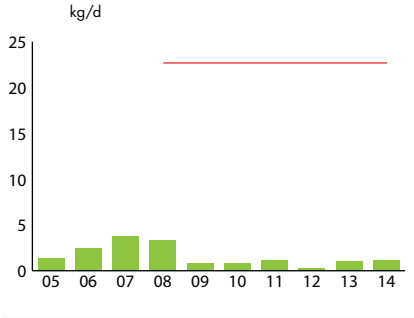
CHEMICAL OXYGEN DEMAND, CODcr



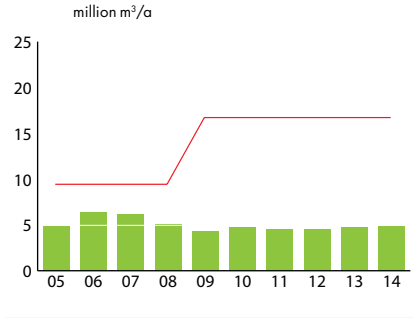
TOTAL SUSPENDED SOLIDS, TSS



TOTAL PHOSPHORUS, TP



EFFLUENT VOLUME



Remark1: Above measurements are done according to Chinese standards which are derived from ISO standards, but they might not be fully comparable.
Remark2: Daily permit values are calculated from annual permit.

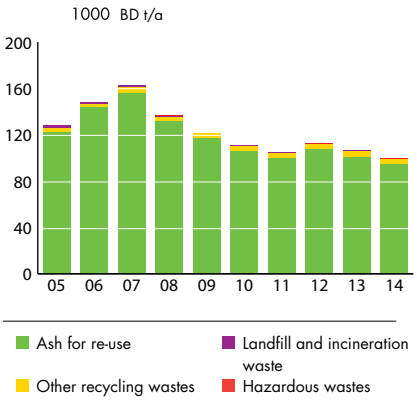
— Permit limit

Waste

Mill solid wastes are mainly boiler ashes, waste packing and maintenance wastes. The total annual amount of the waste in 2014 was 100,410 t, of which 99% were recycled or reused. For example, the ashes are reused as raw materials for cement industry. Non-recyclable industrial waste were disposed by landfill. Landfill site is located 10 km south-east of the mill. The site is owned and operated by Changshu city government. Since February 2014, the domestic waste from the mill was incinerated in an external power plant instead of landfilled. There was also a small amount of hazardous wastes which were treated by qualified environmental companies in compliance with the relevant laws and regulations.

Effluent sludge is incinerated in mill boilers as biofuel so it is excluded from waste statistics.

SOLID WASTE



Remark3: The weights included in the figures are dry weights.

Environmental parameters 2014

The figures related to production as well as raw material and energy consumption are published as aggregated figures on group level in the UPM Corporate Environmental Statement.

Production capacity	Woodfree uncoated paper Woodfree coated paper	450,000 t 350,000 t
Raw materials and additives	Pulp Fillers and coating pigments Chemicals for paper production Other	See UPM Corporate Environmental Statement for more information
Energy	Fossil and biogenic fuels Purchased power	Fossil 99%, biogenic 1% See UPM Corporate Environmental Statement for more information
Emissions to air	Particulates Sulphur dioxide, as SO_2 Nitrogen dioxide, as NO_2 Carbon dioxide, as CO_2 (fossil)	36 t 702 t 520 t 909,000 t
Water intake	Paper process water Cooling and common area water Municipal water	5,467,000 m^3 2,565,000 m^3 206,000 m^3
Discharges to water	Clean cooling water Process effluent volume BOD_5 CODcr Solids Phosphorus, P Nitrogen, N	234,000 m^3 4,840,000 m^3 8.0 t 157 t 13.1 t 0.4 t 15.2 t
Waste to landfill *	Construction and production wastes	530 t
Waste for incineration	Domestic waste	286 t
Waste to recycle *	Boiler ash Wood waste Waste paper and board Metal Other recycling waste	94,412 t 395 t 2,148 t 1,589 t 928 t
Hazardous waste		122 t
Size of mill area		184.5 ha

** Dry weight*

A new flue-gas sulfur dioxide scrubber

Performance against targets in 2014

TARGET	ACHIEVEMENT	COMMENTS
1) Clean Run observations – encourage employees to report Clean Run observations (not less than18 reports /year)	No	Nine Clean Run observations were reported. Employees' awareness of environmental care to be further enhanced.
2) Water protection – effluent total nitrogen (TN) concentration deviation solved – COD discharge ≤ 0.45 t/d – TSS ≤ 33 kg/d – ammonia nitrogen ≤ 5 kg/d	Yes Yes Yes Yes	This deviation is resolved in March 2014
3) Air protection – existing boiler flue-gas system upgrading project completed and started operation with new limits to be effective on July 1st , 2014	Yes	Project implemented in autumn 2014
4) Water saving – PM1 ≤ 5.2 m^3/t paper – PM2 ≤ 6.5 m^3/t paper	No Yes	To solve temporary runnability issue, more water is consumed on PM1 in April 2014
5) Electricity saving – save1.5% for paper production based on 2013 consumption	Yes	PM1 saved more electricity than expected

Environmental targets 2015

TARGET	DEPARTMENT RESPONSIBLE
1) Clean Run observations – encourage employees to report Clean Run observations (not less than 50 reports /year)	All
2) PM3 effluent smoothly handled – WWTP expansion project completed timely and contingent plan ready for taking over the new waste water from PM3	PM3 project and mill WWTP team
3) Air protection – ensure coal fired boiler emission concentrations meeting the new permit limits NO_2 < 100 mg/nm^3 SO_2 < 50 mg/nm^3 particulates < 20 mg/nm^3	Power Plant manager
4) Mill-wide energy and water saving versus 2014 results – electricity reduction 0.5% per unit product – steam reduction by 1% per unit product – water usage reduction 0.1m^3 per unit product	Paper machine managers

EMAS
Verified environmental management
REG.NO. FI - 000058

VALIDATION STATEMENT

As an accredited environmental verifier (FI-V-0001), Inspecta Sertifiointi Oy has examined the environmental management system and the information of UPM Changshu Environmental Performance 2014 report and of UPM Corporate Environmental statement 2014. On the basis of this examination, the environmental verifier has herewith confirmed on 2015-03-30 that the environmental management system, this UPM Changshu Environmental Performance report and the information concerning UPM Changshu of UPM Corporate Environmental statement are in compliance with the requirements of the EMAS Regulation (EC) No 1221/2009.

UPM (China) Co., Ltd.

No. 2 Xingye Road, Changshu Economic and Technological Development Zone, Jiangsu Province,China 215536
Tel. +86 512 5265 1818
Fax +86 512 5265 2300

For further information, please contact:
Jin Lisheng
Environment Manager
Tel. +86 512 5229 5997
Jin.lisheng@upm.com

Pu Yinghong
General Manager Assistant
Tel. +86 512 5229 5092
pu.yinghong@upm.com

UPM

www.upm.com/cn

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