The Biofore Company

UPM

ENVIRONMENTAL
performance in 2014

UPM Rauma

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 Rauma

UPM's Rauma mill is located by the sea on the west coast of Finland, near Rauma's city centre. Metsä Fibre Oy's pulp mill, Forchem Oy's tall oil distillation plant and Rauman Biovoima Oy's biofuel power plant are also based at the mill site. UPM supplies the raw and chemically treated water used at the site, and is responsible for the treatment of the site's industrial and municipal waste waters. The companies collaborate closely in energy production, and Rauman Biovoima supplies the district heating power used by the city of Rauma. Rauman Biovoima's operations support the city's Hinku carbon neutrality project.

The Rauma mill has three paper machine lines, a fluff pulp line, a twin-line debarking plant, two grinderies, two TMP plants, a surface water treatment plant, a biological effluent treatment plant and a landfill site for industrial waste.

The paper machines manufacture magazine paper grades – one of the machines produces uncoated, supercalendered (SC) paper, while the other two produce lightweight coated (LWC) paper. The paper made in Rauma is used in magazines, sales catalogues and advertising products. In addition to paper, the mill produces fluff pulp for the production of hygiene products and table-top products.

Also located at the UPM mill site is Rauman Biovoima Oy's biofuel power plant, which procures its operation, maintenance and environmental services from UPM. Over 90% of the energy produced by Rauman Biovoima Oy is produced using renewable fuels. As the power plant is a separate company, its operations have only been included in this EMAS report with regard to vicarious liability.

Production capacity	1,000,000 tonnes of paper 150,000 tonnes of fluff pulp
Personnel	580
Products	Uncoated magazine paper: UPM Max, UPM Cat, UPM Smart, UPM Impresse Plus Coated magazine paper: UPM Star, UPM Ultra, UPM Cote, UPM Valor, UPM Cote Silk, UPM Ultra Matt Fluff pulp
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® *All certificates can be found from UPM's Certificate Finder (available at www.upm.com/responsibility)*
Environmental labels	EU Ecolabel

UPM Rauma 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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EU Ecolabel www.ecolabel.eu
FI/11/001

Environmental year 2014

In 2014, the Rauma paper mill continued its efforts to increase productivity.

Energy-saving projects were continued in the area of pulp production and in the operation of the paper machines. Energy efficiency improved in terms of steam consumption. However, due to the pulp grade proportions that were used, consumption of electricity increased. Work is still underway to find the ideal settings for the grinders used in pulp production. Initiatives that help the mill to reduce its consumption of energy are emphasised in the mill's initiative programme.

In paper production, the target for water consumption was not reached. Specific water consumption levels increased slightly from those in 2013. Solids losses also increased slightly, and the overall target was not achieved. The specific emissions of the mill were in compliance with BAT levels in all areas.

No significant change occurred in the amount of chemicals stored at the mill site. The reporting specifications of the Finnish Safety and Chemicals Agency (Tukes) require an operational principle document to be maintained for chemical procedures. The Rauma mill is committed to maintaining the required level of safety. Chemical safety is based on UPM's internal chemical handling standard.

There were no significant environmental deviations at the mill site during the year. The wastewater treatment plant operated normally. No joint shutdown of the integrated mill site took place.

The planned noise reduction improvements were already completed in 2013. Noise levels were measured again, and the noise distribution model was updated. In 2014, noise prevention work mainly focused on preventive maintenance. Noise caused by the forest industry facilities is below permit limits.

Construction works continued at the Sampaanalanlahti field. Power plant ash is utilised in the works, improving the reuse percentage of factory waste.

Studies concerning the wind power plants to be built at the mill site continued, but after complaints no building permission was granted in the special permission process.

ISO 9001, ISO 14001 and OHSAS 18001 re-certifications were completed in 2014.

Constant improvement while making operations more effective

The mill is constantly developing its processes and operations, providing personnel and partners with training and continuing to minimise risks to the environment. All figures indicate that the mill's operations comply with the Best Available Technology (BAT) criteria. The group-wide Clean Run campaign to avoid environmental deviations continued. Risk mapping documents and risk management plans are kept up to date.

Our operations are evaluated by the environmental authorities and independent external environmental specialists. The mill works in co-operation with various parties on a regional level.

We participate in drawing up regional environmental programmes, analysing the state of waters and planning programmes of measures in compliance with the Water Framework Directive. In particular, we want to take part in projects aimed at improving the state of the Rauma sea area and the Baltic Sea.

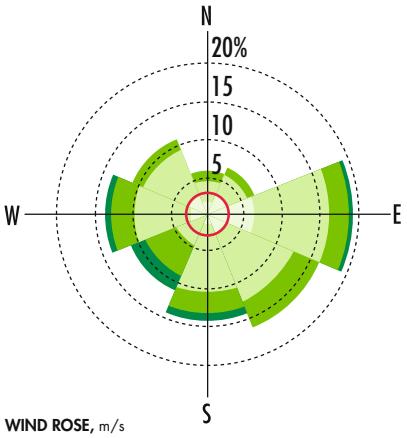
The EU Ecolabel has been awarded to all production at the paper mill. The label shows that a product has been manufactured in a way that saves energy and water, minimises the amount of waste, favours renewable natural resources and uses raw materials that are as environmentally friendly as possible. The EU Ecolabel is the only independent environmental label valid throughout Europe.

Kari Pasanen, General Manager

Eerik Ojala, Environment and Safety Manager

Air

No significant change occurred in sulphur emissions compared to levels in 2013. Consumption of fuels with sulphur content remained unchanged. Nitrogen oxide emissions, however, decreased from the previous years, partly thanks to more efficient control of oxygen levels during combustion. Thanks to the choice of fuels used, fossil carbon dioxide emission levels have remained low.



WIND ROSE, m/s

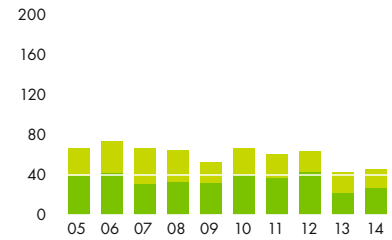
- Calm
- 0.5–2.9
- 3.0–4.9
- 5.0–6.9
- >7.0

The wind rose shows the direction of the wind. Wind directions and speeds were measured in Sinisaari in Rauma in 2014. The measurement point is approximately 0.5 kilometres from the mill towards the city.

Source: Finnish Meteorological Institute, Monitoring air quality in Sinisaari, Rauma in 2014 (Ilmanlaadun seuranta Rauman Sinisaaressa 2014)

FOSSIL CARBON DIOXIDE, CO_2

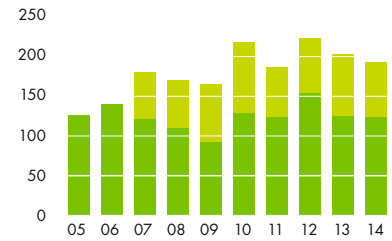
1,000 t/a



- Rauman Biovoima, UPM's share
- Paper mill

SULPHUR DIOXIDE, SO_2

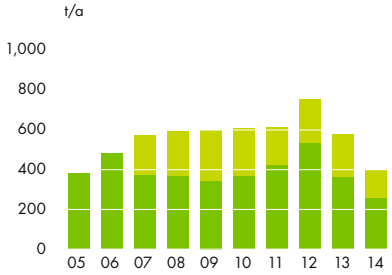
t/a



- Rauman Biovoima, UPM's share
- Rauman Biovoima, other

NITROGEN OXIDES, NO_2

t/a



- Rauman Biovoima, UPM's share
- Rauman Biovoima, other

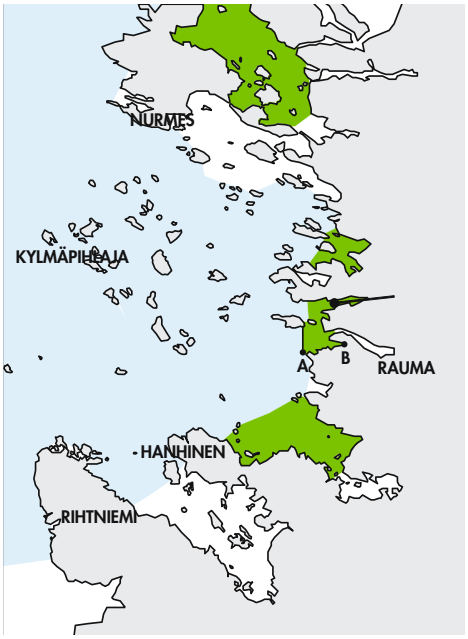
Noise

Previously agreed actions to reduce the noise emissions were completed and the noise distribution model was updated in 2013. Preventive noise reduction activities will be continued.

Water

An operational committee made up of representatives from UPM, Metsä Fibre and the city of Rauma is in charge of developing the co-treatment and monitoring its success. The monitoring programmes for the effluent treatment plant and the water system are pending approval from the authorities.

Wastewater treatment results were good. Annual total emissions were in compliance with BAT levels.



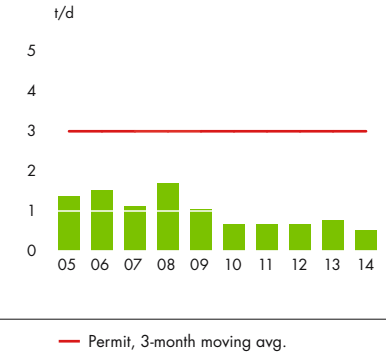
Source: Lounais-Suomen vesi- ja ympäristötutkimus Oy

A. City of Rauma treatment plant
B. Forest industry treatment plant, where waste water from the city of Rauma has been treated since 2002

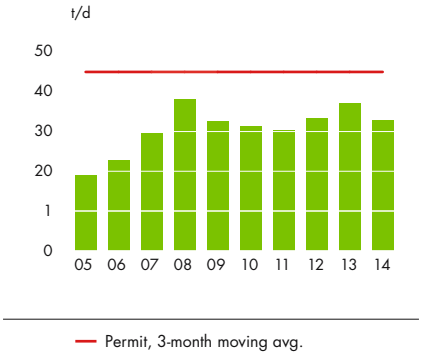
The figure shows the state of the sea area near the Rauma mill.

The waste water load from the forest industry and the joint treatment plant is now so low that the state of the sea water can no longer be significantly improved by making treatment more efficient.

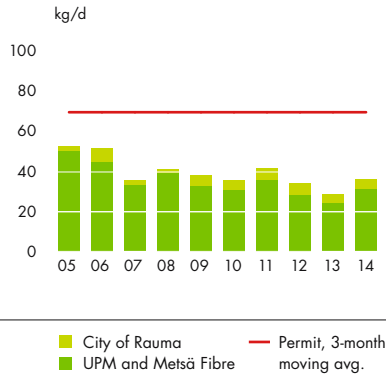
BIOLOGICAL OXYGEN DEMAND, BOD_7



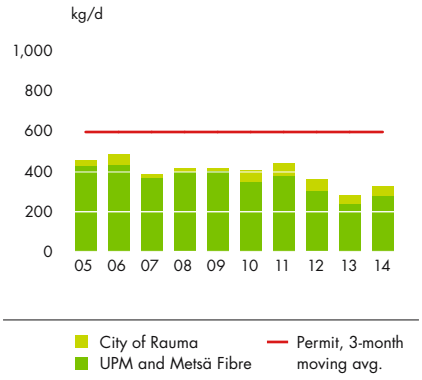
CHEMICAL OXYGEN DEMAND, COD_{cr}



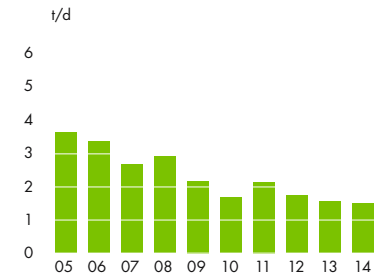
PHOSPHORUS, P



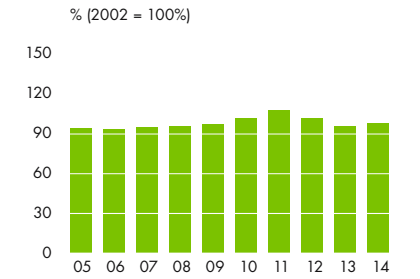
NITROGEN, N



SUSPENDED SOLIDS INTO THE SEA

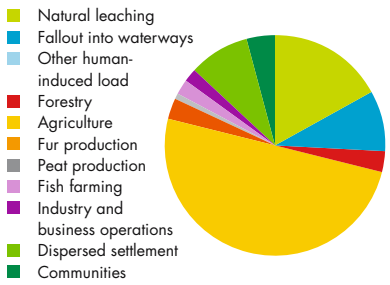


PROCESS WATER CONSUMPTION

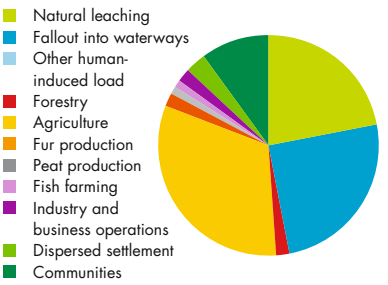


EMISSIONS INTO WATERWAYS IN THE RIVER BASIN DISTRICT OF THE KOKEMÄENJOKI RIVER – ARCHIPELAGO SEA – BOTHNIAN SEA

PHOSPHORUS



NITROGEN



The ecological classification of bodies of surface water within the regional programme of area measures was good in the southern part of the Rauma coast and satisfactory further north. The share of the total nutrient load in surface water produced by industry and businesses was small, at less than 2%, of which only about 10% was useful to algae (causing eutrophication).

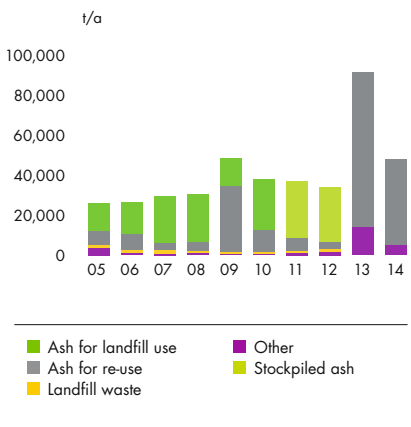
Source: West Finland Regional Environment Centre (Länsi-Suomen ympäristökeskus), River basin management plan for the River Basin District of River Kokemäenjoki – Archipelago Sea – Bothnian Sea until 2015 (Kokemäenjoen–Saaristomeren–Selkämeren vesienhoitoalueen vesienhoitosuunnitelma vuoteen 2015)

Waste

With the exception of domestic waste and process waste, the majority of solid waste can be reused. The ash is produced in the Rauman Biovoima power plant, but UPM organises the disposal of the ash in accordance with a mutual agreement. The landfill area complies with the latest environmental requirements. Different waste types are stored in dedicated areas, which makes it possible to reuse them in the future. In 2015, the aim is to continue using ash and other recycled materials from the forest industry in the surface structures of landfills and in the construction of storage areas. New ways of reusing materials in earthworks are also being looked into. Ash will be used to replace other construction materials.

A total of 42,763 tonnes of ash from the power plant was reused in the construction works of the Sampaanalanlahti field, 10,326 tonnes of which was unloaded from temporary storage. 3,101 tonnes of kaolin was reused, 2,411 tonnes of which from temporary storage. The amount of landfill waste remained very low. The 'Other' waste category consists of domestic waste, process waste, metal waste and hazardous waste. The waste amounts used in the figures have been calculated as dry weights. The landfill monitoring programme is being managed by the authorities.

BY-PRODUCTS AND WASTE



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	Paper RaumaCell	1,000,000 t 150,000 t
Raw materials	Pulp and chemicals	See UPM Corporate Environmental Statement for more information.
Energy	Biogenic and fossil fuels Purchased energy (UPM)	Biogenic 75%, fossil 25%.
Emissions into air	Particulates Sulphur dioxide, SO_2 Nitrogen oxides, NO_x Fossil, CO_2	3 t 123 t 264 t (254 t + NO_x 10 t from propane) 45,702 t
Water consumption	Process and cooling water	12,485,364 m^3
Emissions to water	Clean cooling water Process effluent Biological oxygen demand, BOD_7 Chemical oxygen demand, COD_{Cr} Solids Phosphorus, P Nitrogen, N	1,436,703 m^3 11,494,176 m^3 70 t 3,254 t 205 t 5 t 44 t
Waste	Waste to landfill*	
	– kaolin	0 t
	– process waste (UPM)	312 t
	– process waste (Rauman Biovoima)	45 t
	– domestic waste (UPM)	25 t
	– domestic waste (Rauman Biovoima)	1.4 t
	To temporary storage to wait for reuse	
	– ash	0 t
	– kaolin	393 t
	Reused waste	
	– ash	42,763 t
	– kaolin	3,101 t
	– metal waste, etc. (UPM)	386 t
	– metal waste, etc. (Rauman Biovoima)	181 t
	– recycled fibre etc.	209 t
	– wood waste	2 t
	Incineration	
	– energy waste	1 475 t
	Hazardous waste	
	– UPM	97 t
	– Rauman Biovoima	348 t
Size of mill area		198 ha

Printing papers manufactured in Rauma are used by magazines such as Seura, Kotilääkäri, Viva, Elle, Avotakka, Blue Wings, Yhteishyvä, Hello, Hola and Cosmopolitan.

** Waste amounts given as dry weights.*

Performance against targets in 2014

- No environmental non-conformances occurred.
- The solids loss target of the paper machines – less than 1.5% – was not achieved.
- The water consumption target of the paper machines – less than 10.7 cubic metres per tonne – was not achieved.
- Energy efficiency improved in terms of the use of steam. Work to enable the mill to achieve its overall energy consumption goals continues.
- Ash reuse rate was over 70%.

Environmental targets 2015

The most significant actions for improving safety and protecting the environment in 2015 will be:

- Preventing environmental deviations and achieving the Clean Run objectives
- Further reductions of water consumption and solids loss
  – Water consumption less than 10.7 cubic metres per tonne
  – Solids loss less than 1.4% of production
- Improving energy efficiency
  – Reuse percentage of ash over 70%

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 Rauma Environmental Performance 2014 report and of UPM Corporate Environmental statement 2014. On the basis of this examination, the environmental verifier has herewith confirmed on 2015-04-17 that the environmental management system, this UPM Rauma Environmental Performance report and the information concerning UPM Rauma of UPM Corporate Environmental statement are in compliance with the requirements of the EMAS Regulation (EC) No 1221/2009.

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UPM Fine, 140 g/m^2. Printed 06/2015.