

Johnson Matthey Chemicals and the Environment

At Johnson Matthey Chemicals, we take our responsibility of caring for the environment very seriously. In fact, our entire business revolves around sustainability; the recycling of precious metals combined with efficient processes and new, constantly improving technologies.

Our Health, Safety and Environmental Policy provides a framework to ensure that everyone within Johnson Matthey has the resources available; and the knowledge through training and through an open policy to look after our customers, the environment and our business.

The Environment

At Johnson Matthey, we care about the environment. By building on our expertise, we are developing and implementing new technologies to enable us to meet the targets we have set, to benefit the environment, our customers and ourselves.

" It is important that we understand our customers needs ... "

" ... sustainable use of precious metals ... "

As a member of the Chemical Industries Association, Responsible Care® programme, Johnson Matthey Chemicals is striving for continuous improvements and we have set ourselves some challenging Health, Safety and Environmental targets.

Examples include:

- Collection and shipping service, meeting all regulatory requirements, leaving our customers free to concentrate on their core business.
- Assistance in all environmental and transfrontier documentation, so that all requirements; such as the Basel Convention, are fulfilled with minimum disruption to the customer.
- Certificates of disposal / destruction / recovery for the customer
- Other documentation, such as: transport regulations and labelling, packaging, and Material Safety Data Sheets (MSDS) for Johnson Matthey products.
- Fully co-operating with customer audits of our facilities.

" we care about the environment "



Johnson Matthey

Chemicals Division

We are conscious that our business practices impact on our customers and that our actions may affect their duty of care to the environment. In order to be able to advise and provide support, it is important that we understand our customers needs, their materials and regulatory requirements. We can then provide a complete package, individually tailored.

For information on this or any of Johnson Matthey's products or services, please contact your local representative or:

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Caring for the environment

Air

Our targets include

Water and Waste



Swan on Mossops Creek, alongside the Brimsdown Refinery

" improving our processes all of the time, to benefit the environment "

A variety of air pollutants have known or suspected harmful effects on human health and the environment. In Europe, these pollutants are principally the products of combustion, power generation and vehicle traffic. Pollutants from these sources may not only prove a problem in the immediate vicinity of the source but may travel long distances, chemically reacting in the atmosphere to produce secondary pollutants such as acid rain. Johnson Matthey is committed to reducing emissions from its operations.

Clean water is becoming increasingly important as a natural resource, which is why Johnson Matthey has implemented a waste minimisation programme to promote more efficient use of water. Our effluent is treated on-site to ensure all discharges conform to strict levels enforced by the Environment Agency. Furthermore, in conjunction with the London Borough of Enfield, we have taken measures to encourage a range of wildlife to re-inhabit the waterways alongside our Brimsdown Refinery.

The Process Integration Project encompasses the aspects of gaseous emission control and waste minimisation at our Royston refinery. The installation of additional fume abatement plant and on-line monitoring has accomplished a ten-fold reduction of the gaseous emissions of chlorine to atmosphere and further improvements are planned.

Johnson Matthey have brought forward the phase out of ozone depleting substances (ODS) at the Royston and Brimsdown sites. The plan is to replace all CFC/HCFC refrigeration units by the end of 2005, well before the Montreal Protocol deadline of 2010. The replacement refrigeration units will be of improved energy efficiency and utilise waste heat from the new CHP plant. (see below)

Energy

" by continuous innovation we will improve "

We identified Sulphur as a significant impurity in our heating fuels. The furnaces at Brimsdown were then changed to use cleaner fuels. This change means that we can avoid generating over 100 metric tonnes of SO₂ or Sulphur Dioxide, as well as improving energy efficiency.

ISO 14001

ISO14001 is the internationally recognised standard for best practice in environmental management. The Chemicals sites at Royston and Brimsdown have both achieved ISO14001 certification and regular external validation audits of the systems are undertaken to ensure there is a continuous improvement, year on year.

" continuous improvement, year on year "

Global Climate Change is the most significant environmental issue to face society today.

At Johnson Matthey we are committed to making a difference today to improve tomorrow.

Energy, in all of its forms (electricity, gas oil, etc), has a significant impact on the environment, both as a finite resource and through greenhouse gas emissions from its use. This, coupled with a significant rise in energy prices, has provided an incentive for Johnson Matthey to maximise energy efficiency throughout the company.

Our energy policy requires the monitoring of all forms of energy use, and the adoption of a programme to identify and implement energy saving projects. This has already resulted in a 30% reduction in energy relative to sales growth in the Group since 1997.

While this demonstrates the good progress that has been made, Johnson Matthey was determined to make a step change improvement. This saw the introduction of our own on-site Combined Heat and Power (CHP) generation.

Consequently we have already exceeded the voluntary Climate Change Agreements made with the Chemical Industries Association.



CHP plant at Royston

Chemical Sites Switch On CHP

Royston and Brimsdown sites in the UK are powered by a total of 9.6 MW of combined heat and power (CHP). On-site generation is a much more efficient use of fossil fuels as it reduces losses and also produces steam and hot water, which are used on the plant. We can even sell any surplus electricity back to the National Grid!

Smopex® is a system for scavenging low levels of precious metals from catalyst process streams. These low levels of metal were previously uneconomic to recover and were often discharged to effluent. Using the Smopex system for recovery provides an environmental benefit as well as an economic advantage to our customers.

AquaCat® is a unique technology introduced for the recovery of precious metals from catalyst residues. It replaces an incineration stage, which consumes energy and generates airborne emissions, with an auto thermal process requiring no extra energy and significantly reduced emissions. This is the cleanest, most energy efficient catalyst recovery process in operation today.

" building on our successes at all times "

Some examples of our continual improvements are:

- **Introducing New Technology:** Johnson Matthey are well respected for their ability to identify areas for improvement, and using our wealth of experience to bring solutions in the form of new technologies.
- **Ongoing Investment Programme:** Recent examples include improvements to the abatement system in the Smelting process and the installation of the new arc furnace for treating waste materials.
- **Care:** We recognise that our customers' place great importance in meeting the duty of care obligations for their waste materials. We are continually improving our recycling processes, providing our customers the long-term security that we can assist them to meet these obligations.
- **Training:** There are incentives for all of our operators to gain additional skills to improve the overall health, safety and environmental position of the company.
- **Audits and Reviews:** Regular measurements enable us to take corrective action. By highlighting areas for improvement, we can prevent potential problems before they arise.