



This is Dow Corning at Barry

Dow Corning is a global manufacturer of silicon-based materials. Our manufacturing plant in the coastal town of Barry, South Wales employs around 600 people. Cardiff, the Welsh capital, is about eight miles to the east while Cardiff International Airport is just a few miles away to the west.

Dow Corning has strong links with Barry and is a major contributor to the area's economy.

Silicone production started in Barry in 1952 under Midland Silicones and continued until Dow Corning bought the site in 1971. The site grew rapidly through the 1970s and 80s, but the major expansion came in the late 1990s with a £200m investment. This made the Barry site one of the most advanced silicon-based materials manufacturing facilities in the world.

Covering approximately 160 acres, Barry is an integrated site developing, commercialising and producing silicon-based products and intermediates for use by customers worldwide. The site is also an important centre for research and development.

Through the total involvement of all employees and their dedication to continuous improvement, Dow Corning provides customers with quality products and services meeting their needs exactly.

This is done against a backdrop of operating in a safe, cost-effective, environmentally sound and socially responsible manner.

The site – and the science behind the process



Our process begins with the basic raw material – silicon, which is derived from heating quartz silica, a form of sand, to extremely high temperatures.

The silicon arrives at the Barry site in pieces the size of small pebbles, which we grind into a fine powder. Before this powder can become a silicone product it has to go through a series of chemical processes.

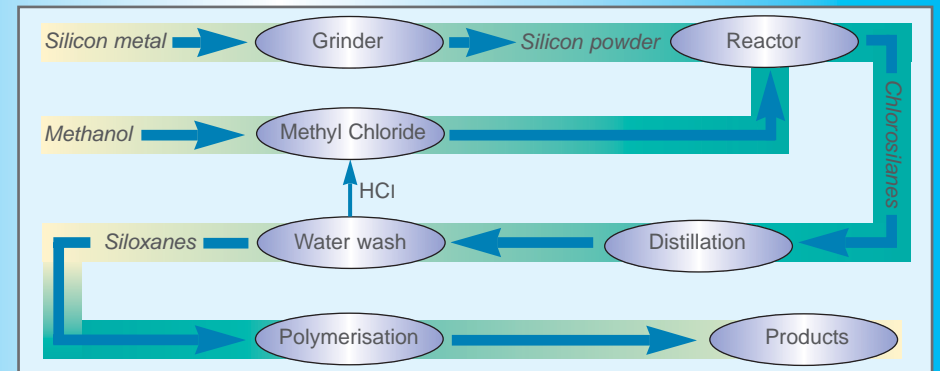
We combine the powder with methyl chloride and the chemical reaction produces chlorosilane intermediates. This mixture is purified in a distillation process before water is added to produce siloxanes.

Hydrochloric acid (HCl) is formed in the water washing process and this is piped to the methyl chloride process.

Methyl chloride gas is formed by chemically combining HCl with methanol (another raw material piped to the site).

The final stage is polymerisation and involves turning the siloxanes into a range of silicon-based fluids, resins and rubbers for distribution to other Dow Corning sites – for further processing – or directly to our customers around the world.

Our manufacturing process



Our products are made from silicon – the second most common element in the earth's crust. Silicones are a family of polymers that include siloxanes and silanes – compound variations of the natural element silicon. They have an exceptional breadth of chemical and physical qualities and are astonishingly versatile. When different molecules and compounds are added to their core molecular structure, it can enhance or modify their properties. The result is a readily adaptable material that can be manufactured in more than 200 different forms.

Silicone pioneer and a global leader

Dow Corning was established in 1943 specifically to explore and develop the potential of silicones. The corporation was created as a joint venture between Corning Glass Works (now Corning Incorporated) and The Dow Chemical Company, which continue to own equal shares.

From its pioneering role in the development of silicones for commercial applications, Dow Corning has grown to become a global leader in silicon-based technology and innovation.

We provide performance-enhancing products and solutions that meet the needs of customers in virtually every major industry and improve the daily lives of nearly a billion of the world's people.

Global resources and knowledgeable people

Headquartered in Midland, Michigan, USA, Dow Corning Corporation is a truly global company with a worldwide distributor network and nearly 9,000 employees working in sales offices, technical service centres, manufacturing sites, warehouses and laboratories across the Americas, Europe, Asia and Australia.

The company has 41 manufacturing and warehousing locations producing more than 7,000 products and speciality materials used by more than 20,000 customers around the world.



Silicon-based products enhance existing materials and make new ones possible. Products manufactured at Barry are used in a wide variety of industries, including:

automotive; aviation; aerospace; beauty and personal care; chemical manufacturing; construction; electronics;

fabrics; food and beverage; healthcare; household and cleaning; mouldmaking; oil and gas; paints and inks; plasma; plastics; power and utilities; pulp and paper; rubber fabrication; textiles and leather.

Specialist and everyday products made possible or enhanced by silicones include:

adhesives; airbags; cleaners; cookware; electronic devices; fabrics; fertilizers; hydraulic fluids; labels; lotions; lubricants; medical tubing and prosthetics; paints; inks and coatings; pharmaceuticals; pipes; gaskets and hoses; polyurethane foam; sewing thread; shampoos; shoe soles; tyres; toys; transformers.

Silicones: part of all our lives

In industries ranging from construction to personal care, silicon-based materials contribute to top performance. They enhance and preserve the features and reliability of products and materials. They also enable new technologies that streamline production, save time, reduce costs and minimise environmental impact.

- In cars, ships and aeroplanes, silicones are used to coat, seal and weatherproof joints and gaskets. They are also used in airbags, engines, radiators, sunroofs and transmissions.

- Silicones have wetting and spreading qualities that provide for smooth and even application of lotions and cleansers. When formulated with silicones, make-up retains its colour and lustre; shampoos and conditioners give greater shine, body and softness to hair.

- Silicones are ideal for making all kinds of sturdy, yet flexible, moulds and prototypes. Silicone rubber encapsulated semiconductors are used in industrial motors, locomotives and power supplies requiring high-voltage switches.

- Silicones have played an essential role in advancing computer technology, telecommunications and other innovations that rely on microchips. They enable us to engineer smaller devices and are contributing to new generations of 'thinking appliances'.

- Silicone release coatings ensure that adhesive labels peel smoothly and easily from their paper backing.

- Silicones have helped revolutionise the textile industry. They impart a variety of "feel" properties and improve fabric properties such as strength, abrasion resistance, water repellence and wrinkle recovery. Fabrics coated with silicone are used to make everything from clothing to sails, parachutes and hot air balloons.

- Silicone seals keep the joints of buildings and other structures airtight yet elastic. They allow towering skyscrapers to withstand seismic activity, and bridges and runways to endure years of heavy traffic and stress without compromising function or safety.

Our vision: We are innovative leaders unleashing the power of silicon to benefit everyone, everywhere.

Environment, health and safety

Safety and care for the environment are fundamental to the way we operate at the Barry site.

We recognise that we have special responsibilities for the health and safety of our employees, for the well-being of our neighbours and for the protection of the local environment.

Safety mechanisms, controls and procedures are built into every stage of our operation and we regularly review our methods to make sure we are getting it right.

We comply with regulations set by the Environment Agency and by the Health and Safety Executive and we are required to report any breaches to them. Both bodies undertake regular inspections and issue us with operating permits.

The Barry site is committed to the principles of Responsible Care® and is ISO 9001 and ISO 14001 registered. Care for the environment is part of our commitment to being a sustainable business and environmental management goes beyond simply complying with legislation.



Sustainability – an ingredient of all business strategies

Dow Corning is committed to the principles of sustainability. To fulfill that commitment, we continually work to:

- Reduce the environmental impact and improve the health and safety aspects of our operations, products and services.
- Foster the well-being of our employees and communities.
- Bring new products and services to those who would benefit from them.
- Create economic growth.
- Advance the quality of life.

As a participant in the chemical industry's global Responsible Care® programme, Dow Corning provides silicon-based products that can be manufactured, transported, used and disposed of safely. Health, safety, the environment and resource conservation are critical

considerations at every stage of the lives of our products.

At the Barry site, sustainability is an ingredient of all business strategies, decisions and operations. The guiding principle is that sustainability is fundamental to our future success. Our growth as a business goes hand in hand with our commitment to be open and operate in a sustainable manner.

Silicones are truly amazing materials that can be formulated to deliver an almost unlimited range of benefits.

The list of how silicone chemistry can improve our world is as long as imagination and as broad as society's needs.

One of the things we value most about silicones is their contribution to the sustainability of our diverse lifestyles and the preservation of our natural resources.

Safety – the number one priority at the Barry site

Safety is paramount at our site. Concern for it affects everything we do. The energy efficient processes are designed and regularly improved to minimise risk while the control and reduction of emissions has our constant attention.

Concern for safety and safeguarding the environment is fundamental to the way we operate the site.

Environment

Air, water and land around the site are monitored regularly as part of our unrelenting drive to prevent and reduce pollution. Our progress is also strictly monitored by government bodies. Our processes are designed to minimise waste and use of energy.

Many waste products from the site go into recycling processes, including paper and card; wood, metal, plastics, cans and office consumables. The site is always looking for more ways to recycle.

The site's secondary waste water treatment plant reduces organic waste and further improves the output quality to the Cadoxton River.

A combined heat and power plant, built and operated by nPower, provides energy for the site. Excess heat from the electricity generating plant is used in our manufacturing process.

Our environmental care programme – a detailed Environmental Management System – is backed by regular training for all employees.



Responsible Care®

Dow Corning is committed to the worldwide Responsible Care® programme to which chemical companies voluntarily subscribe.

The aim of Responsible Care is for chemical sites to demonstrate continual improvement in health, safety and environmental performance. To guide us, we must follow several codes of management practice.



Safety is our watchword, with a full-time commitment to the well-being of our neighbours and employees. Right from the start – when we design our processes – we have safety in mind.

This is supported by an unending routine of checking, maintenance and any necessary repair work.

Our Safety Management System is based on a programme developed by the Health and Safety Executive. The aim is for continual improvement in performance.

Occupational hygienists monitor the working environment and this activity is backed by our medical centre's regular checking and monitoring of employees.

Training for all employees in safe working practices and procedures is vital and we take pride in our knowledgeable, well trained employees who fully understand their responsibilities.

On the site we have our own fire-fighting vehicles and trained emergency personnel. We also work closely with emergency services and other agencies and regularly stage joint training exercises.

Community relations

We're well known in our home town of Barry and many of our employees live here or nearby in the county of Vale of Glamorgan.

We believe in being part of our community and playing an active role in making it a better place in which to live and work. We strive to be a good citizen and to build relationships with the people of Barry and the wider area. Employees are very much part of this activity – giving their time and using their skills to help community groups.

These activities, together with visits to the site, the Community Advisory Panel, environmental, health and safety reports and newsletters, help to keep people around us in touch with what is happening on the site and what it means for them. We work in partnership with teachers and careers advisers to help prepare young people to be citizens of the future.

Our employees, many of whom are school governors, take a keen interest in helping students to build their awareness of industry and exciting them about the possibilities of maths, science and technology, through projects, visits to the site and skill building exercises.



Supporting education

As part of our goal to be a good citizen we take a keen and active interest in education, supporting schools and career forums and encouraging pupils and students to play their part in the future.

National Science Week: During this annual week-long event, we welcome to our site more than 200 primary school students who carry out scientific experiments, supervised and encouraged by employees.

We are enthusiastic about attracting bright youngsters into science and technology industries such as ours and our employees are happy to help promote understanding of the chemical industry and careers. In targeting youngsters at these ages we hope to spark an early interest in science and technology.

Maths Mentors: School children in danger of falling behind in numeracy studies benefit from this education support scheme in which employees voluntarily give their time to support classwork. Staff members from the Barry site make regular visits to local secondary schools to build trusting relationships with youngsters in order to help them with maths-related subjects.



Promoting sustainability

The local community expects Dow Corning to be a responsible and caring neighbour. In addition to the initiatives mentioned on these pages we demonstrate our commitment with community projects such as the Cadoxton Ponds scheme. These 20 acres of wetland close to the site have been carefully restored and preserved, realising their potential for education, conservation and leisure pursuits. The scheme – the biggest community project ever undertaken by Dow Corning in Barry – is in line with many of Dow Corning's core values including our drive for sustainable development and Responsible Care®.

Communicating with our community

Located on a large site next to the port of Barry, Dow Corning is a highly visible feature of the area.

We understand that a chemical plant of this size can give rise to curiosity and concerns among our neighbours and that's why we make it a priority to listen and respond to comments and questions from people who live or work close to our site.

There are several ways in which members of the community can learn about Dow Corning and for the company to listen to what the community has to say.

Community Advisory Panel: One of our most important channels of open communication involves the Community Advisory Panel (CAP) – an independent group made up of people from the locality.

Each month the panel meets with representatives from Dow Corning and other chemical companies operating nearby.

CAP members learn about our operations and are free to raise any issues they wish at these meetings, reflecting the views, suggestions and concerns of the wider

community. We are committed to maintaining this useful dialogue.

Forums for Neighbours: Reacting effectively to issues and concerns is important. But we also place great emphasis on being open about our operations in the belief that it is helpful if our neighbours can see and understand where and how we work.

Our Forum for Neighbours initiative offers residents an opportunity to get a broad view of our activities and to take part in question-and-answer sessions. There are also opportunities to talk informally with site management and to tour the site.

Dow Corning News: While neighbourhood forums can be held only periodically, we are able to keep in touch with the local community on a regular basis via our regular newsletter, which is sent to around 5,000 homes.

Dow Corning News keeps neighbours up to date with events and relevant news at the site and provides explanations of our environmental issues, processes and safety measures.





For more information

We welcome additional questions or comments about the Barry site.

Phone: +44 (0)1446 732350

Write: The Community Relations Co-ordinator

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