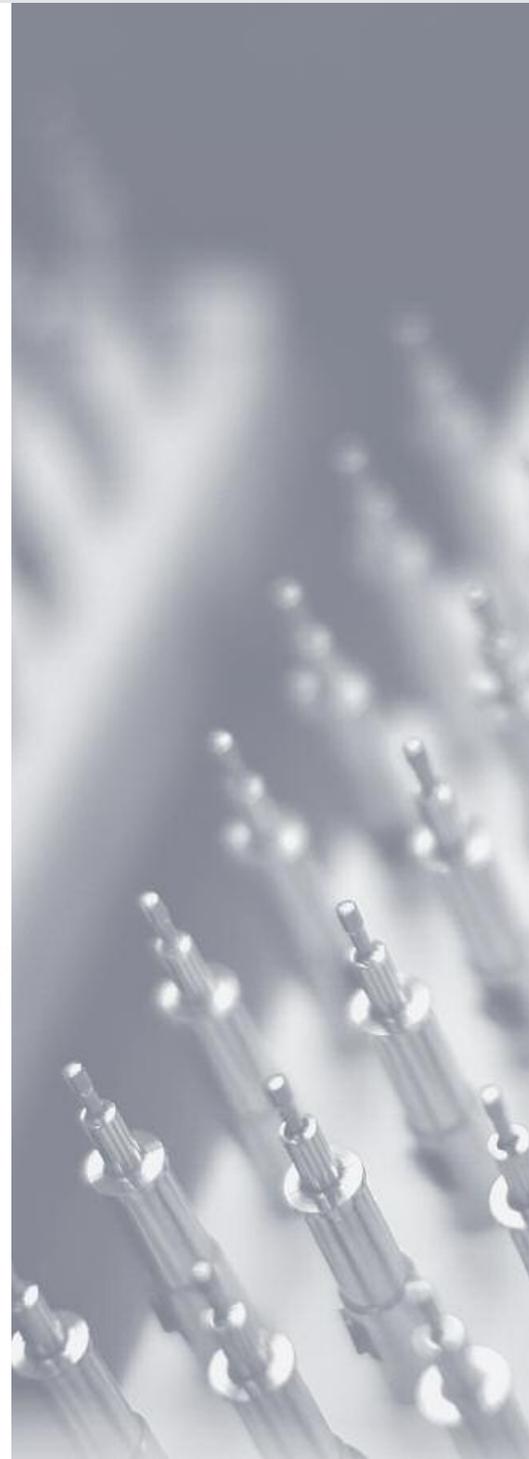


SUSTAINABLE TECHNOLOGIES

for today and for the future



4. HEALTH AND SAFETY

CASE STUDY

Micromachined Components for Medical Device Applications

Advancements in the use of cardiovascular and minimally invasive surgical devices have transformed the world of medicine. Precision components manufactured by Johnson Matthey are used in a variety of medical device applications ranging from the treatment of heart disorders and stroke therapy to orthopaedic trauma cases.

Abnormalities of the heart's rhythm are common and can be detected and / or treated using a number of techniques which use medical devices containing our precision components. One example is the tiny platinum electrodes we make and which are used in pacemakers – an implantable unit that remains in the body and controls irregular heart rhythms.

Arrhythmias are often caused by abnormal conduction of electricity within the heart. One common type of arrhythmia is called atrial fibrillation where parts of the heart cannot contract in an organised pattern. Electrophysiology treatments have emerged where surgeons can diagnose and repair these heart rhythm problems using a catheter that contains small Johnson Matthey-made electrodes that help restore normal heart rhythm. During the procedure, devices containing our high precision platinum alloy components deliver an energy burst which heats and destroys small areas of heart tissue which cause the rhythm disorder.

The components we manufacture for this application are incredibly small – typically less than 2mm diameter. They are also highly specialised and have features which perform crucial functions during the procedure. The alloy material is suitably conductive to deliver the energy to the area where it is needed. In addition, some electrodes are designed with multiple microscopic size holes which help measure and control the level of heat the surgeon applies from the catheter to the treatment area.

Cardiovascular and minimally invasive surgical procedures offer many benefits – they reduce risk and trauma, as well as cost, time and the need for aftercare. As people live longer and have increasingly unhealthy lifestyles, the use of this type of surgery looks set to grow. High precision precious metal components from Johnson Matthey are an integral part of many medical devices and, every day, our products help bring quality of life benefits for people around the world.

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4. Health and Safety

Health and Safety

Performance Summary

	2014	2013	% change
Incidence of greater than three day accidents per 1,000 employees	2.68	2.98 ¹	-10
Total number of accidents that resulted in lost time	68	54 ¹	+26
Total accident rate per 1,000 employees	6.09	5.37 ¹	+13
Total lost time accident incident rate per 100,000 hours worked	0.31	0.27 ¹	+15
Total number of accident days lost per 1,000 employees	122	147 ¹	-17
Incidence of occupational illness cases per 1,000 employees	2.2	2.7	-19

¹ Restated due to four lost time accidents that occurred in 2012/13 but that were not declared as having resulted in lost time until after the 2012/13 year end.

JOHNSON MATTHEY IS COMMITTED TO MINIMISING THE HEALTH AND SAFETY RELATED IMPACTS for employees, customers, communities and other stakeholders arising from our operations and from the use of our products.

Many of our products and services make a contribution to enhancing general health and wellbeing or provide safety benefits. We manufacture a range of products used in medical applications. These include opiate based active pharmaceutical ingredients (APIs) for pain relief, such as morphine and codeine, platinum based anticancer compounds for chemotherapy treatments, other controlled substance APIs, components used in medical devices which are used to assist with surgery or treat long term medical conditions and Bitrex®, the world's bitterest substance, which is added to household cleaning products to prevent accidental swallowing by children. Our emission control catalysts, which are used to reduce harmful emissions from vehicles and industrial processes, have a major impact on air quality for millions of people around the world.

Targets to improve health and safety performance are a key part of our Sustainability 2017 programme. The group aims to achieve zero greater than three day lost time accidents and zero cases of occupational illness. In order to meet these aspirations, long term health and safety improvement plans and performance indicators have been established.

- ➔ Read more on Sustainability 2017 at www.matthey.com/sustainability.
- ➔ Read more on our progress towards Sustainability 2017 on the inner front cover of this report.
- ➔ Read more on the health and safety benefits of our products at www.matthey.com/sustainability/products.

Managing Performance and Driving Continuous Improvement

Johnson Matthey is primarily a manufacturing business and a significant proportion of our employees work in production environments with chemicals and process machinery. We apply rigorous policies, systems and processes across all our facilities to monitor and manage health and safety performance and to drive continuous improvement.

- ➔ Read more in the Governance section on pages 80 and 81.
- ➔ Read full details of our policies and strategies to manage and drive performance at www.matthey.com/sustainability.

Proactively managing health and safety delivers value for our business in many ways. It can assist in the avoidance or reduction of liability claims, potential legal exposure, concerns over the cost of insurance premiums and external pressures from insurance companies. In addition, it helps to support maintenance of the group's corporate reputation, the expectations of its customers and in meeting government targets. Most importantly it supports our ethical obligations to our employees and other stakeholders and, when effectively managed, can have a positive impact on staff morale, attendance, recruitment and retention and on our productivity, efficiency and quality of service.

Health Performance

During the year we continued to develop our corporate and facility health programmes and have made further good progress towards our long term health improvement goals.

Some 87% of our facilities around the world reported that they had complied with the requirement to conduct an annual sustainable health review and improvement planning process in 2013/14, broadly the same proportion as last year.

All sites completed their health scorecard review during the year. We use a health scorecard system to rate the level of implementation of preventative programmes against our corporate standards. It includes 14 key elements of health programmes that align with our most significant health risks. We saw an increase in the proportion of sites achieving a best practice level of performance for seven of the 14 programme elements. Improvements were seen in scores in the areas of chemical exposure management and ergonomics, both of which were important action areas identified last year.

In 2013/14 we achieved a further reduction in the annual incidence of employee occupational illness cases. The incidence of employee cases reduced from 2.7 cases per 1,000 employees in 2012/13 to 2.2 in 2013/14. This represents a 19% improvement over last year and is a significant step towards our overall target of zero occupational illnesses.

There were two cases of occupational illness affecting contractors working at our sites reported during the year. This is an annual incidence of 1.7 cases per 1,000 contractors.

Supporting Health Performance Improvement

A rolling programme of health management reviews supports our sites in the development and implementation of effective programmes. Performance indicators are used to determine the frequency and type of reviews. In 2013/14 health management reviews at three facilities were conducted by the Director of Group Health and, during these reviews, self assessment of the health scorecards from those facilities was validated. In future these reviews will be carried out by the recently appointed Occupational Health and Policy Director and will be conducted at the same time as our sites' environment, health and safety (EHS) audits.

The group's Manufacturing Excellence programme, which focuses on improving the performance of our manufacturing operations, further supports the health management initiatives we already have in place. During the year, a seminar on the topic of chemical exposure management was held in the UK. We also completed the global roll out of our ergonomic improvement project.

Johnson Matthey has comprehensive programmes in place to prevent, identify and manage all types of occupational illness conditions at every facility. These include chemical related, musculoskeletal, mental health and physical agent related illnesses (noise and hand-arm vibration). The elements of these programmes are summarised in the table below (based on guidance provided in the Global Reporting Initiative reporting guidelines).

Occupational Illness Assistance Programmes

Programme recipients	Education / training	Counselling	Prevention / risk control	Treatment
Workers	Yes	Yes	Yes	Yes
Workers' families	n/a	n/a	n/a	n/a
Community members	n/a	n/a	n/a	n/a

CASE STUDY

→ Panki Site Promotes Health and Safety

Johnson Matthey has set Sustainability 2017 targets of zero greater than three day accidents and zero occupational illness cases.

Our Process Technologies manufacturing site at Panki, India runs training and awareness activities throughout the year and in September 2013 introduced a new mandatory module, 'Know Your Safety', with refresher courses taking place annually.

'Know your Safety' raises awareness of current safety measures and explores what can be achieved through a 'personal level risk assessment' approach. Seven training sessions have been completed to date, covering 70% of the Panki workforce.

Panki's occupational health function has further improved its services by opening a dedicated centre on site. The centre has audiometry and spirometry facilities (to test hearing and the lungs), Chester Step testing (fitness and heart rate), an ECG unit (recording heart rhythms) and other essential equipment. The centre also offers support on manual handling techniques, industrial hygiene, healthy eating, stress management and mental wellbeing. Staff health camps are held once a year too.

 Read the full case study at www.matthey.com/sustainability.



Looking Ahead to 2014/15

Over the next year we will continue to engage with management teams and employees at our sites to drive further improvement towards our zero occupational illness target.

Facilities will be encouraged to review their health scorecard ratings and identify the actions needed to achieve best practice level scores for each programme element. This will be matched by an increased level of auditing. At a group level, we will review all existing health policies and guidance to ensure they remain relevant and pragmatic. Illness categorisation will be reviewed to ensure appropriate occupational illnesses are being reported and we will establish a global network of occupational physicians to improve consistency and provide support to local physicians and our own EHS practitioners.

As we continue to develop our EHS culture programme we will focus on reinforcing and enhancing effective health leadership behaviours and work practices and will revitalise our health review programme, drawing on good practice from our existing group EHS audit process.

4. Health and Safety

Health and Safety continued

Safety Performance

We actively and continuously monitor all accidents and safety related incidents and detailed statistics are prepared on a monthly basis. Our sites also report the total number of EHS learning events reported each month.

These statistics are disseminated across the group and reviewed monthly by the Chief Executive's Committee and the board. All accidents are thoroughly investigated to find out root causes and take corrective action.

Our performance summary of accidents is shown in the table on page 62 and five year performance is given in the graphs below. Accident statistics from 2012/13 have been restated to take into account four lost time accidents that occurred during 2012/13 but were not declared as having resulted in lost time until after the year end. Details of our methodology for calculating accident statistics is described on page 184.

Our safety performance in the year was mixed. Our greater than three lost time day accidents rate (measured per 1,000 employees) improved from 2.98 in 2012/13 to 2.68 this year. There were 30 greater than three day lost time accidents, the same as in 2012/13, but employee numbers this year are higher, thus resulting in the decreased accident rate.

However, the total number of accidents across the group during the year is higher at 68 (2012/13 54). Whilst the number of greater than three day accidents was unchanged, we have seen an increase in the number of lost time accidents that result in just a few days' lost time.

Any accident is unacceptable and our Sustainability 2017 aspiration is to achieve zero greater than three day accidents. In working to meet this zero accidents target, we track the number of hours we work between two consecutive lost time accidents, i.e. the period in which we achieve zero accidents. During 2013/14 we achieved 37 days between two lost time accidents, compared with our best ever of 78 days during 2011/12. Some 74% of our reporting sites achieved zero greater than three day accidents in the year and 64% had an accident free year. These great efforts at some of our sites clearly demonstrates that our zero accident aspirations are achievable; the key is to find sustainable ways to maximise our zero accidents periods.

We have a learning events system in place to identify and learn from near miss events that could result in a health, safety or environmental incident. We are working hard to embed a culture of learning from these near misses.

Contractor Safety

The health, safety and wellbeing of contractors who are working on our sites are of equal importance to those of our employees and the group has safety performance metrics specifically for contractors, similar to those for our employees. These temporary workers are typically engaged to cover periods of long term sickness absence, maternity leave or to manage seasonal variations in workload.

This year we reported nine lost time accidents for contractors (2012/13 nine). Of the nine, five were greater than three day accidents (2012/13 six). This is good progress, as hours worked by contractors this year increased by 17%. This gives an annual total lost time frequency rate of 0.26 accidents per 100,000 hours worked per year (2012/13 0.31 accidents per 100,000 hours worked per year).

Embedding a Health and Safety Culture

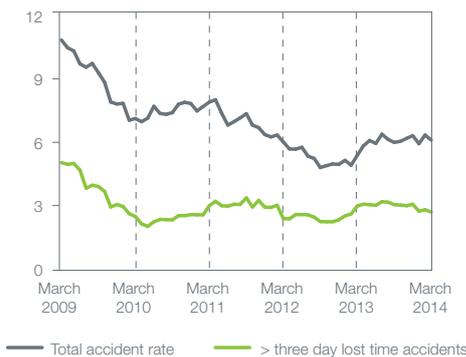
During the year we have continued to focus on improving health and safety performance and building the right culture to support this throughout the organisation. We undertook a number of key activities in 2013/14 in the areas of assurance, our EHS culture programme and risk management.

Assurance – under our EHS assurance programme (which is described further on pages 80 and 81), we completed 25 full assurance audits and 23 audit action reviews during the year. All the reports were reviewed by the Chief Executive's Committee and audit actions were tracked by the CSR Compliance Committee.

We also conducted two externally assisted compliance audits at selected sites to gauge consistency with legal requirements and with the operating permits and licences they have in place to allow them to manufacture in their particular territory.

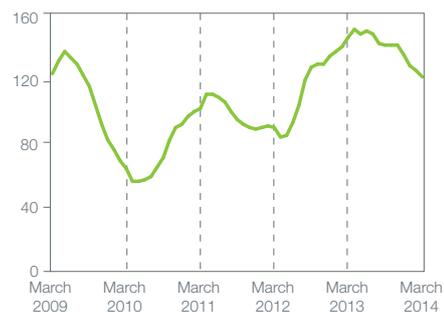
Annual Accident Rate

per 1,000 employees



Annual Accident Days Lost

per 1,000 employees





▪ Safety checks at our autocatalyst testing centre in Royston, UK.



▪ Emission control catalyst manufacturing in Smithfield, USA.

We are planning to introduce a system of 'guest auditing', bringing in employees from outside the audit function. As a first step, we have identified 20 key personnel who will be trained for the task by internal and external trainers. The benefits of guest auditing flow both ways: the employees learn more about our central EHS auditing practices while contributing their specialist knowledge of local hazards on their own sites.

'Our EHS culture' – building a culture that is consistently high across the group is an important part of our health and safety work. EHS culture facilitators have been trained in Europe, the US and India and we will complete training in Korea and China during June 2014. Our group EHS policy and guidance will then be amended to include the EHS culture programme.

Health and safety risk management

– we published our new group EHS policy and guidance on ergonomics, which forms part of the group EHS management system. We ran three day training programmes in the EU, North America and China to train local staff in how to implement our ergonomic programme toolkit.

We also continued our seminars on how to manage fire risk, one of the most significant health and safety risks across Johnson Matthey, with a focus on platinum group metal (pgm) related fires and pressurised gas safety. During the seminars, attendees examine the systems in place at each facility to prevent, control and mitigate these types of fires and explosions. Over the year, seminars were held in North America and India and the programme will be completed in China in June 2014. In addition, we continued our process risk management programmes, with one audit completed in the UK and one planned and scheduled to take place in the US in June 2014.

Looking Ahead to 2014/15

After a couple of years where performance, in particular safety performance, has plateaued, 2014/15 will mark a reinvigoration in our approach. A variety of work programmes are planned or underway to stimulate further progress, reduce accident and incident rates and align ourselves better with global best practice. In 2014/15 we will focus on enhancing leadership in health and safety across Johnson Matthey and we will continue to build on the behavioural based safety programmes we already have in place. We are assessing our current health and safety metrics with a view to revising and updating them in order to drive performance improvement and provide benchmarking opportunities.

We are introducing a new format for our monthly performance report to provide more focus on our key EHS issues. In addition, we are revising our EHS assurance programme to provide a more comprehensive and rigorous scope in line with how our sites operate, that incorporates new metrics and that focuses more on continuous improvement.

Product Stewardship

The products that leave our sites are only part way through their life cycle. They go on to become part of another product or material which will be used and then disposed of or recycled. All products, not least those with a chemical content, have a potential impact on health and the environment.

Product stewardship is about taking responsibility for the content of a product over its life cycle so that it will not go on to have an adverse impact on the environment or on anyone in contact with the product.

At Johnson Matthey we are committed to responsible management of the chemicals we use and produce.

We have created product stewardship systems to ensure the sound management of chemicals throughout their life cycle, and in this we follow a global framework introduced by the Strategic Approach to International Chemicals Management (SAICM) to promote chemical safety around the world.

We carry out rigorous evaluations of our products, both new and existing, assessing any risks associated with product use and determining risk management measures and mechanisms which we communicate to those outside the company. We work in cooperation with industry partners and customers, regulators and non-governmental organisations to strengthen confidence in our products.

Our businesses have management systems to assess the health and safety impacts of products across their life cycle, from product concept and R&D, through manufacturing, distribution, the use phase, to end of life or reuse.



Read more about product stewardship at Johnson Matthey, including our policy on animal testing, at www.matthey.com/sustainability.

Performance in 2013/14 and Strategic Priorities

Johnson Matthey use a systematic product responsibility reporting scheme (conforming to the Global Reporting Initiative Sustainability Reporting Guidelines, G3.1) to monitor the performance of our operations and maintain surveillance of the company's products and services. In 2013/14, there were no notifications of significant end user health effects involving our products and no major incidents or environmental releases during our product distribution were recorded. No product recalls occurred for safety reasons.

4. Health and Safety

Health and Safety continued

During the year we have made good progress in improving our strategic product stewardship systems and performance.

We have continued to encourage the responsible management of substances throughout the supply chain.

As part of our ongoing work on product risk assessments, we have evaluated exposure scenarios for our core product areas including our major pgm and base metal catalysts and a number of our APIs. Over the past five years we have committed substantial funding and

resources to the Pgm Health Science Research Group, in a project covering pgms in the environment and workplace. The project is now yielding significant new data beneficial to preventing occupational illness amongst workers in the sector and on the fate and behaviour of pgms in the environment.

CASE STUDY

→ Managing Substances of Concern

One Path to Greener Chemistry

Across all industries, chemical substances are becoming increasingly regulated in Europe and North America. Chemical controls are rapidly becoming much more stringent in Asia too. Some substances are classed as hazardous and, within that category, those that present more significant hazards may be deemed 'substances of concern' where further control is considered. Although very few of Johnson Matthey's products contain substances of concern, we place considerable emphasis on how we evaluate and manage these substances. This is also a matter of interest to regulators and to all our stakeholders, including our customers, our shareholders and other groups. They need to know that we are active stewards of our products, taking responsibility for identifying hazards and managing the risks over the product life cycle and for the long term.

So how does Johnson Matthey react to potential future requirements and recommendations in relation to substances of concern, including considerations for phasing them out? Firstly, we always comply with our legal obligations. Beyond this we have policies and procedures in place to ensure we operate to the same standards in all countries.

Secondly, we distinguish between hazard and risk, placing most emphasis on risk. A substance may be intrinsically hazardous but when it is produced under strict operating practices in a regulated plant, the risk may be very low indeed. One example where we place a particular focus on risk is that of a chemical intermediate which is a substance of concern but is rigorously contained and then transformed to another chemical. In this case, the actual risk is acceptably low.

Thirdly, as detailed in our policies, when we introduce new products we start by selecting the safest substances. In the words of our new product introduction policy, we promote "the selection and development of inherently sustainable chemistry". We also review the chemical content of existing products to see if there are safer alternatives to the substances we currently use.

Regulations on chemicals are subject to change and we must not be caught unaware. Equally, knowledge of chemical hazards is constantly expanding. To keep up to date with evolving scientific knowledge and regulatory change we have set up tracking IT systems that allow us to maintain our global horizon scanning.

When we assess the risk associated with a substance we consider a number of things: the hazard it presents; the

controls in place throughout its life cycle and at its end of life; its potential application (which can range from use under carefully controlled conditions to wide dispersive uses where it comes into contact with many people and / or is dispersed into the environment); and the economics and feasibility of substitution.

It is a fine balancing act. For some substances of concern, such as nickel oxide in well established catalyst applications, substitution could only be done at huge cost or is simply not viable, given the socioeconomic impacts which would result from their use. We must also take our stakeholders, including our customers, with us, working closely with them during our product development. Market drivers are important too; in one example when we have developed a heavy metal free catalyst for use in polyurethane manufacture, the product did not become accepted in the marketplace.

But overall we have a positive record on substitution. When we removed cadmium from our brazing alloys – brazing is a metal joining process – we ran a communications campaign with customers and distributors, which included a 'Cancel the Cadmium' brochure, explaining the health and safety risks of cadmium. Although the reformulated product contained more silver and was more expensive, we took the market with us and succeeded, assuming a leadership position ahead of subsequent regulation.

We have a strong interest in green chemistry. For example, recently we have phased out a lead compound pigment which is designated a substance of very high concern. We are also very close to completing the voluntary phase out of phthalate esters from one of our product lines.

Our commitment to sustainability is inspiring us to find better materials and better technology solutions. Externally, we have a good track record in communicating with customers and stakeholders. Internally, we have strong expertise in advanced materials together with well tried systems of product stewardship and risk assessment in place. The EU list of substances of very high concern is expected to increase dramatically in the coming years and the bar will be raised. We are well placed to develop the materials and the chemistry required to meet higher regulatory standards in a market that needs our products. At the same time, our corporate reputation benefits from our efforts to use the safest feasible substances.



- Our Shanghai, China facility for platinum group metal chemicals manufacturing.



- Active pharmaceutical ingredient manufacturing.

This information will be shared with external stakeholders and also published in research journals.

Work has also continued to promote systems in our businesses covering all aspects of product sustainability, such as chemical regulation, management of restricted substances and encouraging the use of green chemistry (a type of product design and production that minimises the use of hazardous substances). During the year we brought in an additional member to the group's product stewardship function which has allowed us to put more resources into these activities. We have also instigated a new monitoring and alerting system for our businesses to enable them to better monitor chemical substances considered to be of concern because of their intrinsic hazard.

We remain committed to improving publicly available information on the safe use of chemicals and explanation of their effects on health and the environment. This is part of a broader drive within the chemical industry to be transparent. For example, one valuable industry wide initiative is the Global Product Strategy open database which provides summaries of safety information on chemicals expressed in language that non-scientists can understand. During the year we started to upload product safety summaries to the database. We plan to expand the number of these easy to understand summaries in the future and to keep them updated as new hazard and risk assessments are done on Johnson Matthey's products.

We have also continued to support our businesses as they work towards developing a minimum standard set of EHS data for all bulk products marketed at lower production volumes (i.e. approaching 1 tonne per annum). This is a long term goal aligned with our voluntary commitment to the International Council of Chemical Associations (ICCA) Responsible Care® programme.

Looking Ahead to 2014/15

We plan to upgrade the consultancy service on toxicology and product stewardship that we offer our businesses as they develop new products and technology platforms. We also plan to commit further effort to harmonising chemical classification across the business.

We will be making further improvements to our workplace chemical exposure management programmes and will continue to contribute to industry efforts to develop guidelines on occupational hazard and safety management information for products such as platinum group metals.

Regulatory Matters

Chemical Control Regulations

The EU Regulation on the registration of chemicals – the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) – requires companies dealing with these substances to register them with the European Chemicals Agency. In accordance with the phased implementation of REACH, Johnson Matthey successfully completed all its medium tonnage substance registrations during 2013/14.

Our businesses have submitted a total of 36 new or updated substance dossiers. The programmes to support the final raft of substance registrations (with a 2018 deadline) are making good progress. Thanks to a number of factors, including the efficiency of the industry consortia with whom we have collaborated and the rationalisation of testing programmes, our corporate expenditure committed to the support of REACH programmes was approximately 30% less than originally envisaged.

The Asia Pacific region has seen an upsurge of new or amended chemical control regimes similar to REACH in the UK, notably in China and South Korea.

We have committed further effort to an impact analysis of these regulations and to developing compliance strategies which will enable us to redeploy data sets that we have already developed for our products.

Under the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), recently implemented in the US as the Hazard Communication Standard (HCS) 2012, new chemical information standards are imposed on all companies. To meet this safety regulation, our US sites have completed the mandatory workforce retraining and other facility related requirements on schedule. We are now close to fulfilling HCS product related requirements against the mid 2015 deadline and also anticipate that we will complete our GHS responsibilities in Canada within a similar timescale.