Case Studies for the CSR report

JM

Johnson Matthey

The Continuously Regenerating Trap (CRT®)

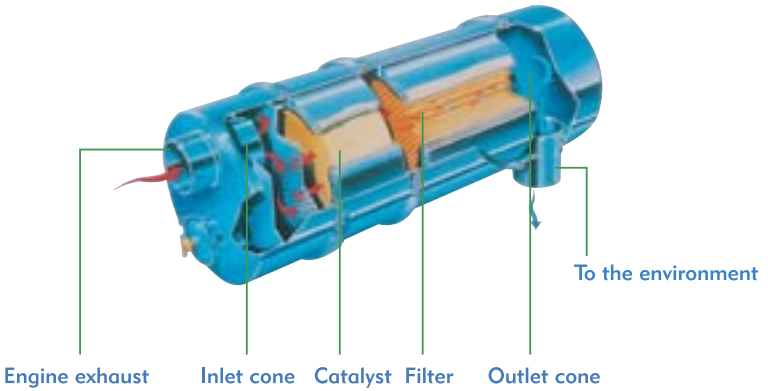
CRT® (Continuously Regenerating Technology) Filter

The CRT® particulate filter is a patented emission control technology that contains a Platinum (Pt) catalyst and a particulate filter. It is designed for use with large diesel engines, particularly large trucks and buses.

The device is made up of two chambers. In the first chamber NO is oxidised to NO_2 by a platinum catalyst. The second chamber uses NO_2 to oxidise particulate material to CO_2. The catalyst also converts CO and HC into CO_2 and H_2O.

The CRT® filter is capable of converting greater than 90% of particulate materials, hydro-carbons and CO to water and CO_2. NO_x reductions are typically up to 10%. These improvements significantly reduce the tailpipe emissions from heavy vehicles.

Over 35,000 CRT® filters have been fitted on most major heavy duty diesel (HDD) engines in Europe, the US and Japan. It is the most widely used filter system for HDD engines and there are literally hundreds of millions of miles of service and durability on CRT filters.

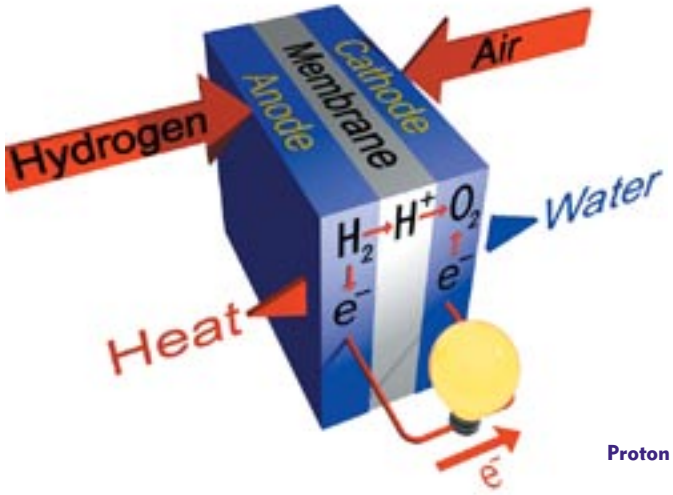


Fuel Cells

More than 70% of electric power generated is used in our homes, offices and is currently generated in large central power stations. Producing power at the point of use is very attractive, but the technology must be clean, quiet and efficient. Fuel cells are clean enough for electricity to be produced where it's needed, from a variety of fuels including natural gas, methanol, gasoline and liquid propane gas. They emit no particulates or other pollutants, are extremely quiet and can substantially reduce emissions of the gases causing global warming.

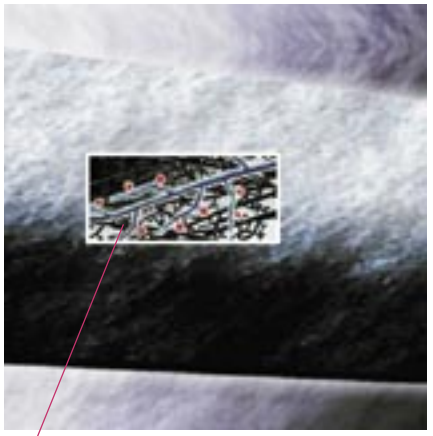
Fuel cells generate power by electrochemically combining hydrogen and oxygen directly to produce electricity, heat and water. Fuel cells do this without pollution and without noisy moving parts.

Johnson Matthey Fuel Cells produces the catalysed component at the heart of a fuel cell known as the MEA. This is the single most important part of a fuel cell.



Proton Exchange Membrane Fuel Cell

Precious metal recovery



Representation of a section through the Smopex® fibre showing the high density of active functional groups in red

Diagram showing how Smopex® fibres maximise the metal binding area, increasing the recovery potential.

Applying new technology to make improvements for the future.

Smopex®

The use of precious metals as catalysts in chemical processes is steadily increasing, in particular the pharmaceutical industry, where catalyst improvements in efficiency and reductions in energy, materials and process steps are critical. The use of these catalysts, however, generates a substantial amount of waste solutions, or streams, of various compositions, which include precious metal.

Loss of the catalyst during use or recovery may be hazardous for end users and has a huge impact on the environment. This also affects the overall costs associated with the use of the catalyst, as economical use of the precious metal is based on the efficient recovery of the catalyst itself or by the recovery and refining of the precious metal.

Smopex® scavengers, polyolefin base fibres, which have metal binding properties and chemistry such that metal in the waste solution is attracted to the fibre, are an attractive solution.

Suitable for a wide range of industries, Smopex® achieves excellent recoveries of >95%. The functionalised fibres are robust, easy to handle in the reaction liquor and they enable recovery of the precious metal without interfering with the chemistry of the process itself. Other similar technologies are available, but they are not as successful or user friendly as the new Smopex® fibres.

The fibre can easily be filtered off and the yield of the target product may be increased without the need for additional process steps, making Smopex® a winner all round.

Cisplatin and Carboplatin

Cisplatin, the first platinum anticancer drug

Platinum has the ability, in certain chemical forms, to inhibit the division of living cells. The discovery of this property in 1962 led to the development of platinum-based drugs to treat a wide range of cancers. Cisplatin, the first platinum anticancer drug, began to be used in treatment in 1977. Testicular cancer was found to be susceptible to treatment with cisplatin and there were other successes with ovarian, head and neck cancers.

Researchers at the Institute of Cancer Research and the Royal Marsden Hospital in London achieved a significant step when they found a compound similar to cisplatin in terms of activity, but much less toxic. This drug, carboplatin, was first approved in 1986. Recent research has sought to identify new platinum compounds which can be taken orally instead of intravenously, or which will treat tumours which do not respond to or which become resistant to cisplatin and carboplatin.

Bitrex™

Helping to solve an age-old problem

Many young children use their mouths to taste, bite or chew the objects around them – but in today's environment, this normal behaviour can lead to accidental swallowing of harmful household chemicals.

Bitrex™ is the brand name of the most bitter substance yet discovered. It is inert and odourless, but only tiny amounts are needed to make products taste unpalatable.

Children are particularly sensitive to bitter tastes, making Bitrex™ a powerful deterrent to accidental swallowing.

Bitrex™ was discovered in 1958 by Macfarlan Smith Limited. First used in denaturing alcohol – making it unfit for consumption – it is now added to a wide range of household cleaners, pesticides and DIY and automotive products.

Bitrex™ is derived from lignocaine, an analgesic formerly manufactured by Macfarlan Smith for use in dental surgery. During laboratory studies on this compound, it was noted that at a certain stage of the reaction, a very bitter tasting substance was created. A further experiment concluded that the substance was Bitrex™.

Today, Bitrex™ is the most widely-used bittering compound in the world, sold in more than 40 countries through a global network.

It is added to a wide range of consumer products to ensure that they taste unpleasant. This significantly reduces the likelihood of dangerous substances been ingested by young children.

Medical devices

Precious metal for medical products

The use of precious metals and metal technology in medical applications has seen rapid growth. Johnson Matthey's expertise in the application of precious metal for medical products is captured in the Johnson Matthey medical products business. This business specialises in machining, drawing, rolling and forming platinum, nitinol and speciality metals to the high tolerances demanded by modern medicine.

Platinum is used in a number of medical applications since it is inert in the body and is opaque to X-rays. This means that the positioning of a medical device can be more easily assessed.

Nitinol is an alloy of nickel and titanium which is in the unique class of materials known as shape memory alloys. This means that nitinol products may be bent and stretched but when heated to a certain temperature they will return to their original shape. Two particularly important applications are bendable surgical tools and vascular stents.

Nitinol handles on surgical tools allow the tools to be bent precisely to the proper shape for surgery. The original shape returns upon heating during sterilisation. This technology has been successfully applied for tools for heart surgery.

For vascular stents, fine NiTi shape memory wires are woven into cylindrical shapes used to reinforce blood vessels. The stent is crushed and inserted through a cannula into the proper location in the blood vessel. Upon warming, the stent returns to its trained cylindrical shape and provides reinforcement to the walls of the blood vessel.

Johnson Matthey's medical components business manufactures parts for devices used in surgery

Platinum Alloys

Platinum alloys for use in the glass industry

Johnson Matthey produces a range of specially designed platinum alloys for use within the glass manufacturing industry.

The production and shaping of glass produces the harshest environment for the durability of materials as molten glass is exceptionally corrosive. Platinum alloys are used because they provide excellent resistance to corrosion, temperature stability, strength and non-reactivity. These properties are critical in the melting, mixing, transfer and forming of glass. Greater longevity of production components reduces plant downtime, improves the quality of products and has associated environmental and financial benefits.

Novel techniques have been developed to spray platinum alloys onto ceramic or metal substrates. This process is called ACT™, Advanced Coatings Technology. This high technology solution means that products are made accurately whilst minimising the use of precious metal. This makes products both more affordable and minimises the need for extraction of primary metal, and the related environmental impacts.

Products coated using ACT™ technology

Lead free frits

Lead free frits

Johnson Matthey is a leading manufacturer of frits and glazes for the glass and ceramics industries. A frit is a glass which is made by melting together raw materials and quenching to ambient temperature. Frits and glazes are used to finish glass and ceramic products. Different chemical compositions of frits give the product different physical properties including melting point and firing characteristics.

Lead has traditionally been used in the manufacture of frits and glazes since it imparts favourable properties to the finished product. Concerns over potential health risks to end users from lead in glazes and frits, coupled with the expensive precautions necessary to protect workers in the manufacturing process have resulted in manufacturers seeking out novel alternatives to the use of lead.

Johnson Matthey has pioneered the engineering out of lead in a number of key products. Today Johnson Matthey has market leading ranges of lead free decorative products for the glass industry. This innovation was recognised in 1995 when Johnson Matthey received recognition for the development of unleaded decorative products for tableware and glass in the annual Business Commitment to the Environment Awards in the UK.

For more information on the Johnson Matthey Colours and Coatings lead free product ranges click here

Cleaner air in the UK

Assessing the contribution of Johnson Matthey autocatalysts to clean air in the UK

The growth in international markets for autocatalysts has been driven by efforts to legislate for cleaner air. Johnson Matthey has played a vital role in the improvement of air quality through the manufacture of autocatalysts for cleaning vehicle exhaust emissions from petrol fuelled cars and continuously regenerating traps (CRT®s) for treating emissions from diesel vehicles.

Johnson Matthey has been active in assessing the impact that our autocatalyst products can have on air quality, with particular regard to emissions of carbon monoxide (CO), oxides of nitrogen (NO_x), volatile organic compounds (VOCs) and particulates (PM10). The following study demonstrates the reductions in these emissions that should be achieved in the UK through the use of autocatalysts, CRT®s and improved engine technology.

Using Government publications and data obtained direct from the National Atmospheric Emissions Inventory (AEA Technology) and the Department of Transport, estimates have been made of the vehicle emissions that would have been expected in the future without the benefit of autocatalyst technology. The reductions in these emissions due to autocatalysts have been estimated by deducting predicted values

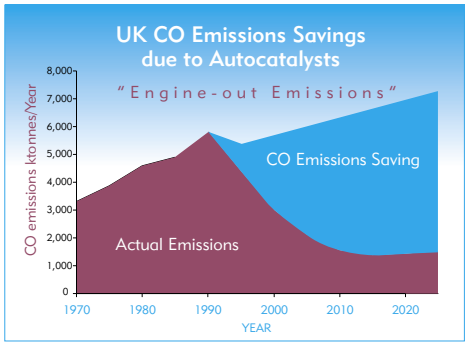


Fig. 1

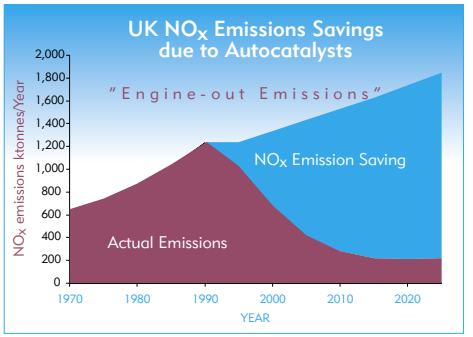


Fig. 2

Cleaner air in the UK

of emissions from these figures. The predicted values were obtained using complex mathematical models to take into account the continued introduction and upgrading of catalysts.

Emission reductions to 2020 are shown graphically in figures 1 to 4 for the four main pollutants and as a total saving in figure 5. Each graph shows the estimated actual emission and the "engine-out" emission i.e. the emissions without autocatalysts and traps. The blue area represents the emission savings.

It should be borne in mind that pollution reductions may be brought about by means other than catalysts e.g. by changes in engine design or fuel or by Government initiatives to promote the use of public transport. Such changes could have an effect on the actual contribution made by autocatalysts.

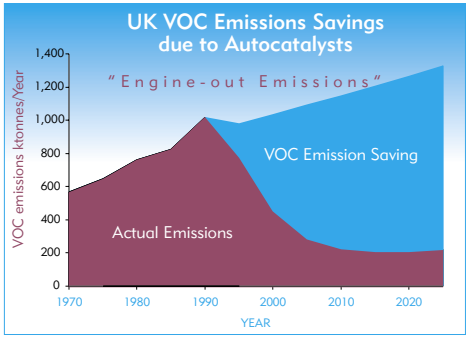


Fig. 3

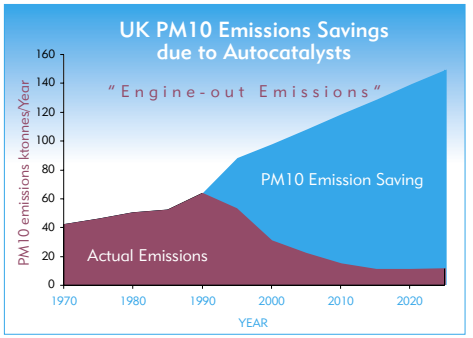


Fig. 4

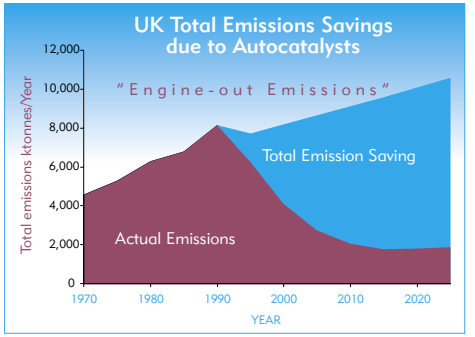


Fig. 5

UK vehicle emission inventory figures have been taken from "UK Road Transport Emission Projections – The Assumptions Used and Results of the 1997 National Atmospheric Emissions Inventory Base Projection." Available at http://www.aeat.co.uk/netcen/airqual/naei/roadproj/contents.html

Fuel cell buses hit the streets of London

Fuel cell buses were used for the first time in the UK in 2003. Three hydrogen powered buses can be seen on route 25 from Ilford to Oxford Circus in London. They look just like normal buses, drive like normal buses except seem quiet and the only emission is steam.

The buses have been provided as part of a project which has seen fuel cell buses also hitting the streets of Amsterdam, Barcelona and Stockholm. The project will allow rigorous testing to assess the reliability and economic benefits of the buses.

Johnson Matthey is proud to have produced components used in the fuel cells on the buses.

Johnson Matthey awarded the 2003 Entec Medal for Excellence in Safety and the Environment

At the Institute of Chemical Engineers Annual Dinner and Gala Awards Evening held in Alexandra Palace on Thursday, 26 June 2003 Johnson Matthey was awarded the Entec Medal for Excellence in Safety and Environment.

The prize is in recognition of the success of the GASPART project, in which Johnson Matthey and Imperial College together developed prototype technology for fine particulate control in the exhaust gas of internal combustion engines.

Speculative Methods

The project ran for thirty months, and was a collaboration between engineers and catalyst chemists. Initially, Imperial College used simulations and laboratory tests to evaluate several speculative methods for trapping fine particulate matter. The most promising to emerge was a novel electrostatic precipitation procedure, and the use of more conventional ceramic filters. In practice the trapped particulate matter has to be removed by reaction with oxidants, and the current state-of-the-art Johnson Matthey CRT® technology uses nitrogen dioxide (NO_2) to do this. During the project, possible use of two alternative readily available reactants were investigated, carbon dioxide and steam. From screening tests and catalyst design studies, Johnson Matthey developed a group of catalysts that are active for oxidising carbon under such conditions.

Testing Conditions

After devising suitable trapping methods and catalysts, Johnson Matthey and Imperial College constructed two prototype catalysed traps by applying a thin coating of catalyst to the inner surface of a electrostatic precipitator, and to all the available surface of a ceramic flow-though filter. The prototypes were then tested under model conditions and during exposure to real exhaust gas at the engine laboratories at Royston. The results could not have been better! The presence of the catalyst did not inhibit the excellent trapping ability of either technology, but kept them clean and free of carbon build-up.

This work provides another approach in the field of fine particulate control. Both traps have been protected by patent filings, and are being developed at Environmental Catalysts and Technologies under the terms of an exploitation plan agreed between Johnson Matthey and Imperial College London. The potential market size for a self-regenerating fine particulate trap is very significant. Based on recent medical evidence, highlighting the role of fine particulate in cardio-respiratory illness, the beneficial impact of this technology on human health could well be significant.

CHP at Royston and Brimsdown

Combined heat and power (CHP)

A major part of the Johnson Matthey energy efficiency programme saw the installation of combined heat and power plants at our Royston and Brimsdown sites with a total electrical capacity of 10MW. These units, powered by natural gas, produce electricity, hot water and steam at over 85% efficiency.

This form of distributed power generation compares favourably with centralised generation supplied through the national grid at an efficiency of around 35%, thus reducing costs and emissions to the environment. The steam and hot water generated by the CHP plants is used elsewhere on the plants to provide heat for other processes. Plans are now in place to make similar investments at other plants around the world.

West Deptford fire response

At 12:20 am, Saturday 15 March 2003, at the West Deptford facility in the US a fire started in the refinery acid scrubber. The alarm was raised by a member of staff and the site emergency team and local fire services were quickly alerted.

The fire involved the refinery acid scrubber, the associated ductwork and pipe rack. At 6:30 am the initial fire was put out. Unfortunately the fire rekindled and took a further six hours to extinguish.

Over 365 fire fighters attended the scene, many for over 14 hours. The site fire fighting team worked alongside the fire service. There were no injuries to Johnson Matthey employees. Unfortunately four fire fighters suffered minor injuries from smoke inhalation.

The rapid reaction of staff and the local authorities restricted the damage to the facility. The water used to fight the fire was collected to ensure no damage to local water systems. Emissions to air were also monitored during the course of the fire. There were no reportable releases during the entire duration of the fire.

Thanks to the considerable energy and commitment of the staff at the facility, damaged areas were completely rebuilt within five weeks. The rebuild time included significant structural work and the design and installation of a highly customised fire suppression system.

The rebuild was completed without any impact on Johnson Matthey customers.

After the fire at the community advisory panel hosted by local industries Johnson Matthey addressed concerns and questions raised by community representatives. There were no complaints over the Johnson Matthey handling of the incident.

Biodiversity

Johnson Matthey sites operate in a wide range of locations and different eco-systems worldwide. We recognise the importance of preserving and enhancing the biodiversity around our operations. The majority of our sites are based in industrialised areas where endemic biodiversity is low. At sites where important biodiversity has been identified steps have been taken to protect this resource. An example is the preservation of the habitat of a rare Lacerta Vivipara lizard found on the Colours & Coatings site at Sudbury in the UK.

At the Process Catalysts and Technologies site at Clitheroe in the UK a full assessment of the biodiversity of the site has been completed. A portion of undeveloped land has been converted into a pond and wildlife meadow with a hide and a walkway constructed as a resource for employees and visitors to the site.

Over the last year work has been ongoing to improve the wildlife area at the Clitheroe site. This has included the planting of laurel, hawthorn and blackberries to improve screening of the site from neighbours and the planting of a large number of trees and bushes. Great care is taken to ensure that the plants chosen are native to the area and fit with the biodiversity plan for the site.

Energy Management at the Johnson Matthey Technology Centre

The Johnson Matthey Technology Centre based at Sonning Common in the UK has been using innovative methods to reduce energy consumption.

Over recent years air conditioning had been installed to many of the laboratories and offices at Johnson Matthey Technical Centre and experience has shown that these systems are not operating to produce the best energy efficiency, a situation that is made worse by the high number of fume extraction systems around the site. A number of measures have been taken to reduce the energy consumption of the air conditioning and general heating systems for the site. The introduction of a building management system has allowed better control of room temperatures while reducing the energy demand. Other initiatives have included:

- The design of the fumecupboards and the air supply to the laboratories has been modified to make best use of the air supply systems in the older areas of the site.
- Where laboratories are being refurbished the building management system will be linked to the fume extraction. This allows the air turnover rate in the laboratories to be reduced whilst maintaining the parameters required for satisfactory fume extraction.
- Converting the heating water systems from a constant temperature system to a modulated circuit has reduced heat losses from the system and reduced boiler input.
- Use of the building management system allows for pumps to be switched off during warm days but switched on as required during colder nights to maintain stable laboratory conditions.

As a signal of the site's commitment to environmentally sound energy management the site now purchases 100% green electricity.

Environmental Catalysts and Technologies

– Implementing ISO 14001 and OHSAS 18001

The Johnson Matthey Environmental Catalysts and Technologies business aims to achieve world class standards for all manufacturing operations worldwide. The business decided that the best way to ensure consistent excellence was to apply the same quality management system.

Since customer requirements vary from region to region it was decided that the new management system ISO/TS 16949:2002 would best fit the needs of the global business. ISO/TS 16949:2002 is accepted by the majority of major automobile manufacturers and encompasses the standards ISO 9002, QS 9002,VDA 6.1, ISO 14001 (Environment) and OHSAS 18001 (Health and safety).

A plan was developed to govern the implementation. This plan reflected best practice advice from the SMMT (the Society of Motor Manufacturers and Traders Ltd) and was integrated into the divisional financial planning process.

The implementation process has involved a large number of employees.

The business expects to generate significant value from the certification process. Notably it is viewed as a market leading standard by many customers, allows significant synergies in terms of measures and systems controlling the business and will drive continuous improvement of quality, environmental and health and safety performance.

Ensuring integrity in assaying practices

The cornerstone of Johnson Matthey's secondary metal refining service is the ability to predict consistently and fairly the precious metal content of materials sent by customers. This assessment is called assaying. The accuracy and honesty with which these assays are undertaken has been synonymous with Johnson Matthey since the company was first appointed Official Assayer to the Bank of England in 1852.

Johnson Matthey goes to great lengths to ensure that these standards are upheld in every assay made. Johnson Matthey ensures that all staff in the evaluation teams are appropriately qualified. Additional training in the analytical skills used is provided wherever necessary.

All UK laboratories used for assaying are certified by an external body, the United Kingdom Accreditation Service (UKAS). UKAS regularly audits laboratories and assesses the quality of record keeping and adherence to the recorded laboratory assaying technique. One example of this is in the measurement of weights, which is an essential part of the assay process. Every balance used in the analysis process is subject to a regular and rigorous maintenance and calibration schedule to ensure that all weights measured have a direct and certified link to the international standard weight measurement. Customers are often invited to visit the Johnson Matthey laboratories to assess for themselves the high standards applied.

Materials sent by customers to Johnson Matthey for refining are first thoroughly mixed to ensure a consistent concentration of precious metals throughout the material. Four samples are then taken for analysis. One sample is used by the Johnson Matthey analysis team, one sample is sent to the client, one sample is held for use by a third party assessment at an umpire laboratory and the final sample is held as a reserve in case of any disagreement in the assessment of precious metal content. The mixing and sampling processes are all open to review and inspection by customers or their representatives.

Umpire laboratories are used to settle differences in precious metal content in a very

Ensuring integrity in assaying practices

small proportion of cases (less than 1%). When this happens the Johnson Matthey assay is closer to the final agreed precious metal assay about 70% of the time.

A number of additional safeguards are in place to ensure the accuracy of Johnson Matthey assays. Many of the assay methods finish with analysis of the sample in a liquid form using instrumental techniques, eg. inductively coupled plasma (ICP) atomic emission spectroscopy. These techniques require liquids of known content (standards) to compare against the material for assay. To ensure the accuracy of these standards a scheme, impartially administered by an independent laboratory, compares measurements of similar standards from Johnson Matthey laboratories with other expert laboratories. The scheme checks both the accuracy of the standard and the methods used in its analysis. Usually agreement between laboratories is excellent and where small differences are observed these are subject to checking and corrective action. This encourages continuous improvements in the standards set by Johnson Matthey.

In order to add an extra safeguard to the accuracy of assays, throughout the material preparation stage in the laboratory, Johnson Matthey uses a range of standard reference materials. These materials are very similar to the material submitted for assay with the exception that they have a very well known assay. By comparison of the assay of the reference material with its known assay, the quality of the assay of the unknown material can be assured. For example if there were to be a significant difference between the assay of the reference material and its known content the assay would be declared invalid and the preparation process started again. Due to the lack of commercially available reference materials Johnson Matthey has a programme to produce new reference materials in partnership with the other expert laboratories in the field of precious metals assaying.

Johnson Matthey Fuel Cells in Swindon

– Community engagement

Phase one of the construction of the new large scale manufacturing facility for Membrane Electrode Assemblies (MEA), the component at the heart of PEM (Proton Exchange Membrane) fuel cell, has been completed at Swindon in the UK.

A careful site selection process identified Swindon as an area with the right communication links and high technology skill base to allow the business to grow.

The site selected was strategically sited near a motorway junction but had an unfortunate history with other companies in conflict with local interests over planning permission. While it was clear that legally Johnson Matthey had every right to construct the planned plant we wanted to be welcomed into a community we intend to be part of for many years.

Detailed investigations also identified that there were concerns from local residents over the nature of the operations to be carried out at the plant.

Confident that, if we explained our operations and intentions, we could remove any misunderstanding we engaged in a series of meetings culminating in a large evening presentation and discussion. Senior Johnson Matthey staff explained the benefits of fuel cells, the benign nature of the operations and Johnson Matthey's intention to be a positive influence in the community. We discussed issues with concerned parties including parish councillors, school teachers and other local groups. The process was extremely successful.

Today Johnson Matthey believes that it is a welcomed member of the local community and has successfully recruited skilled staff from the area.

Over the last year Johnson Matthey has provided support for science and technology at a local school.

Charity of the year 2001/02 and 2002/03 – the NSPCC

Johnson Matthey has been proud to support the NSPCC over the last two years as its charity of the year with financial support totalling £100,000. The funds raised will help to ensure that the services the NSPCC provides for the child at home, at school and in the community can continue. NSPCC ceased to be Johnson Matthey's Charity of the Year at the end of March 2003, but will remain on Johnson Matthey's annual donations programme.

How the funds have helped

Since the launch of the NSPCC's Full Stop Campaign and Appeal in 1999 it has successfully raised awareness of the nature and extent of child abuse in the UK. Thanks to this, income for the charity has increased significantly over the last three years and has therefore meant that the money spent on services for children and young people has doubled in the last year alone.

The second phase of the campaign, which is expected to run until 2005, aims to build on this awareness of child abuse by encouraging individuals to make the next step and take responsibility and action when they think that a child might be at risk of abuse or neglect. Someone to turn to is that second phase - highlighting the need for every child to have someone to whom they can turn for help.

Someone to turn to

A child is more likely to be murdered in the home than on the street.

Even though public awareness of child abuse is higher than it has ever been, research shows that in 2001 one in three people would not take action if they thought a child was at risk, simply because they wouldn't know what to do. On the back of this, the NSPCC ran a national public education campaign in March 2002 describing ways in which the public could help. Whilst Johnson Matthey's focus for fund raising changed after March 2003, with the appointment of a new charity of the year, JM staff will still contribute to the success of the campaign by being aware of the advice given and action needed if necessary.

If you have serious concerns about a child, contact social services, the police or the free 24-hour NSPCC Child Protection Helpline for advice – you can call anonymously.

Photographs posed by a model: Photographer – Matt Harris Registered Charity No. 216401

Johnson Matthey South Africa

Supporting education and opportunity

Since 1997 Johnson Matthey has provided financial support for underprivileged black students at the University of Cape Town.

At least nine students have been supported each year in their studies in Engineering, Commerce and Science. They are provided with a bursary to use towards living expenses and the costs of their studies and are given the opportunity to gain valuable work experience at the Johnson Matthey operations in the country.

This programme is a demonstration of Johnson Matthey's support to black empowerment in South Africa and reflects the need to raise the profile of Johnson Matthey as an employer in order to win the fierce battle to attract and recruit the best graduates in an increasingly competitive market.

Students having lunch with JM HR Director July 2002

Advocacy for sustainable development

Johnson Matthey's unique portfolio of products and technology has allowed Johnson Matthey to actively seek tighter regulation and government intervention on a number of issues. Most notably Johnson Matthey has facilitated the adoption of tighter emission limits for vehicles and has been working to encourage early adoption of fuel cell technologies.

Johnson Matthey is proud to carry out lobbying work without making any political donations. It instead aims to influence policy by working through trade associations, other industry bodies and by building relationships with local government representatives at Johnson Matthey operations.

Johnson Matthey is an active member of a number of organisations which have a role in influencing policy including:

- The Carbon Trust
- The Low Carbon Vehicle Partnership
- Fuel Cells UK
- Business in the Community
- Forum for the Future

Johnson Matthey also monitors proposed and upcoming legislation with a view to ensuring appropriate and effective regulation of the industries in which Johnson Matthey operates. In the past year this has led to Johnson Matthey preparing responses to a number of issues including the new European REACH proposals on chemical safety and amendments to European legislation on shipments of waste.

A Year of Support

Johnson Matthey is delighted to support Diabetes UK as its Charity of the Year 2003/04. So far £30,000 has been raised.

There are 1.4 million people in the UK who have been diagnosed with diabetes, a number which is set to double by 2010. It is thought that a further one million people suffer from the condition without it having been diagnosed. Diabetes is the leading cause of blindness in the UK and can result in serious complications including heart disease, kidney failure and stroke. Diabetes UK aims to ensure the highest quality of care for diabetes sufferers and information for all. It hopes to put an end to discrimination and ignorance and ensure a universal understanding of the condition. Its ultimate goal is to achieve a world without diabetes.

Johnson Matthey's contribution was not only through the funds raised by employees both in the UK and abroad but also through the distribution of information leaflets around the group to help raise levels of awareness amongst staff and families about the severity of the condition and the steps that can be taken to reduce the risk.

Ways in which Johnson Matthey employees got involved included:

- sponsored walks to mark Diabetes Week
- recycling of mobile telephones
- recycling of toner cartridges
- summer barbecues
- Christmas raffles and purchase of Christmas cards
- an auction of old corporate gifts
- collection tin for loose change found on sites
- donations from leavers' residual share payments
- running events

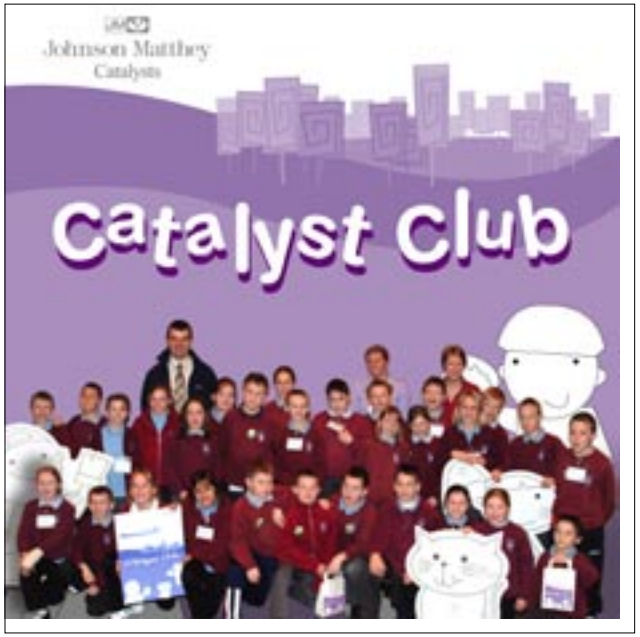
To keep employees informed, the company's employee newsletter ran features about Diabetes and promoted events to encourage participation.

Come and join our Catalyst Club!

In December 2003, a class of 29 Year 5 pupils from Crooksbarn Primary School visited Johnson Matthey Catalysts in Billingham to learn more about the science of catalysis.

The visit, organised as part of the Children Challenging Industry scheme, involved a fun demonstration of catalysis and an interactive tour of the Billingham laboratories and facilities. The tour introduced the pupils to the steps required to manufacture and test catalysts and also built on some of the fundamental principles of science such as the importance of safety, the careful recording of experimental details and comparative testing.

On completing the tour, the children became fully-fledged members of our Catalyst Club and received the Catalyst Club goody bag. Mr Phil Thackstone, Deputy Head at Crooksbarn Primary School said, "Class 5PT really appreciated seeing how the work they did in the classroom translated to the real world of work. Thank you."



Year 5 pupils from Crooksbarn Primary School on their visit to Johnson Matthey Catalysts in Billingham.

Children Challenging Industry is a UK-based project which aims to encourage children's interest in science and improve their perceptions of the chemical industry. The scheme provides classroom-based training for teachers who cover National Curriculum science and encourages visits to local businesses to put science into working reality. Johnson Matthey Catalysts in Billingham has been a keen supporter for over three years. If you are interested in finding out more about the project or to see if it is available for schools in your area, please contact the Chemical Industry Education Centre in York, UK, on +44 (0) 1904 432523.

The Johnson Matthey Educational Trust

The Johnson Matthey Educational Trust was established in 1967 to commemorate the 150th anniversary of the founding of the company. It awards annual scholarships to students studying to degree level in scientific or technical subjects in the UK where the student is the son or daughter of a Johnson Matthey employee, or connected to the precious metal industry.

Typically 60 students receive awards each year through the Educational Trust.

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