

## 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.

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.

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

#### Driving Towards a Green Supply Chain

[How Johnson Matthey Shanghai is supporting a customer's commitment to protect the environment](#)

By the nature of our business activities, Johnson Matthey has very little negative impact on the biodiversity of terrestrial, freshwater and marine environments. As part of all significant investments and acquisitions, we complete a detailed environmental impact assessment and over the years, we have managed a number of projects looking at improving the areas of biodiversity at our operating sites.

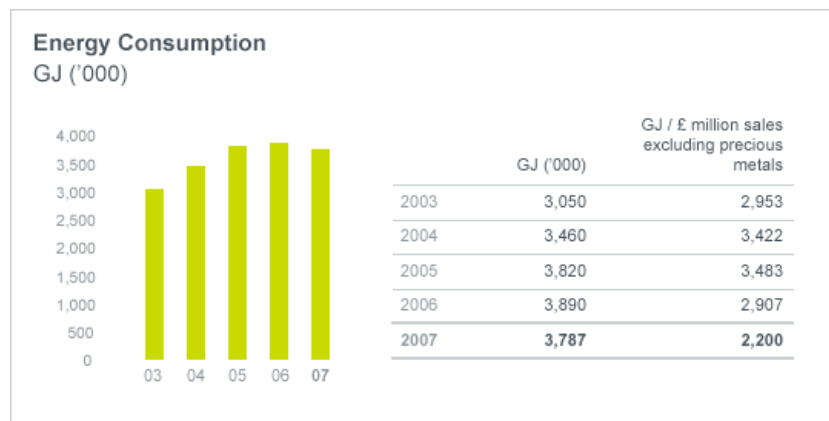
[Read more about our environmental policy and management system](#)



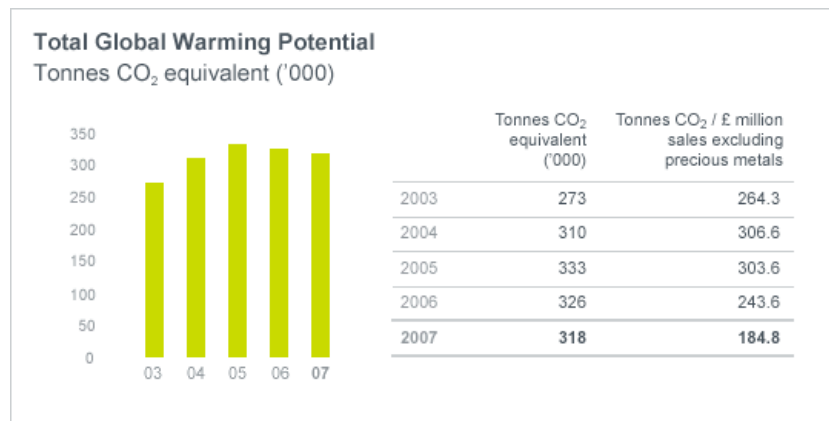
## Our Performance and Achievements

Johnson Matthey undertakes a comprehensive annual review of group environmental performance which covers all manufacturing and research and development facilities. We report on our total energy use and emissions of greenhouse gases, acid gases, oxides of nitrogen (NOx), sulphur dioxide (SO<sub>2</sub>) and volatile organic compounds (VOCs). We also report on our water use, hazardous chemical waste, non hazardous waste and the total waste produced. Our environmental performance data is presented for calendar year 2007 and has been restated to reflect changes in the business, for example divestments and site closure. The group sold its Ceramics Division on 28th February 2007 and, as such, the data presented below excludes any contribution from Ceramics Division. There were no significant environmental spills or other significant incidents reported during the year.

All of the manufacturing facilities across the group made progress against their individual environmental improvement targets during the year and our five-year performance is shown in the tables below. The group's total energy consumption reduced by 3% to 3.79 million GJ in 2007 and by 24% relative to sales excluding precious metals. The global energy bill for the year was £35 million (£33 million restated in 2006).



We report greenhouse gas emissions from process and energy use and convert the total group energy use to tonnes of carbon dioxide (CO<sub>2</sub>) equivalent using average conversion factors for each emissions source. We are currently trialling carbon footprinting tools which, if successful, will provide a more accurate estimate of our emissions. In 2007 the group's total global warming potential (GWP) reduced by 2% in absolute terms to 318,000 tonnes CO<sub>2</sub> equivalent and by 24% relative to sales excluding precious metals.

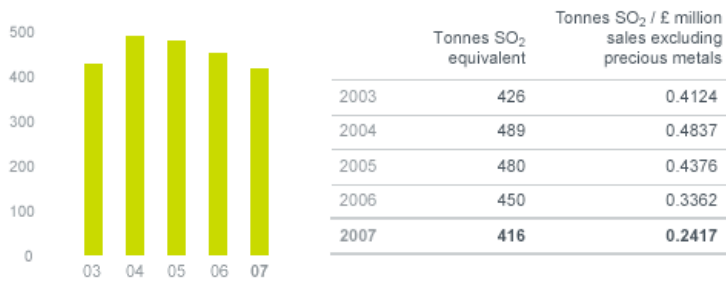


Johnson Matthey does not own the ships, trucks or aircraft used to transport our products and so emissions from transportation are not included in our data. We understand that these transportation emissions are consolidated by the transportation companies but we have collated some data at group level. In 2007 the total CO<sub>2</sub> from air freight was 1,642 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). We have also started to look at CO<sub>2</sub> emissions from travel by employees on company business. In 2007 CO<sub>2</sub> emissions from company air travel by employees was 2,096 tonnes and emissions from company car travel amounted to 800 tonnes of CO<sub>2</sub>. As our work on assessing the carbon footprint of our business develops, we will look to expand the level of information we collate on our indirect carbon 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.

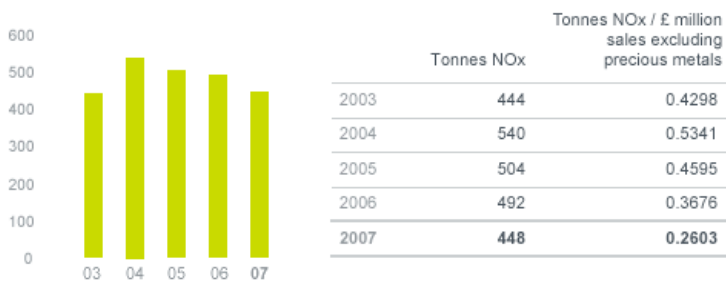
In 2007, our total emissions of acid gas (primarily oxides of nitrogen, NOx) reduced by 8% to 416 tonnes SO<sub>2</sub> equivalent in absolute terms and by 28% relative to sales excluding precious metals.

### Total Acid Gas Emissions Tonnes SO<sub>2</sub> equivalent

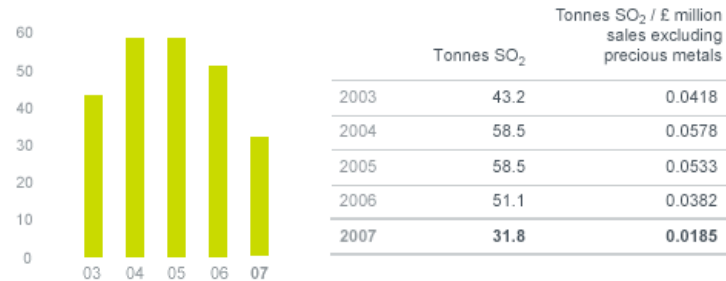


Total NOx emissions have also reduced by 9% to 448 tonnes, a 29% reduction relative to sales excluding precious metals. Total SO<sub>2</sub> emissions are down 38% to 31.8 tonnes (down 52% relative to sales excluding precious metals) as we continue to modify our processes and practices to use cleaner fuels such as natural gas. The group's emissions of VOCs increased slightly by 7.6 tonnes (4%) in 2007 as a result of increased production but reduced by 19% relative to sales excluding precious metals.

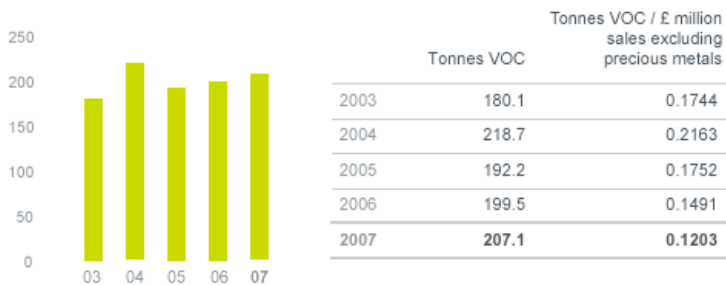
### Total NOx Emissions Tonnes NOx



### Total SO<sub>2</sub> Emissions Tonnes SO<sub>2</sub>

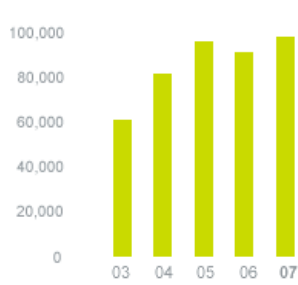


### Total VOC Emissions Tonnes VOC



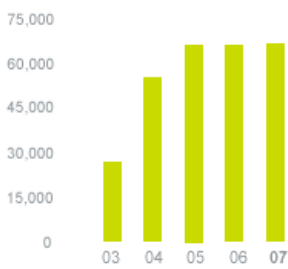
The total amount of waste generated during the year increased by 8% across the group due to increased production. Relative to sales excluding precious metals, waste generated decreased by 16%. Total hazardous chemical waste and total non hazardous waste both increased slightly in absolute terms but were down on last year when calculated relative to sales excluding the value of precious metals. Johnson Matthey complies with international agreements, regulations and policies that govern the international shipment of waste. In 2007 a total of 1,500 tonnes of waste was moved between countries predominately for the reclamation of metal from spent catalysts.

### Total Waste Tonnes waste



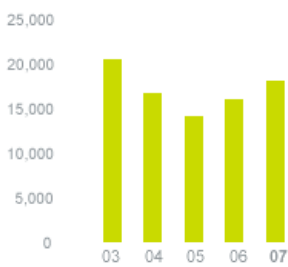
	Tonnes	Tonnes / £ million sales excluding precious metals
2003	61,284	59.33
2004	82,255	81.36
2005	96,638	88.10
2006	91,750	68.56
<b>2007</b>	<b>98,764</b>	<b>57.39</b>

### Total Hazardous Chemical Waste Tonnes waste



	Tonnes	Tonnes / £ million sales excluding precious metals
2003	27,947	27.06
2004	55,218	54.62
2005	66,388	60.52
2006	65,929	49.26
<b>2007</b>	<b>66,890</b>	<b>38.87</b>

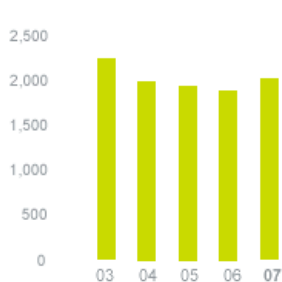
### Total Non Hazardous Waste Tonnes waste



	Tonnes	Tonnes / £ million sales excluding precious metals
2003	20,486	19.83
2004	16,748	16.57
2005	14,153	12.90
2006	16,010	11.96
<b>2007</b>	<b>18,037</b>	<b>10.48</b>

During the year, water consumption for the group increased by 7% as a direct result of increased production by our Emission Control Technologies business. When calculated relative to sales excluding precious metals, water consumption reduced by 17% across the group. Of the total water used by the group, 90% was supplied by local municipal water authorities, 7% was drawn from boreholes and 3% was taken from local water courses.

### Water Consumption Thousands m<sup>3</sup>



	Thousands m <sup>3</sup>	m <sup>3</sup> / £ million sales excluding precious metals
2003	2,262	2,190
2004	2,007	1,985
2005	1,967	1,793
2006	1,909	1,426
<b>2007</b>	<b>2,038</b>	<b>1,184</b>

In response to requests from our stakeholders, we are reporting for the first time on the emissions discharged to water across our operations. We have used the chemical oxygen demand (COD) test which 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 (for example lakes and rivers), making it a useful measure of water quality. In 2007 Johnson Matthey discharged a total of 360 tonnes of organic chemicals into water courses, as regulated by local emission limits at each manufacturing facility.



**24%**

reduction in total energy  
consumption in 2007  
(calculated relative  
to sales excluding  
precious metals value)

**24%**

reduction in GWP  
in 2007 (calculated  
relative to sales  
excluding precious  
metals value)

## Our Aims and Targets

All our operations have now set 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 2008/09 are 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.
- Quantify our key resources and develop performance indicators to allow us to begin to reduce 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.
- Continue to work towards our target of achieving ISO 14001 registration at all manufacturing sites by 2010.



### CASE STUDY

#### **Saving Energy at Johnson Matthey's Haverton Site**

[Read about how one site is improving its energy efficiency](#)

