



BUSINESS IN THE COMMUNITY AWARDS 2006

EDF ENVIRONMENTAL IMPACT AWARD

ROCKWOOL LTD.



Rockwool Ltd.'s site at Pencoed, near Bridgend, is built on a former open-cast mine and is a haven for wildlife

## 1) DESCRIPTION OF ORGANISATION

Rockwool Ltd. was established in 1978 and is the UK's leading manufacturer of stone wool insulation for thermal, fire and acoustic protection. Based in Pencoed, South Wales, it employs 440 people and has a strong sense of being part of the local community. Building a sustainable future is at the heart of our business and this is reflected in our core values and working practices.

The parent company, Rockwool International A/S, was established in 1937. It employs more than 7,000 people worldwide and has headquarters near Copenhagen in Denmark, with 35 operating companies throughout Europe and North America.

## 2) SUMMARY

Rockwool is an excellent example of how an industrial manufacturer can achieve environmental performance without compromising on economic success.

Our environmental strategy was instigated when we first set up our site at Pencoed in South Wales in 1979 and has undergone constant development and refinement. The strategy embraces all areas of the business, from the products to the manufacturing process, waste management, site emissions and energy efficiency.

As an Integrated Pollution Prevention and Control (IPPC) site, we have a Climate Change Agreement in place and are committed to meeting energy targets up to 2010. In 2004, a CCA milestone year, we managed to better the 2004 Specific Energy Consumption per Tonne (SEC/Te) target by more than 6.5%, while increasing production by more than 25%. We have also generated a cumulative CO<sub>2</sub> saving of more than 30,000Te since 2000.

Since 1996 we have invested over £12m in environmental improvements and today have one of the most technically advanced factories of its kind. We use some of the most energy efficient production techniques, such as an enclosed process water system with no discharge to sewer, and hot water from manufacturing is used to heat the offices. We have also upgraded the factory to reduce emissions into the air and compressed our products to cut lorry journeys. Elsewhere, efficiency improvements on production lines have resulted in an overall power saving of approximately 2360 MWh/year.

Waste to landfill has been reduced to 6.8% of the total wastes generated. More process wastes have gradually been included in the recycling system, moving us towards our ultimate goal of zero waste to landfill. In 2004 75.3% of wastes were recycled and 17.9% sent for external recycling or re-use. The ongoing programme to eliminate waste to landfill has already resulted in an estimated 7,400 fewer lorries a year visiting the site.

The direct environmental impact of our products is monitored by comprehensive Life Cycle Analysis (LCA). This has revealed that the negative impact of the production of our insulation represents only 1% of the environmental

benefits resulting from its use, as it reduces the need to burn fossil fuels, therefore cutting emissions of CO2 and other harmful greenhouse gasses.

In addition, we actively work to encourage other businesses and organisations to make environmental improvements, offering a recycling service to our business partners and mentoring other companies in Wales. In addition, we have strong links with the local community and education and seek to inform industry peers and the wider public on environmental issues through partnerships, publications, seminars and campaigns.

This innovative and committed approach has been recognised by the Environment Agency and the Welsh Development Agency and we have received a number of environmental accolades. These include a Team Award at the 2001 Wales Environment Awards, the 2002 Wales Environment Award, a Smart Company Award from the Carbon Trust in 2004 and the Arena Network 10th Anniversary Award for Sustained Environmental Best Practice in 2005.

### **3) QUALITY OF MANAGEMENT**

#### **a) Leadership and Purpose**

Environmental improvement is a core part of our overall business vision, transcending all levels of the company and every aspect of our operations. Environmental performance defines how we operate and environmental targets are integrated into our business strategy.

From the start Rockwool International has instilled excellent environmental practices in all of its operating companies, such as the use of hot water from furnace jackets to heat offices and totally enclosed water process systems with no discharge to sewer. The Rockwool Group environmental policy obliges us to:

- Carry out environmental analysis of all projects involving new production equipment or new products before they are installed;
- Have an environmental management system which describes responsibility and control procedures, and make constant improvements to this system;
- Ensure that our factory does not cause problems for local residents;
- Comply as a minimum with the conditions imposed by regulatory authorities and take immediate action if compliance is lacking in any given area;
- Maintain an open dialogue with stakeholders, including customers, regulatory authorities, investors, employees, suppliers and neighbours, to ensure that interests and requirements concerning environmental issues are met;
- Carry out audits of the plants via the Group's environmental department to assist the environmental work of the manufacturing companies.

Our specific objectives for improving environmental performance are:

- Reducing emissions into landfill and the air;
- Reducing energy consumption and CO<sub>2</sub> emissions;
- Reducing noise levels from our factory;
- Increasing the level of environmental awareness in the local and wider community and in educational establishments;
- Providing a recycling service for our customers;
- Using the ISO 14000 series of standards for environmental management and audit procedures;
- Educating our workforce on relevant environmental issues;

In addition, as an Integrated Pollution Prevention and Control (IPPC) site, Rockwool has a Climate Change Agreement in place and we are committed to meeting set energy targets by 2010.

#### **b) Management Processes**

We consider environmental performance to be an integral aspect of our overall performance and this is reflected in our management processes.

Since 1995 we have actively measured environmental performance against objectives and Key Performance Indicators (KPIs) are in place to monitor emissions in to air, energy efficiency in production, material efficiency, waste, raw material usage and water consumption. Other monitoring processes are also used: employee surveys, benchmarking against competitors and other Rockwool factories and internal audits.

The KPIs are reviewed at regular meetings and actions for improvement are set where necessary. A structure has been set up to define which KPIs are monitored at each meeting and to outline objectives for these meetings. For example, targets for emissions into air and water are monitored daily, analysed at weekly and monthly Technical Operations meetings and reported on quarterly and annually to Board meetings, Steering Group meetings and the Local Residents Committee Meeting. The results of employee surveys are fed into quarterly Working Party Group meetings.

We measure the environmental performance of our products by conducting in-depth assessments of each stage of product manufacture. Our Life Cycle Analysis (LCA) is a comprehensive and independently-verified method of evaluating the full environmental consequences of a product and the manufacturing process, taking into account the use of natural resources, transportation, raw materials, fuel and emissions into air, water and soil. This goes beyond legal requirements and provides a complete audit of the impact of Rockwool products, including considerations such as noise. It is an accepted part of the way we do business and underpins our approach to market.

Results show that over 50 years our insulation can save 100 times more energy than that used during its production and the negative environmental impact of manufacture represents less than 1% of the positive environmental benefits derived from its use.

### c) Resources

Since 1996 we have invested over £12m in environmental practices and procedures and today have one of the most technically advanced factories of its kind.

This investment has included:

- The establishment of a closed loop system for process water;
- The fitting of a new combustion and filter system, which is not required by law, as well as a resin extender, to reduce emissions into the air;
- The collection of pig iron from the manufacturing process into ladles;
- The fitting of new silencers to the three cold-end dust extraction systems to reduce noise levels by 15dB on each filter;
- The fitting of a new condenser unit on the oxygen tank to reduce noise levels by 20dB;
- The installation of a product change system to save product change waste;
- The installation of an upgraded filtration system on the process water system;

We have also made a significant HR investment and involve employees of all levels. Each individual's role in reducing our environmental impact is recognised through the management system, with job descriptions setting out specific environmental responsibilities. For example, the Technical Marketing Manager is responsible for participation in the technical and sustainability committees of the advisory group to the ODPM, the EQA Manager is responsible for ensuring compliance with environmental legislation and the Project Manager is responsible for an environmental impact assessment of any new equipment or building project.

Competency matrices ensure that the aptitude of each employee is reviewed regularly and training is reviewed during appraisals to ensure it is adequately provided. In addition, our meetings structure and communications system, as well as our internal newsletter, ensure that all employees are aware of new and existing environmental practices and that the workforce is motivated to strive for further improvements.

A suggestion scheme is in place to encourage active participation in continuous environmental performance from all employees and cross-company teams are formed to solve problems and develop new processes. Furthermore, individuals from all areas and levels are selected for regular educational visits to other Rockwool factories.

#### d) Communication and Dialogue

Environmental performance is a key aspect of our internal and external reporting. We actively consult and engage with stakeholders on the environmental issues arising from our operations and have established several channels of dialogue:

- Board of Directors – reports and quarterly and annual meetings;
- Rockwool International – reports and quarterly Steering Group visits;
- Environment Agency – measurement and monitoring of results and routine visits;
- Local residents – meetings with a formal committee comprised of representatives from the local committee, Councillors and the Local Authority Environmental Health Officer;
- Customers – visits, customer newsletters and regular environmental surveys.

We seek to educate stakeholders on environmental issues such as energy efficiency and publish regular information booklets on topics such as the forthcoming changes to Part L of the Building Regulations, as well as giving presentations on sustainability to the Cardiff University Innovation Network and the Wales Environment Conference. We also actively encourage our business partners to return insulation waste for recycling and in 2004 Shell became the first natural gas liquids plant to sign up to our scheme.

In addition, we share best practice solutions and promote environmental improvements through a number of partnerships:

- We are a founder member of ARENA Network, which assists small and large businesses in Wales to establish environmental agendas. We play an active role in mentoring and provide speakers for tutorial meetings.
- We are a member of the CBI environmental committee and organises visits to other companies, as well as hosting visits to our site. We also published a CBI article 13 Best Practice Study, 'Making Values Count', which explained the benefits of focussing on environmental performance.
- We host 'Inside Welsh Industry' events through the Wales Quality Centre and invite other companies to our site to see environmental best practice in action.
- We are a member of the Building Research Establishment (BRE) Industry Stakeholder Group and contribute to updating the BRE Green Guide to Specification.
- We are a member of the Sustainable Construction Committee of the Construction Products Association (CPA).
- We chair the Technical Committee of Eurisol, the trade association for mineral wool producers, and are also a member of the Technical Committee of the Thermal Insulation Manufacturers and Suppliers Association (TIMSA). Both of these committees explore sustainability issues.
- We are a member a member of the Association for the Conservation of Energy and of the industry advisory group set up to advise the ODPM on ongoing changes to Part L of the Building Regulations.

At a local level, we have made it a priority to communicate with local residents about the environmental impact of our operations and to inform the wider community of environmental issues. We are involved in several community schemes and, in partnership with the Forestry Commission and Bridgend Borough Council, have donated a section of our site for a nature study centre and woodland walk to be used by local schools and adults with learning difficulties. During Green week 2005 we also supplied teaching resources to local schools and organised a poster competition to promote energy efficiency.

#### **4) IMPACT**

##### **a) Business Benefits**

###### **Market share**

In a world where concerns over climate change and changes to legislation are forcing architects, building contractors and end users to look for more environmentally-friendly construction products, our environmental performance is critical to our sales volume and market share. Customer loyalty has been generated through our commitment to the environment and our products are increasingly specified both because of their sustainable nature and the low environmental impact of the manufacturing process.

###### **Cost savings**

The total cost savings from the improvements implemented over the past 10 years have not been calculated, but the savings in waste to landfill alone are in excess of £5m.

Improvements in energy efficiency on the product lines have resulted in a total power saving of 2360 MWh per year and the following cost savings:

- £21,00 per year from improved line wool width and edge quality;
- £17,500 per year from automatic product changes;
- £18,000 per year from improvements to the heat exchanger design, which resulted in less Coke being used in the Cupola furnace;
- £15,000 per year from savings in energy utilities as a result of Power Boss Voltage regulation of fixed speed motors.

These improvements have also led to reduced waste and less downtime, thereby increasing the finished product yield.

Landfill costs have also been significantly reduced. For example, the upgraded filtration on the process water system saved £47k in landfill costs between January and August 2005. The return of unwanted customer pallets saved £54k in the same period, and waste has also been reduced by the installation of an automatic product change system, resulting in an additional cost saving of £13k from April to August 2005.

Increasing product length and compressing the finished product has enabled to increase the number of packs transported in each trailer, cutting the number of lorry journeys by approximately 284 per year and saving in excess of £127k. These improvements have also led to a reduction in the amount of packaging needed, generating further cost savings.

### **Increased motivation**

We take pride in our environmental policies and the improvements which we have instigated and this is reflected in increased staff motivation and enthusiasm. Our achievements in this area have fostered a strong team spirit within the company and staff continually strive to further improve our environmental performance.

## **b) Environmental benefits**

Our initiatives have benefited the environment in following ways:

### **Reduction of waste to landfill**

Waste to landfill now represents only 6.8% of the total waste generated. More process wastes have gradually been included in the recycling system, moving us further towards our ultimate goal of zero waste to landfill. Included in these process wastes are abatement wastes such as fly ash and dust filter waste. In 2004 75.3% of waste was recycled and 17.9% was sent for external recycling or re-use.

### **Reduction of emissions of particles into the air**

The installation of new filters on two furnaces and two spinning processes has achieved a significant reduction in particle release. For example, 93.2 tonnes were released in 1995 whereas only 39 tonnes were emitted during 2004.

### **Reduction in emissions of sulphur dioxide**

Gradual increases in the amount of fomrstones, or briquettes of insulation waste from the cutting of our products, as well as a change in the raw materials we use, has resulted in a reduction of sulphur dioxide emissions from 427 tonnes in 1995 to 39 tonnes in 2004.

## **Recycling**

Our investment in recycling has resulted in the re-use of waste and by-products in a number of ways:

- **Re-use of by-products from other industries**

Our re-use of residual products from other industries helps solve a Europe-wide waste problem, benefiting both the environment and our industry partners. For example, our production process uses large quantities of by-products from the steel-making industry, thereby turning waste into a valuable

resource. Currently, approximately 25% of the total furnace charge is made up of by-products from the steel-making industry.

- **Re-use of off-cuts from the Rockwool production process**

Off-cuts from cutting and shaping Rockwool products during production are recycled directly back into the manufacturing process. Off-cuts and similar 'directly recycled' material account for approximately 10% of the weight of the finished product.

- **Re-use of Rockwool returned from site and other 'waste' – briquettes**

We have developed a technically advanced form-stone manufacturing plant that converts waste into manmade formstones or 'briquettes'. The Rockwool material used to form the briquettes comes from spinning chamber waste, fly ash from the cupola furnace filters, dust extracted from production saws and off-cuts returned from site by customers. At present, off-cuts returned from site accounts for a small percentage of total briquette production (approaching 1%). However, we are increasingly involved with organisations that generate waste during sub-conversion activities, during installation or at end-of-life disposal and it is anticipated that the percentage of material recycled from these sources will grow. Currently, approximately 20% of the total furnace charge is made up of briquettes.

These recycled or re-used materials represent up to 50% by weight of our finished output. This has led to a rapid decline in the volume associated with waste disposal and has resulted in an additional 1,041 tonnes of product being generated from waste, leading to a 2% improvement in energy efficiency.

### **Reduced transportation**

The virtual elimination of waste to landfill and the reduced need for raw materials generated by our recycling system has resulted in an estimated 7,400 fewer lorries visiting the site per annum. Lorry journeys have been further decreased by compressing the final product, as described above.

### **Helping others**

In addition to these direct environmental benefits, we have increased the capacity of other organisations to achieve positive environmental impact by allowing customers to return unwanted pallets and by encouraging business partners to return insulation waste for recycling. By mentoring other businesses as part of the ARENA Network, we also help others to implement environmental policies within their own organisations.

Our partnerships with stakeholder groups such as environmental organisations and industry bodies, such as the ODPM and the BRE, have allowed us to be instrumental at a national level in ongoing environmental change. For example, we have advised on changes to the Building Regulations, which will result in more stringent energy efficiency testing from April 2006 onwards.

### Increased public awareness

Partnerships with local residents and educational institutions, together with environmental publications and marketing and PR campaigns, have enabled us to increase awareness of environmental issues, both within the wider public and amongst our customers and industry peers.



Local school children enjoying the Green Week activities organised by Rockwool