

Emas Report 2010

Nokia plant

**nokian
TYRES**

As an authorised auditor, DNV Certification Oy Ab, FI-V-0002 has, on 4 May, 2011, stated that Nokian Tyres plc's environmental system and the 2009 update of the EMAS report comply with the EU's EMAS regulation (EY 1221/2009). This English version is based on the Finnish text.



THE UPDATE OF EMAS REPORT 2010

Thanks to the market recovery and an increase in sales, production at the Nokia plant increased from the previous year. The amount of vulcanised products produced by the plant increased by 12,786 tons (35%) from 2009. At the end of 2010, production was adjusted according to the increase in demand. The passenger car tyre unit shifted to a 6-day working week and the heavy tyre unit to a 7-day production week. The progress in concern to environmental impact was positive; for example, energy efficiency improved and the relative total amount of waste reduced. The amount of scrap rubber and scrap tyres generated in production has reduced significantly. Various corrective and improvement measures have been taken to enhance energy efficiency.

Environmental impact of the Nokia plant 2010

SOLVENT EMISSIONS VOC
74.5 t/a

ODOUR

PARTICLE EMISSIONS
< 1.5 t/a

NOISE
< 50 dB

INPUT

Energy 169.2 GWh

- › Water
 - Municipality 188.7 m³/d
 - Nokianvirta river 36,252 m³/d
- › Raw materials
 - Chemicals 20,000 t
 - Rubber 25,000 t
 - Semi-finished products 7,500 t

PRODUCTS

48,900 t tyres
and tread materials

WASTE

- › Mixed waste (landfill) 64 t
- › Utilised 4,553 t
- › Hazardous 208 t

WATER

- › Into the sewage 356 m³/d
- › Into the Nokianvirta river ~36,081 m³/d

The image above summarises the operations of the plant and their environmental impacts.

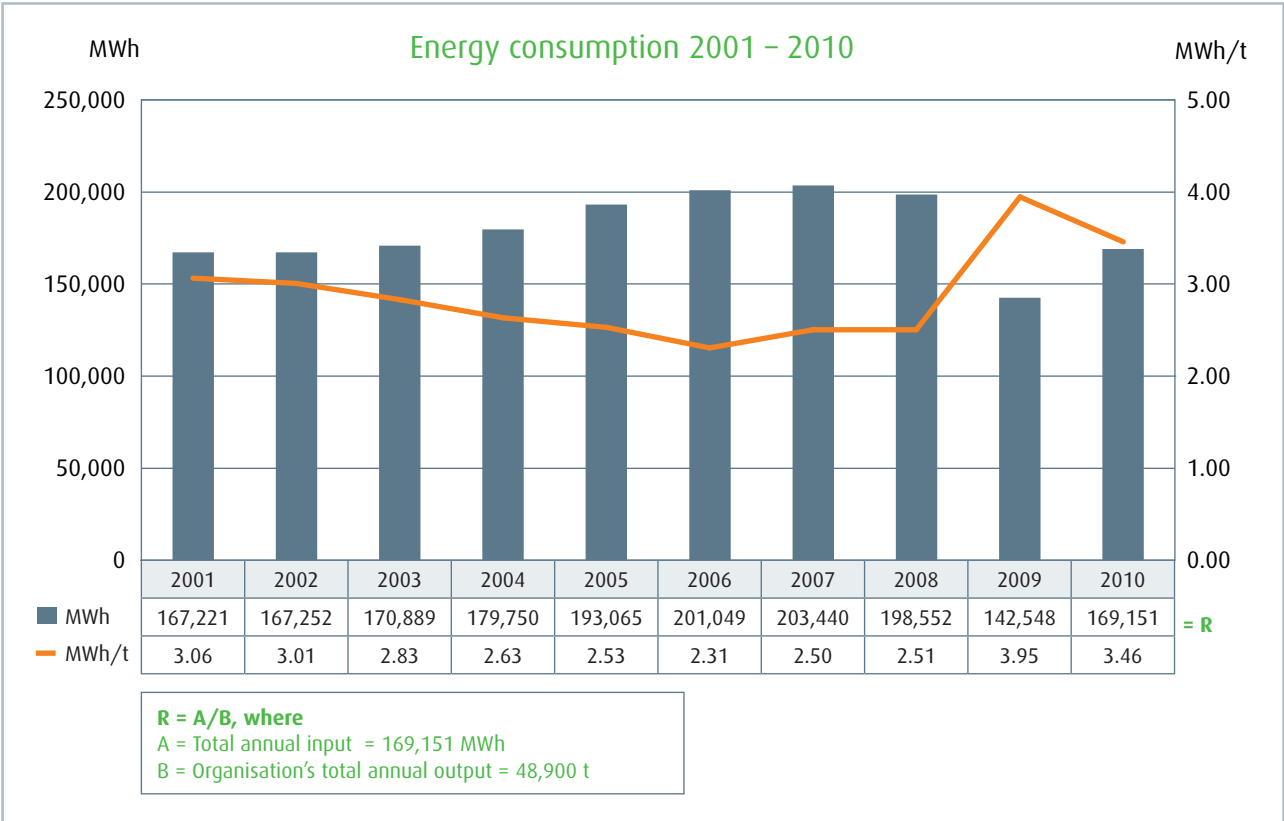
The total amount of raw material used was approximately 52,500 tons. The raw materials comprised of rubbers, semi-finished products and chemicals. The most significant chemicals used were carbon black, plasticizers, light fillers, and activators.

d = day
m³ = cubic metre
a = year
t = ton

ENERGY CONSUMPTION

The total energy consumption at the Nokia plant amounted to 169,151 MWh in 2010. In proportion to production, the energy consumption rate was 3.46 MWh/h, which shows a clear improvement on the previous year. The enhanced energy efficiency can be attributed to the increased number of operating days, as well as various repairs and improvements to energy distribution.

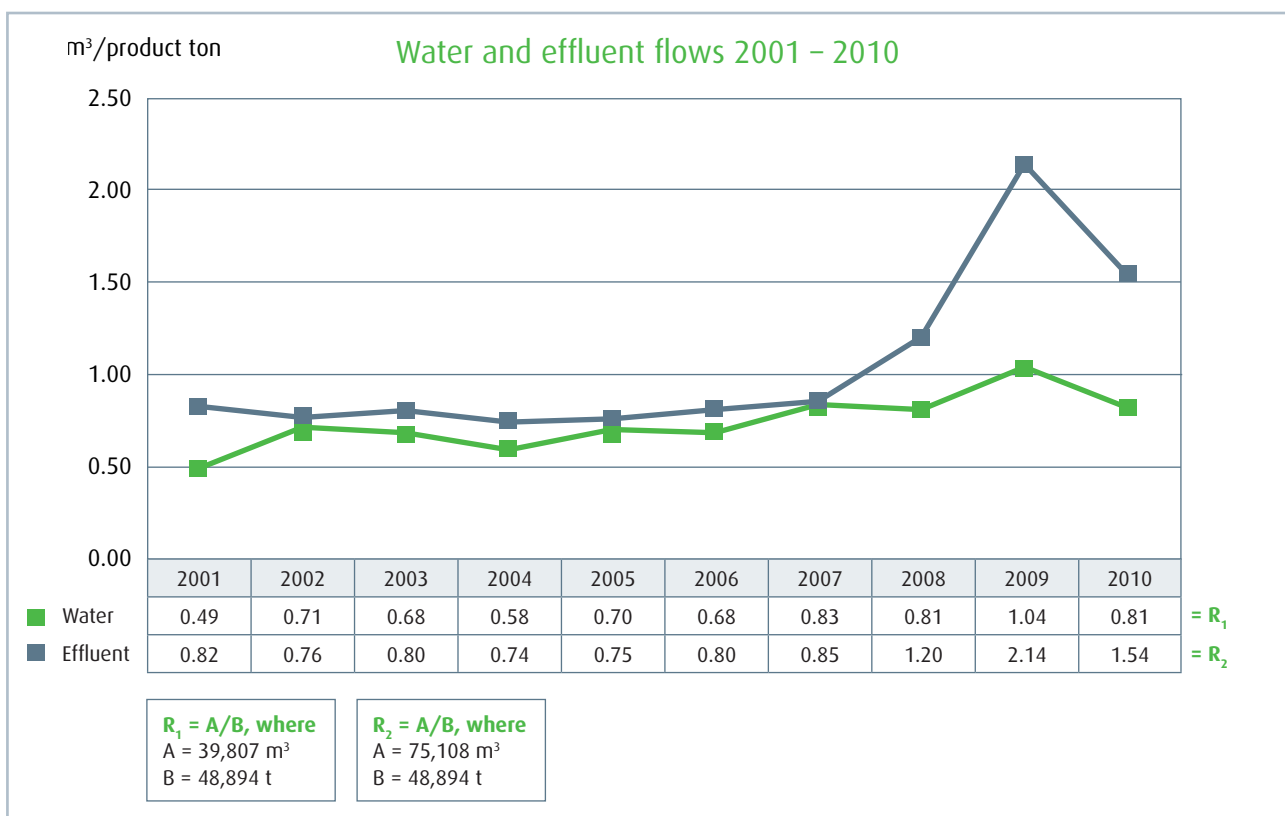
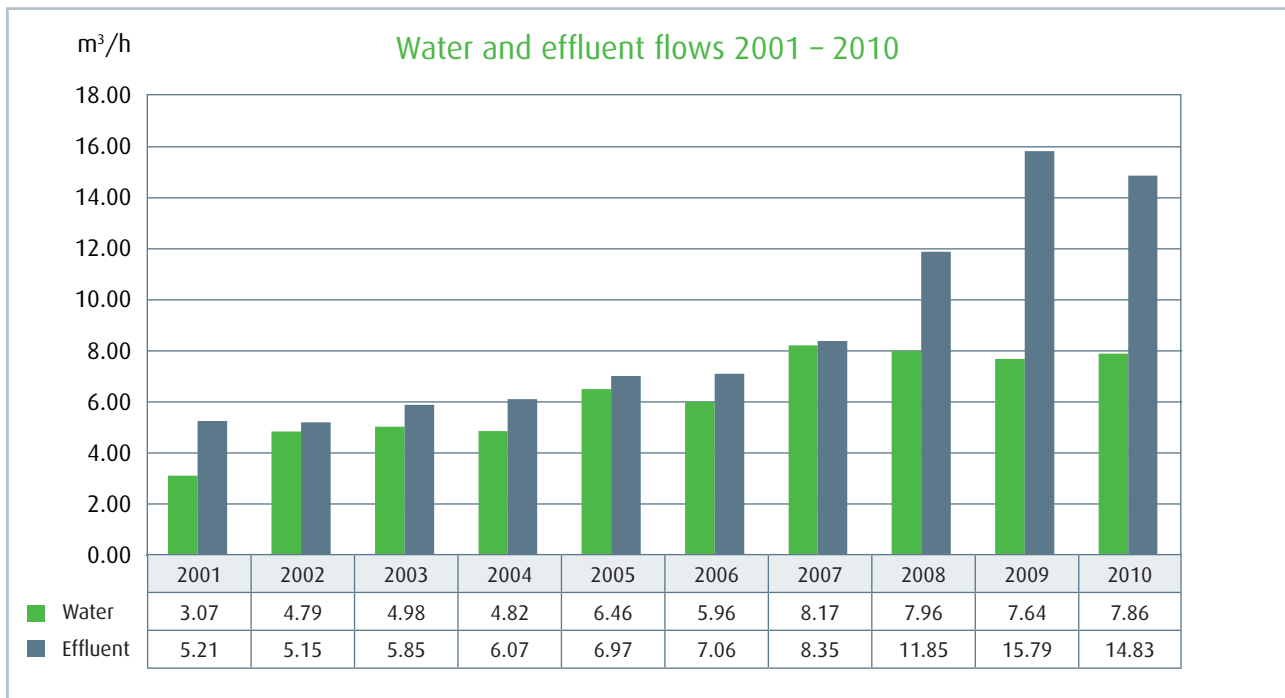
Nokian Tyres uses energy in the form of steam, industrial water and electricity. Electricity accounts for 45% of the energy consumed, steam for 32% and industrial water for 23%. All of the electricity used is hydro electricity, i.e. electricity produced ecologically using hydropower.



WATER AND EFFLUENT FLOWS

The tyre plant uses water for cooling, washing and household consumption. The cooling water is taken from the Nokianvirta river through the plant's own water treatment plant and returned to the river from a closed cycle. When river water is used for washing, the effluent flows are directed to the municipal sewage plant. The amount of water taken from the river in 2010 totalled 7,649,112 m³, i.e. 1,510.5 m³/h.

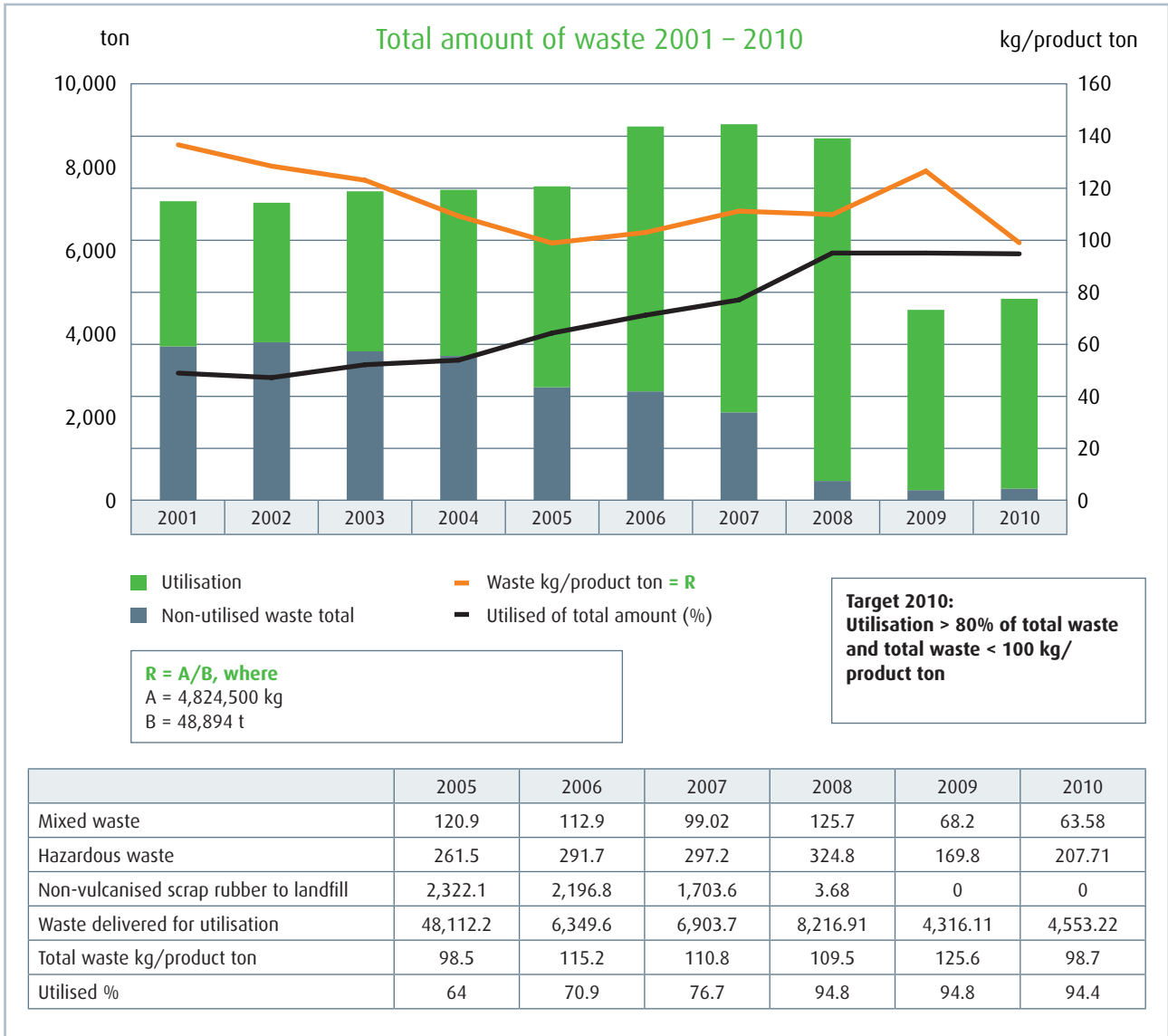
When reviewed in proportion to production rates, the efficiency of water and effluent flows has improved significantly on the previous year. The amount of clean water taken from the municipal water supply system was 0.81 m³/h, and the sewage directed to the municipal water treatment plant amounted to 1.54 m³/h. Improvements and repairs have been performed in several departments in order to reduce the intake of water and prevent the release of river water used for cooling into the sewerage system.



THE AMOUNT OF WASTE

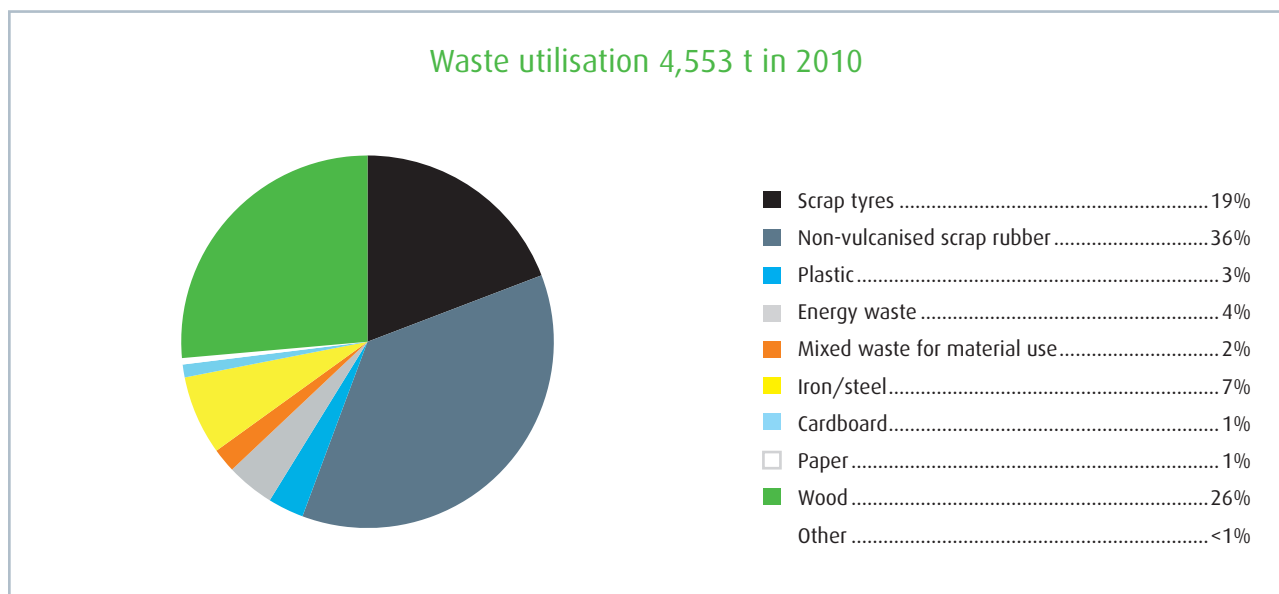
The amount of waste in proportion to production decreased from the previous year. A total of 94.4% of all waste generated in 2010 was taken for utilisation. The utilisation rate and total waste amount targets (<100 kg/product ton) were met. The relative amount of waste was 98.7 kg/product ton.

Some of the non-vulcanised scrap rubber and powders are reused in the plant's own production as raw material in rubber compounds.



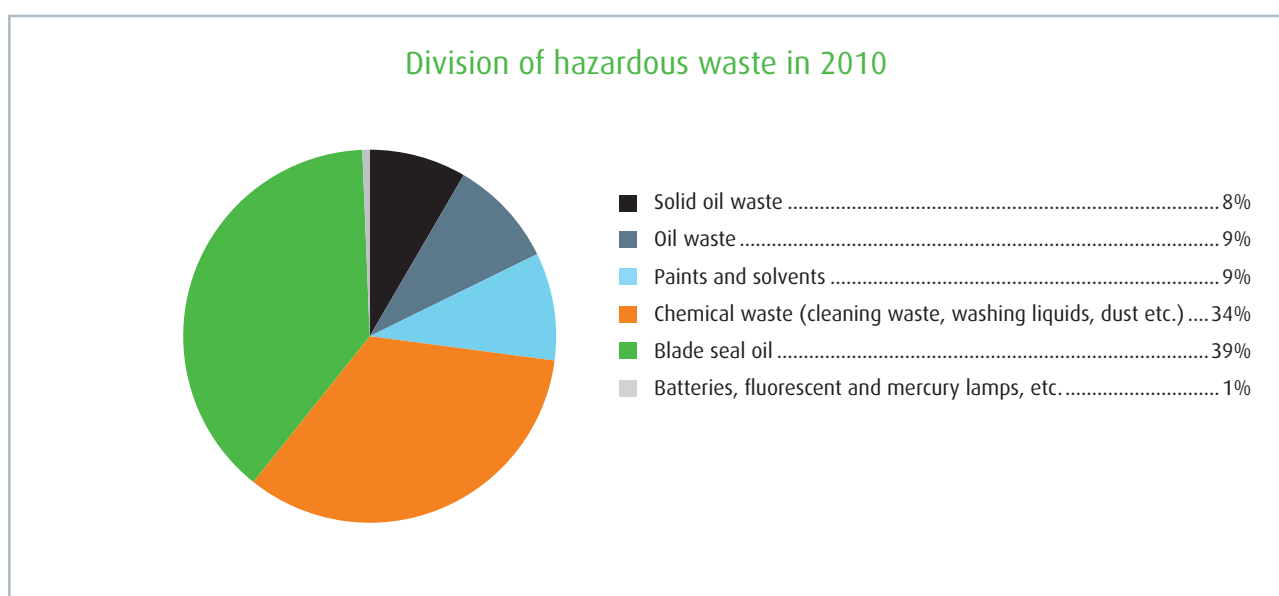
Waste delivered for utilisation

Various types of waste are delivered for further utilisation. The existing national collection and utilisation channels for different kinds of waste make the utilisation process easier. In most cases, waste is utilised as material. Apart from the separately sorted energy waste, only some scrap wood is utilised as energy. Nokian Tyres handles packaging utilisation jointly with the Environmental Register of Packaging PYR Ltd, a community of packaging-industry producers.



Division of hazardous waste

The total amount of hazardous waste in 2010 was 207.7 tons, i.e. 4.25 kg/product ton (corresponding figures for 2009: 169.8 tons, i.e. 4.7 kg/product ton). All hazardous waste is taken to an authorised incineration plants.

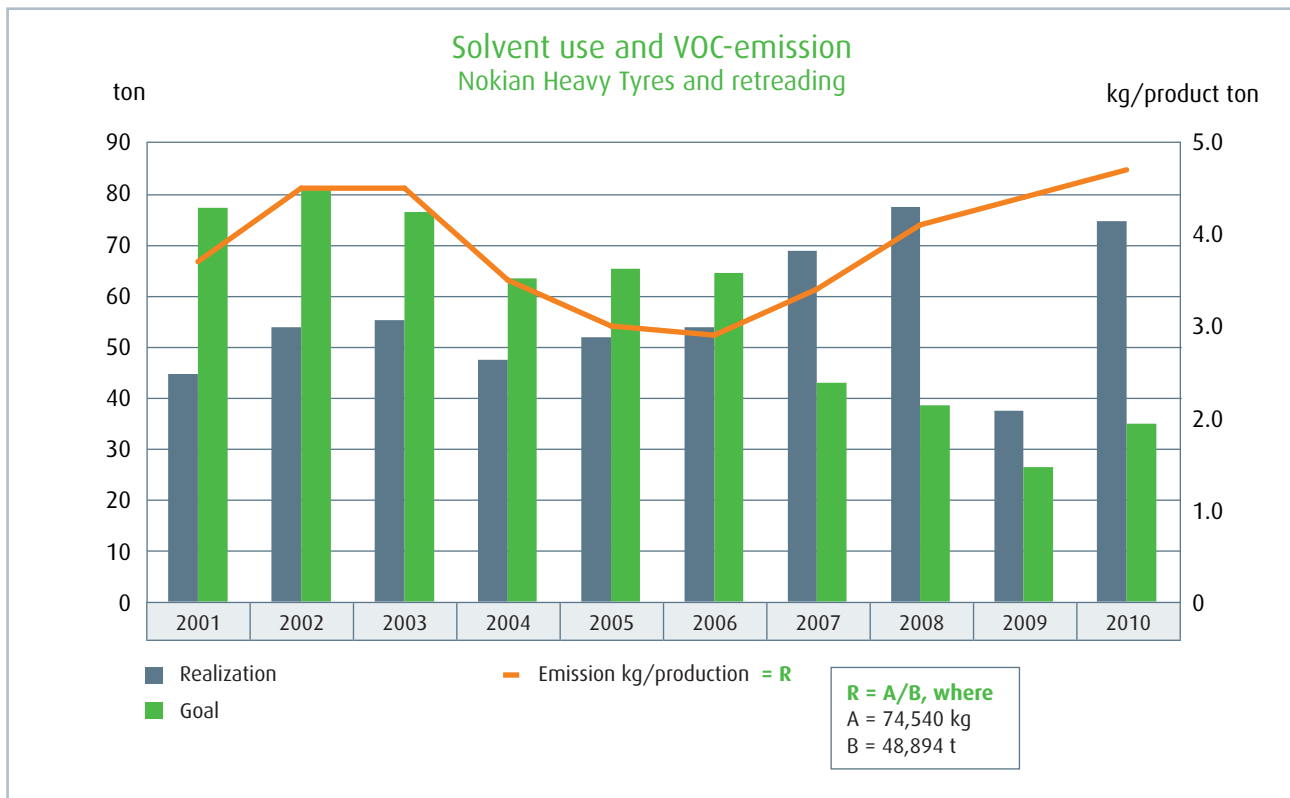


SOLVENT EMISSIONS IN PRODUCTION

Solvents are normally used in the rubber industry as adhesives. Volatile organic compounds increase lower atmosphere ozone, and for that reason the EU has set targets to decrease solvent emissions. Nokian Tyres has not been able to achieve the industry-specific emission limit value outlined in the VOC-directive, which is set at a maximum 25% of the total amount of used solvents. In 2010, the emission rate was 53%. Nokian Tyres' environmental permit sets the maximum limit of VOC emissions at 55 tons per year, and Nokian Tyres exceeds this limit value. Nokian Tyres submitted an application for amending the environmental permit with regard to the VOC emissions limit in October 2009. This amendment application was later complemented upon the respective authorities' request in December 2010.

Nokian Heavy Tyres prepared a project plan to reduce VOC emissions in late 2009. The aim is to develop the activities, production processes and products of Nokian Heavy Tyres in such a manner that the solvent emission limits set forth in the environmental legislation can be achieved by the end of 2012 and the total benefits of development projects can be maximised. The target is to decrease the overall use of solvents by 60% from the relative level of 2008 by 2013. The project shall focus on rubber compound material development, production technology development, as well as possibly developing purification technology suitable for heavy tyre production.

All solvent fumes from the retreading material production are led to a catalytic incineration plant.

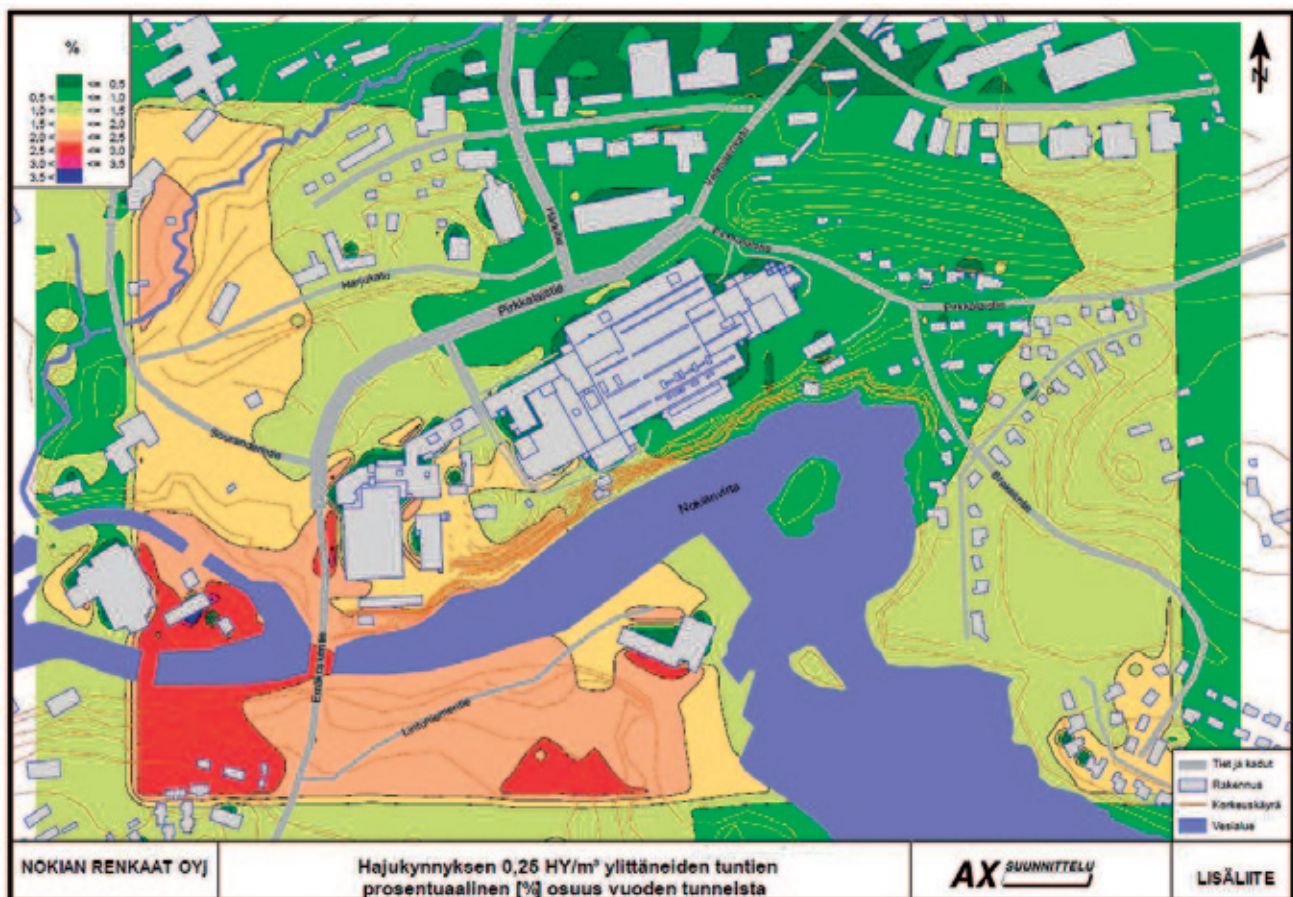


BIODIVERSITY

The total area of the Nokia plant is 117,864 m², of which built-up area accounts for 117,345 m².
The ratio of built-up area in proportion to production is 0.42 t/m².
The plant has no impact on biodiversity.

ODOUR SURVEY

A survey of the Nokia plant's odour emissions, as well as odour modelling were conducted in summer 2010. There are no limit values for odours in Finland, and the reference values used here are those set for Germany. According to these limits, there may be odour detected in residential and rural areas during a maximum of 10% of the total hours of a year. The Nokia plant's odour emissions exceeded three percent of the total hours in very small areas on the southwest side of the plant. In a wide area surrounding the plant in all directions, the presence of odour amounted to 0.5–2.5% of the time.



In the image: Nokian Tyres Plc – Percentage rate of hours of the year during which the odour threshold of 0.25 HY/m³ was exceeded. Symbols: Streets, building, height, water system.

DISTURBANCE

Reported disturbance and feedback 2010	Cause
Equipment downtime	Bypass of the catalytic incineration plant for 23 due to defects in the logic system, frequency converter and inward relief valve.
Disturbance notifications	No notifications or reports of disturbance were submitted by the plant's neighbours in 2010.
The equipment defect incidents were immediately reported to the municipality of Nokia and Pirkanmaa Regional Environment Centre.	

KEY ACTIONS IN 2010

Object	Target for 2010	Implementation 2010	Description/Result
Implementation of the REACH regulation	According to project plan	Completed according to project plan	
Annual emission measurements	VOC, cooling and wastewater, and particle measurements Noise and odour surveys using dispersion models	Completed according to project plan	
VOC emissions	<25% of the purchased solvents, proceeding according to NHT's project plan	53% of the purchased solvents	Solvent use reduction has not succeeded as planned. The project continues according to plan in co-operation with public authorities.
CO ₂ emissions	Defining the product's carbon footprint	Project will be completed once the final report is written.	Deadline postponed to April 2011
Total amount of waste	<100 kg/product ton, utilisation rate >95%	98.7 kg/product ton, utilisation rate 94.4%	
Non-vulcanised scrap rubber	<1,500 t (1,537 t in 2009) According to department-specific targets	1,662 t	
Waste survey at the Nokia plant	According to plan	Survey conducted, areas of improvement noted	
Safety audits	2 audits/department	2 audits/department	
Internal cross-auditing between Nokia and Vsevolozhsk	In 2010	Vsevolozhsk plant audited	
Increasing environmental awareness among personnel	According to the environmental programme	Implemented	

KEY ACTIONS IN 2011

Object	Area	Objective	Schedule
Legislation	Implementation of the REACH and CLP regulations	According to project plan	12/11
Emissions into the air	VOC emissions	<25% of the purchased solvents, proceeding according to NHT's project plan (to be continued)	12/11
Emissions into the air	CO ₂ emissions	Defining the product's carbon footprint	4/11
Emissions into the air	Mastication	According to the project plan, washers will be installed on the mixing machine to minimise odour emissions	12/11
Waste management	Total amount of waste	<100 kg/product ton, utilisation rate >95%	12/11
Waste management	Non-vulcanised scrap rubber	<1,500 t (1,537 t in 2009) According to department-specific targets	12/11
Management system	Safety audits	2 audits/department	12/11
Chemicals control	Chemical use control	Quarterly inspections/audits (storage and use of chemicals)	12/11
Communication	Increasing environmental awareness among personnel	According to the environmental programme	12/11

REACH

EU's new REACH-regulation sets new obligations on the importers, producers and users of certain substances. The producers and importers of articles should know the chemical composition of their products as they are obligated to submit a so-called, Substances of Very High Concern (SVHC) statement concerning the product upon request. Nokian Tyres does not use any SVHC substances in its own production and since 2009 it has made sure that its contractual manufacturers do not use any such substances in their production either.

According to the EU Directive, all tyre manufacturers were obligated to abandon the use of the possibly carcinogenic HA oils by 2010. Nokian Tyres required its contractual manufacturers to abandon HA oil use by June 2009. Nokian Tyres abandoned the use of HA oils in its production in 2005 and was the first tyre manufacturer in the world to do so.

Nokian Tyres Plc upholds all obligations pursuant to the REACH regulation. An up-to-date REACH statement is available on the company website.

Accredited 4.5.2011

Tuula Leppänen

Main Reviewer DNV Certification Oy Ab, FI-V-002

The published update of the EMAS report complies with the EU's EMAS Regulation