


Environment


Environmental responsibility is a key element in making Johnson Matthey a more sustainable business. We have an impact on the environment in many ways – through the resources we use, the way we operate our processes and the action of our products and services on enhancing the environment for others.



CASE STUDY

Fuel Cell Deployed for Energy Efficiency at West Deptford >
How fuel cell technology is improving energy efficiency at the site


We take raw materials and apply our knowledge and expertise to turn them into more valuable products. The costs of these raw materials are likely to increase in future as they are depleted or become harder to access. By increasing the efficiency with which we use these valuable resources, we will generate cost savings for our business today and help to conserve resources for the future.



CASE STUDY

Sustainability in Action as Billingham Site Reduces Energy Burden >
Read about energy saving initiatives at the site


The recycling and reuse of precious metals are a fundamental element of what we do. We shall continue to draw on our expertise in this area to benefit the resource efficiency of our own operations and provide enhanced solutions and services for our customers.



CASE STUDY

Improving Aircraft Efficiency with Q+™ >
Find out how our technologies help improve the efficiency of jet engines

Environmental targets are a key part of our Sustainability 2017 Vision. The group aims to become carbon neutral, achieve zero waste to landfill and to halve the key resources per unit output consumed by 2017. In order to meet these aspirations, long term environmental improvement plans and performance indicators have now been established.



CASE STUDY

Green Energy Tactics at our Brussels Site >
How the site has switched to green energy sources

The group also has a target to achieve ISO 14001 registration at all major manufacturing sites by 2010. Good progress has been made during the year and by the end of 2008/09, 32 sites had achieved ISO 14001 registration representing 80% of our manufacturing workforce. All other manufacturing sites have plans in place to achieve registration during 2009/10.

Biodiversity

By the nature of our business activities, Johnson Matthey has very little negative impact on the biodiversity of terrestrial, freshwater and marine environments. We do not have any manufacturing facilities located in areas of significant eco-importance. As part of all significant investments and acquisitions, we complete a detailed environmental impact assessment. In addition, all our manufacturing sites that have an ISO 14001 compliant



management system undertake an environmental impacts assessment that formally identifies how their operations may have an effect upon local biodiversity. Over the years, we have managed a number of projects looking at improving the areas of biodiversity at our operating sites.

[Read more about our environmental policy and management system](#)

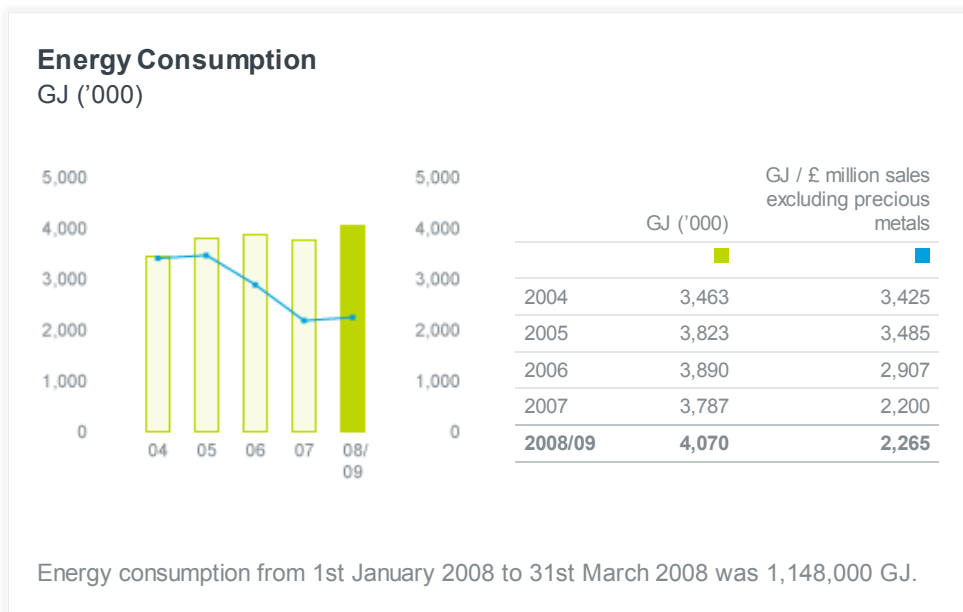
Our Performance and Achievements

Johnson Matthey undertakes a comprehensive annual review of group environmental performance which covers all manufacturing and research and development facilities. We report data over a five year period for our total energy use and emissions of greenhouse gases, acid gases, oxides of nitrogen (NOx), sulphur dioxide (SO₂) and volatile organic compounds (VOCs). We also report on the amount of waste we produce, waste to landfill and our water use.

Environmental performance data for 2008/09 is presented for the financial year from 1st April 2008 to 31st March 2009. Data from 2004 to 2007 is presented on a calendar year basis. Where necessary, the data has been restated to reflect changes in the business, for example divestments and site closure. The group sold its Insulators and Alumina businesses on 26th November 2008 and as such, data presented for 2008/09 excludes any contribution from these businesses. The group sold its Ceramics Division on 28th February 2007 and as such, data presented for 2007 excludes any contribution from Ceramics Division.

Energy Consumption

The group's total energy consumption increased by 7% in absolute terms and by 3% relative to sales excluding precious metals compared with prior year. Energy consumption in 2008/09 was split between 2,509,000 GJ arising from direct sources i.e. various fuels and natural gas combusted by the company and 1,561,000 GJ from consumed electricity generated by a supplier. The global energy bill for the 2008/09 year was £45.4 million, increased from £35.1 million in 2007.



Global Warming Potential

Our total global warming potential (GWP) reduced by 2% and by 7% relative to sales excluding precious metals compared with last year. The absolute reduction in GWP demonstrates early progress towards our goal to become carbon neutral and was achieved through increasing our use of green energy sources and from reducing harmful emissions from our manufacturing processes.

We report greenhouse gas emissions from process and energy use and convert the total group energy use to tonnes of carbon dioxide (CO₂) equivalent using average conversion factors for each emissions source. All of the GWP data has been restated using the latest greenhouse gas conversion data published during 2008 (DEFRA), following recommendations in the assurance statement in our 2007/08 Sustainability Report. The total GWP is split between 160,000 tonnes of Scope 1 CO₂ equivalents arising from sources controlled by the company (e.g. fuel combustion and process emissions) and 211,000



3%

reduction in GWP
in 2008/09

73%

reduction in waste to
landfill in 2008/09

5%

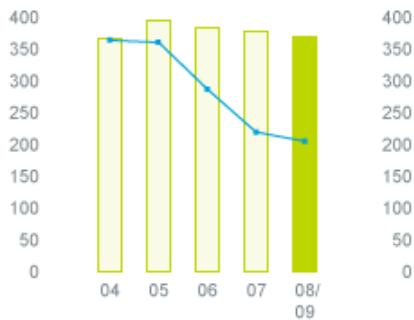
reduction in water use
in 2008/09



tonnes of Scope 2 CO₂ equivalents from electricity supplied by utilities companies.

Total Global Warming Potential

Tonnes CO₂ equivalent ('000)



	Tonnes CO ₂ equivalent ('000)	Tonnes / £ million sales excluding precious metals
2004	369	365.2
2005	397	362.1
2006	386	288.5
2007	380	221.0
2008/09	371	206.5

Global warming potential data has been restated using the latest greenhouse gas conversion data published during 2008 (e.g. DEFRA).

Total global warming potential from 1st January 2008 to 31st March 2008 was 106,000 tonnes CO₂ equivalent.

This year we have made some changes to our reporting to improve orientation with the Global Reporting Initiative (GRI) sustainability reporting guidelines. As part of this work we have reviewed all calculation methods and have chosen to use an alternative methodology for calculating the group's global warming potential (GWP). To date, GWP has been calculated by adding together Scope 1 (direct) emissions and Scope 2 (indirect) emissions. The new methodology will only apply to Scope 2 emissions. Scope 1 emissions are unchanged.

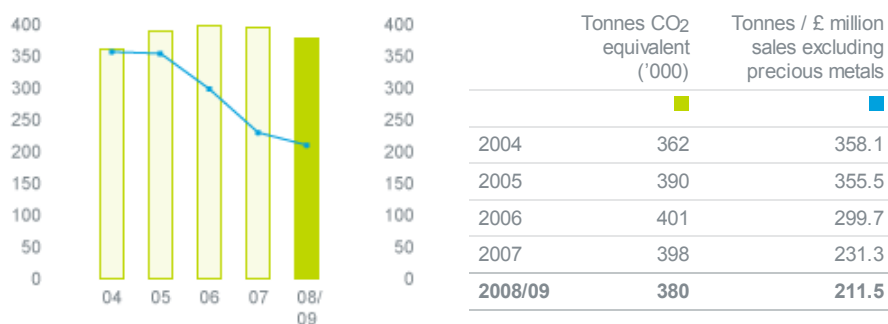
Scope 2 emissions are essentially those resulting from third parties' burning fossil fuels to generate electricity that Johnson Matthey subsequently purchases. The carbon intensity of this electricity varies from country to country, depending on the mix of generating technologies in use. The methodology we have used in prior years to calculate GWP from Scope 2 emissions involves adding together all the electricity purchased in the year, then applying a factor based on the UK's electricity carbon intensity to derive the number of tonnes CO₂ equivalent emitted. This methodology has been used by the group since it began reporting on its GWP emissions (as shown in the chart and table above).

Using the new methodology we have also applied factors to country specific electricity usages based on the local published carbon intensity of electricity. For example the GWP for all of Johnson Matthey's operating sites in the USA has been calculated by adding together the electricity purchased by USA sites, then applying the factor representing carbon intensity of purchased electricity in the USA. Using the new methodology our revised Scope 2 GWP was calculated as 220,000 tonnes CO₂ equivalent.

Carrying out this revised calculation gives a more precise result for the group's GWP which is 2.5% higher than the figure calculated using the previous methodology. The group's GWP over the last five years has been restated using the new methodology as follows:

Total Global Warming Potential (restated)

Tonnes CO₂ equivalent ('000)



Total global warming potential from 1st January 2008 to 31st March 2008 was 110,000 tonnes CO₂ equivalent.

In future years, the new methodology will be used to calculate the group's global warming potential.

Johnson Matthey does not own the ships, trucks or aircraft used to transport its products and so emissions from transportation are not included in the data. While we understand that these transportation emissions are consolidated by the transportation companies we have chosen to collate this data at group level. In 2008/09 the total CO₂ from air freight was 17,685 tonnes. The majority of our products are high value but low volume and so the carbon produced by transportation is low relative to other carbon intensity indicators, for example Scope 2 emissions.

In 2008/09 CO₂ emissions from travel by employees on company business were 4,670 tonnes and emissions from company car travel amounted to 1,460 tonnes of CO₂. As our work on assessing the carbon footprint of our business develops, we will continue to look at ways to expand the level of information we collate on our indirect carbon emissions.

Other Emissions

Emissions from our operations are generated from a number of sources including combustion processes, materials handling and chemical reactions and are typically licensed by local regulations. All sites monitor emissions to ensure compliance with these regulations and set their own absolute targets aimed at reducing significant emissions as part of their environmental improvement plans.

In 2008/09, our total emissions of acid gas (primarily oxides of nitrogen, NO_x) reduced by 20% in absolute terms to 334 tonnes SO₂ equivalent and by 23% relative to sales excluding precious metals compared with prior year.

Total Acid Gas Emissions

Tonnes SO₂ equivalent



	Tonnes SO ₂ equivalent	Tonnes / £ million sales excluding precious metals
2004	489	0.4837
2005	480	0.4376
2006	450	0.3362
2007	416	0.2417
2008/09	334	0.1859

Total acid gas emissions from 1st January 2008 to 31st March 2008 were 88 tonnes SO₂ equivalent.

Compared with last year, total NO_x emissions have also reduced by 2% to 439 tonnes, a 6% reduction relative to sales excluding precious metals. Total SO₂ emissions are down 19% to 25.8 tonnes (down 22% relative to sales excluding precious metals) as we continue to modify our processes and practices to use cleaner fuels such as natural gas. The group's emissions of VOCs increased slightly by 2.0 tonnes (1%) in 2008/09 compared with prior year as a result of increased production, but reduced by 3% relative to sales excluding precious metals.

Total NO_x Emissions

Tonnes NO_x

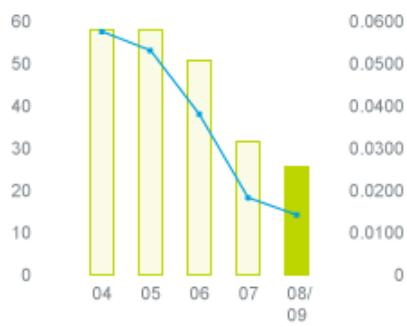


	Tonnes NO _x	Tonnes / £ million sales excluding precious metals
2004	540	0.5341
2005	504	0.4595
2006	492	0.3676
2007	448	0.2603
2008/09	439	0.2443

Total NO_x emissions from 1st January 2008 to 31st March 2008 were 117 tonnes.

Total SO₂ Emissions

Tonnes SO₂



	Tonnes SO ₂	Tonnes / £ million sales excluding precious metals
2004	58.5	0.0578
2005	58.5	0.0533
2006	51.1	0.0382
2007	31.8	0.0185
2008/09	25.8	0.0144

Total SO₂ emissions from 1st January 2008 to 31st March 2008 were 6.1 tonnes.

Total VOC Emissions

Tonnes VOC



	Tonnes VOC	Tonnes / £ million sales excluding precious metals
2004	218.7	0.2163
2005	192.2	0.1752
2006	199.5	0.1491
2007	207.1	0.1203
2008/09	209.1	0.1164

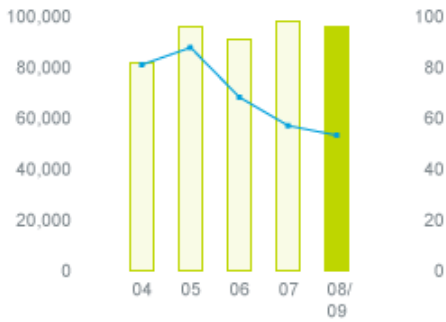
Total VOC emissions from 1st January 2008 to 31st March 2008 were 47.8 tonnes.

Waste

The total amount of waste generated during the year decreased by 3% across the group and by 7% relative to sales excluding precious metals. Waste to landfill decreased from 20,977 tonnes in 2007 to 5,535 tonnes in 2008/09 which represents solid progress towards our Sustainability 2017 target on waste.

Total Waste

Tonnes waste

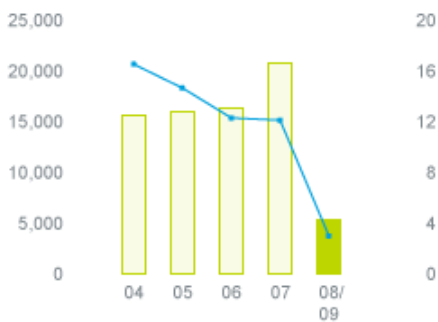


	Tonnes	Tonnes / £ million sales excluding precious metals
2004	82,255	81.36
2005	96,638	88.10
2006	91,750	68.56
2007	98,764	57.39
2008/09	96,287	53.58

Total waste generated from 1st January 2008 to 31st March 2008 was 25,769 tonnes.

Total Waste to Landfill

Tonnes waste



	Tonnes	Tonnes / £ million sales excluding precious metals
2004	15,770	15.60
2005	16,144	14.72
2006	16,555	12.37
2007	20,977	12.19
2008/09	5,535	3.080

Total waste to landfill from 1st January 2008 to 31st March 2008 was 1,662 tonnes.

In terms of other waste streams, 2,045 tonnes of waste was sent for incineration, 18,206 tonnes of waste was sent for recovery and 70,501 tonnes of liquid waste was sent for treatment and disposal by third party waste service providers.

Packaging Wastes

For the first time this year Johnson Matthey has collated and quantified the different types of packaging wastes produced by our manufacturing processes as shown in the table below.

Packaging Waste 2008/09

Packaging type	Amount of waste Tonnes
Paper	486
Steel	2,084
Plastic	648
Wood	1,787

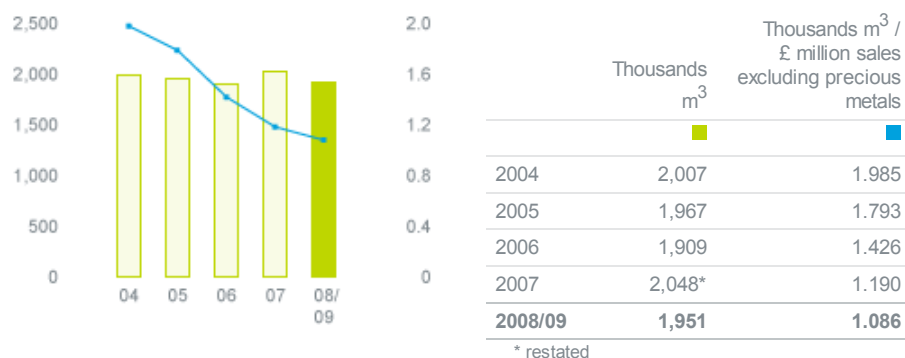
Johnson Matthey complies with international agreements, regulations and policies that govern the international shipment of waste. During 2008/09, a total of 2,845 tonnes of waste was moved between countries predominately for the reclamation and reuse of metal from spent catalysts at our Brimsdown, UK refinery (1st January 2008 to 31st March 2008 673 tonnes).

Water Consumption

During the year, water consumption decreased by 5% in absolute terms and by 9% relative to sales excluding precious metals compared with prior year. Of the total water used by the group, 94.7% was supplied by local municipal water authorities, 4.9% was drawn from boreholes and 0.4% was taken from local water courses. A total of 1,267,000 m³ of effluent was produced, of which 95% was discharged to local authority sewers after treatment and in accordance with local discharge consent agreements and 5% was discharged to water courses after treatment and within quality limits set by local water authorities. The method of water treatment used at each site is appropriate to the effluent quality and volume, and the requirements of the receptor.

Water Consumption

Thousands m³



Water consumption from 1st January 2008 to 31st March 2008 was 489,000 m³.

The chemical oxygen demand (COD) test is commonly used to indirectly measure the amount of organic compounds in water. Most applications of COD determine the amount of organic pollutants found in surface water (e.g. lakes and rivers), making COD a useful measure of water quality. In 2008/09 the Johnson Matthey group discharged a total of 376 tonnes of organic chemicals into water courses, as regulated by local emission limits at each manufacturing facility (1st January 2008 to 31st March 2008 38 tonnes).

Johnson Matthey has a robust and effective management system which requires all sites to report environmental incidents to the group's EHS department. During 2008/09 the group has not reported any significant spillages to the environment of raw materials, intermediates or products.

Our Aims and Targets

All our operations have long term environmental improvement plans that incorporate emissions reduction targets to meet the goals of the Sustainability 2017 Vision. Specific projects are underway across the group to help achieve the vision. Our environment related priorities for 2009/10 are to:

- Continue to work towards the Sustainability 2017 Vision and develop plans to achieve zero waste to landfill at all sites.
- Understand the potential impacts of business expansion in terms of greenhouse gas emissions and develop systems to reduce these and other environmental impacts.
- Develop performance indicators to allow us to begin to reduce key resource use per unit of output in line with the goals of Sustainability 2017.
- Ensure compliance with upcoming changes in environmental legislation at all appropriate Johnson Matthey facilities.
- Achieve our target of achieving ISO 14001 registration at all manufacturing sites by 2010.

