



MATERIAL SOLUTIONS FOR GLASS

Gain a competitive edge with our industry leading range of high-performance minerals and secondary raw materials.

Material solutions advancing life



A PARTNERSHIP APPROACH

Glass manufacturing demands stringent standards of quality, care and control. This can only be achieved with a reliable supply of high-calibre raw materials that perform in line with specification to deliver consistent results every time. Which means that your raw materials provider must be a partner you can depend on.

As one of the world’s leading and longest-serving providers of minerals and secondary materials for the glass industry, we place our customers at the centre of our business.

We deliver bespoke solutions based on an in-depth understanding of your manufacturing requirements and wider business needs.

We are driven by continuous improvement, working in collaboration with customers worldwide to develop new material solutions that help to improve manufacturing efficiency and enhance product quality to provide a competitive edge.

THE SIBELCO STANDARD

The Sibelco Standard is our promise to you. The seven elements that make up the Standard ensure that your business always benefits from a reliable supply of innovative, high-quality materials, responsibly mined and delivered to your door on time and in top condition, no matter where in the world you are.

LEADING RANGE OF MATERIAL SOLUTIONS



From high purity silica to energy saving cullet, we are constantly improving and expanding our range of material solutions for glass. Our portfolio covers the full glass batch, shaped by global and local market trends and the continuously changing needs of our customers.

MINE-TO-MELT CONSISTENCY



To ensure that our materials always perform predictably and deliver consistent results, we monitor quality at every step of the mining process - from geological surveying and extraction through to processing and delivery.

BEST IN GLASS TECHNOLOGY & INNOVATION



We turn knowledge gained from extensive R&D into value for our customers. Our global network of laboratories and dedicated team of glass industry specialists provide the highest standards of technical support, ensuring that you always get the best results from our products.

COMPREHENSIVE SUSTAINABILITY APPROACH



We operate within a sustainability model which supports twelve of the United Nations Sustainable Development Goals. We have established clear sustainability priorities and report annually on our performance against key environmental, social and economic objectives.

GLOBAL LOGISTICS NETWORK



Glass manufacturing relies on smooth-running, cost-effective logistics. Our global transport and distribution network ensures that products always arrive on time and in top condition, no matter where in the world you are.

FINANCIAL STRENGTH WITH A LONG-TERM VIEW



We have the financial strength and resources to support your growth ambitions. Founded in 1872 and still privately-owned, we invest in the future with a long-term perspective. Whatever your business strategy, you can count on us today and tomorrow.

COMMITTED TO SAFETY AND HEALTH



The wellbeing of our colleagues and stakeholders comes before anything else. Safety and health are firmly embedded within our purpose, vision and culture. Our health and safety strategy is deployed across every level of the organisation via our global Going for Zero programme.

PRODUCT PORTFOLIO

Our range covers all glass batch materials, providing you with a one-stop solution for your raw material requirements. Key product groups include:



MELTING SANDS

Silica sand is the primary component in glass making. Properties such as chemical purity, grain size and colour play a key role in determining the clarity, strength and appearance of the final glass product.

SILICA FLOUR

Silica flour increases the melting rate of the glass batch, providing a chemically pure source of silicon dioxide with uniform particle size to maximise pull rates.

GLASS-GRADE DOLOMITE

Dolomite (a sedimentary carbonate rock) significantly improves resistance to natural or chemical attack and weathering, providing controlled and very low decrepitation levels.

LOW-IRON DOLOMITE

Mined and processed from Sibelco's unique deposits in Dúrcal, Spain, our low-iron (<140 ppm) and very low-iron (<100 ppm) dolomites are ideal for extra-clear glass. As well as improving clarity, use of these materials helps to cut energy costs, prevent devitrification and reduce refractory corrosion and furnace damage.

GLASS COLOURANTS

We offer a range of solutions to bring richer colours to container glass, including **PORTAFER®** (iron oxide) and **VITROFER** (iron silicate) for amber bottles and **PORTACHROM®** (chromite) for green.

MANGALOX® and **MANGAGRAN®** (manganese dioxide) are used as a pigment in purple and black bottles, and also to control redox in the glass manufacturing process. They can also enable the use of more external cullet and at the same time control and lower SOx emissions by replacing the saltcake.

ALUMINA-BEARING MINERALS

Alumina plays an important role in improving glass batch melting efficiency whilst bringing other key benefits to the manufacturing process.

Our range of alumina-bearing minerals includes nepheline syenite, mined and processed from our deposits in Norway. With low (0.1%) iron content and high chemical stability, use of nepheline syenite helps to reduce energy and transportation costs, improve chemical resistance and colour control and extend furnace life.

Feldspars are also excellent alumina bearers for improving batch melting, with premium grades possessing very low colouring oxides. Our locally supplied feldspatic sands also possess good melting properties to help you reduce energy consumption.

Sibelco also supplies ATH, a very pure alumina source with low iron oxides levels used in the perfume, tableware and specialty glass industry. For E-Glass production we offer fibreglass-grade anorthosite. By exchanging other raw materials, we have seen energy reductions in the range of 10-15%. Moreover, it is possible to reduce the direct & indirect CO₂ emissions by 20-30%.

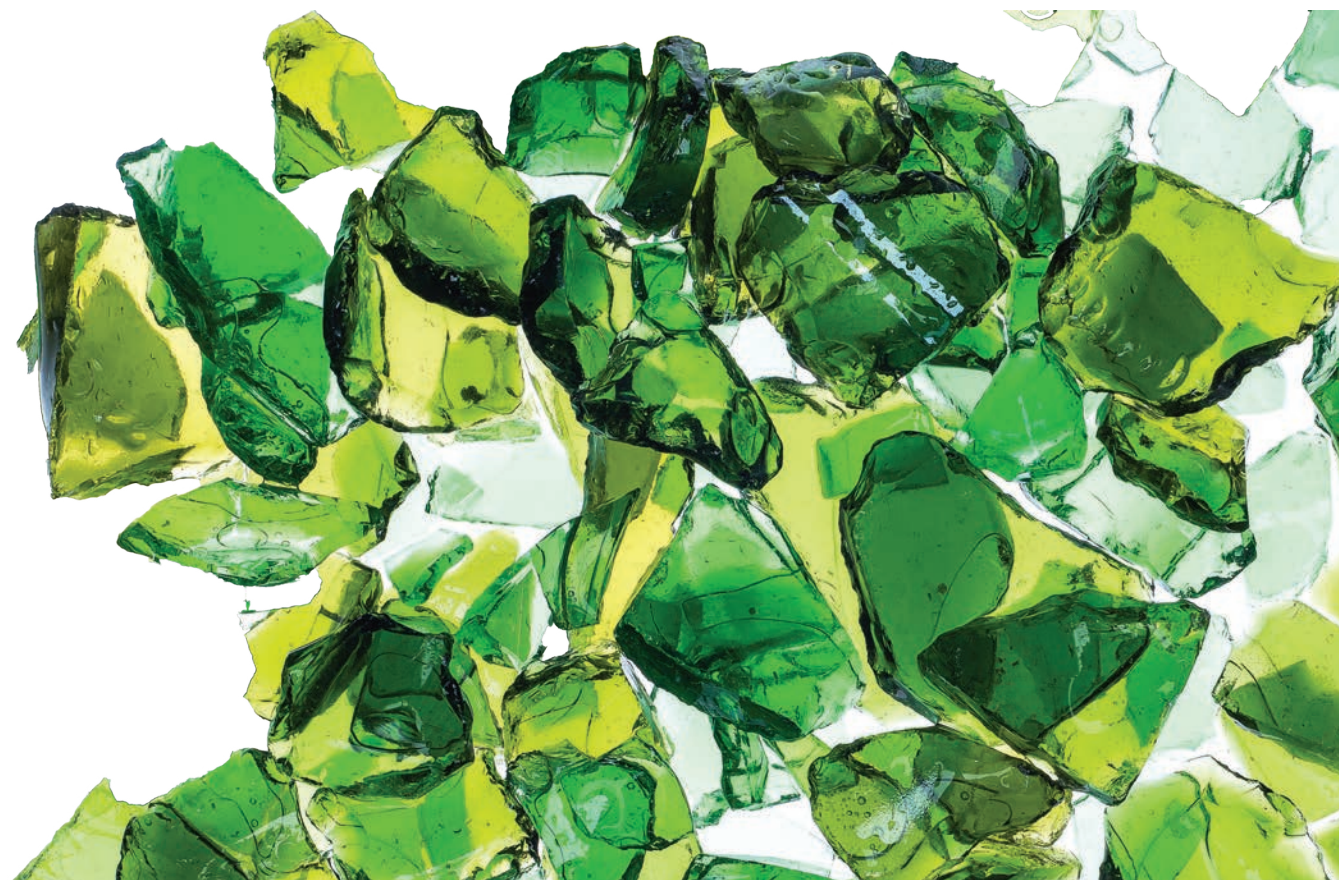
CULLET

Use of cullet brings clear commercial and environmental benefits including reduced CO₂ emissions. It can take up to 30% less energy to melt pure cullet than it takes to melt a batch made up entirely of primary raw materials.

Sibelco is at the forefront of glass recycling in Europe, each year transforming over three million tonnes of glass waste into high-quality cullet. Thanks to a combination of new optical sorting technology and process knowhow, we are able to treat waste streams that other recyclers cannot.

In close collaboration with our customers, we are developing new recycled glass solutions, such as low-iron cullet for luxury perfume bottles.

Beyond cullet, we are exploring further possibilities for the use of secondary raw materials in glassmaking, such as slags, ashes and other co-products.

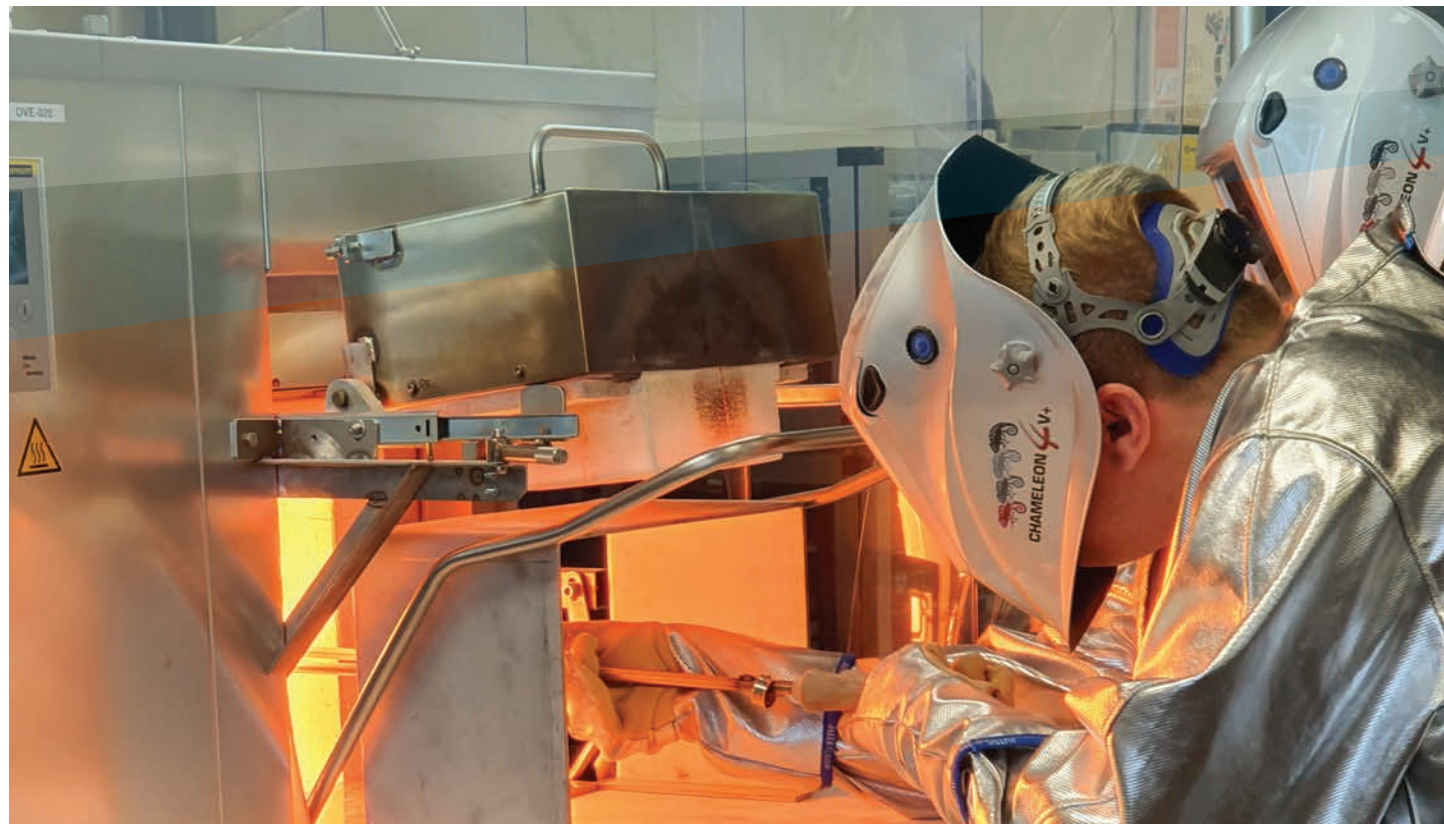


PRODUCTS AND APPLICATIONS OVERVIEW

Mineral quality and consistency are critical in the production of glass.

Our products play a major role in the furnace performance, energy efficiency and glass quality of the final product.

	Silica				Dolomite			Alumina Carriers				Colouring Oxydes			Specialties		Recycled Glass	
	Ultra Low iron sand	Low iron sand	Standard sand	Powder	Low iron grade	Standard grade	Powder	Nepheline	Feldspar	Anorthosite	ATH	Iron	Chrome	Manganese	Decolourising agents	Improving refractory Index	(Low-iron) Flint cullet	Other cullet
												PORTAFER® & FERROMIN	PORTACHROM®	MANGALOX® & MANGAGRAN®	COBALT/SELENIUM MIX	BARYTE		
Flat glass (high transmission)	V	V			V		V		V		V				V			
Flat glass (normal)			V			V	V	V	V			V					V	
Tableware	V	V	V		V		V	V	V		V	V	V	V	V	V	V	V
Crystal	V	V		V			V				V				V	V		
Packaging/Container glass	V	V	V		V	V	V	V	V			V	V	V	V		V	V
Technical glass	V	V		V			V	V	V		V			V		V		
Glass fibre				V	V		V			V							V	
Glass wool			V			V		V	V					V				V



SIBELCO GLASS LAB – MEETING YOUR NEEDS TODAY AND TOMORROW

Located in Dessel, Belgium, our Glass Laboratory is developing new solutions to help manufacturers reduce energy consumption and carbon emissions.

As the world transitions to a zero-carbon economy, at Sibelco we have set ambitious targets to reduce emissions intensity in line with best practices promoted by the Science Based Targets initiative (SBTi).

In our Glass Laboratory a team of experts, scientists and technicians are working on new ways to improve glass melting efficiency. Our team help customers to improve product quality, increase production efficiency, reduce energy consumption and CO₂ emissions, and to convert waste streams into valuable materials for new glass production.

Current focus areas of our glass laboratory include:

- development of new technologies to convert waste streams into valuable glass materials

- maximising the amount of cullet available for glass manufacturing; researching the use of cullet for future melting concepts; development of new solutions such as low-SO₂ cullet
- introduction of new materials to reduce glass furnace energy consumption and CO₂ emissions
- development of pre-treated minerals to enable faster melting of high-quality products and materials with a lower carbon footprint
- batch melting trials, furnace simulations and general R&D

Together with our partner Celsian, we offer a complete package of solutions for customers, varying from dedicated glass experiments and glass furnace simulations to industrial demonstration and evaluation of new materials in glass furnaces.

SUPPORTING A MORE SUSTAINABLE GLASS INDUSTRY

We believe that raw materials have a key role to play in the low-carbon economy. That's why we are working closely with customers and industry experts to develop material solutions to support more sustainable glass manufacturing processes.

Our approach focuses on three areas:

- **Availability of Minerals:** ensuring access to a long-term supply* of high quality, responsibly mined minerals, creating certainty for our customers and their future strategies.
- **Optimisation of Materials:** refining existing batch materials and developing brand new solutions to help reduce energy usage, improve end-product quality and minimise waste.
- **Increased use of Recycled Materials:** further expansion of our glass recycling business to help customers leverage the environmental and economic benefits of cullet, whilst exploring further possibilities for other secondary materials such as slags, ashes and other co-products.



**Sibelco has permitted access to some 20 years of high-quality silica sand reserves globally, together with long-term supplies of other glass minerals including dolomite, nepheline and feldspar.*

ENVIRONMENT, SOCIAL & GOVERNANCE

Sibelco operates in a complex environment across multiple markets and geographies. Our ESG model and associated priorities are built around 3 core elements: protecting the planet, caring for our people and engaging with society.

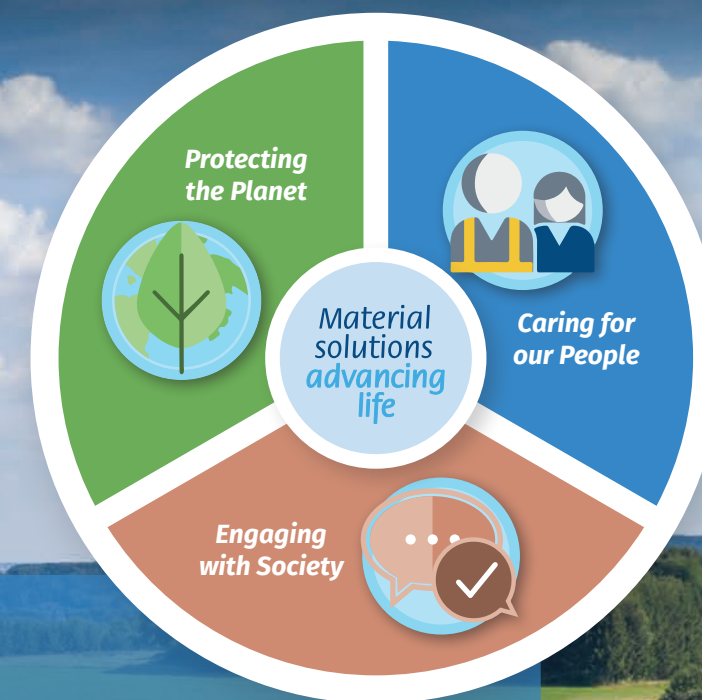
Through our sustainability strategy we positively contribute to eleven of the seventeen United Nations Sustainable Development Goals.

In August 2021, we announced an ambitious target to reduce Scope 1 and 2 emissions intensity (tonnes CO₂ / revenue) by 5% per year from 2021 to 2030 – cumulatively a reduction of 37%*. An engagement target for scope 3 emissions was announced in 2022 after detailed consultation with customers and suppliers.

These targets are in line with best practices promoted by the Science Based Targets initiative

(SBTi) and aligned with the Paris Agreement's goal to limit global warming to well below 2°C compared to preindustrial levels.

Our 5% per year scope 1-2 intensity reduction target is one of the toughest set by any business in the industrial minerals sector to date. We will invest approximately €90 million in new technologies and operational excellence initiatives over the next nine years to help us achieve this goal.



- Circularity
- Climate Change & Carbon Emissions
- Closure Planning & Biodiversity



- Diversity, Inclusion & Belonging
- Employer of choice
- Health & Safety
- Human rights



- Business ethics
- Community & Stakeholder Engagement
- Corporate Governance
- License to Operate
- Reserve Life



SUSTAINABLE
GROWTH

* assuming the same scope of activities

Material solutions advancing life

MATERIAL SOLUTIONS ADVANCING LIFE

With 120 production sites in 31 countries, Sibelco is one of the world's leading providers of industrial minerals and other material solutions.

We create materials that power progress. Our products help to build homes, cities and vehicles; to support the supply of electricity, food and clean water; to create new technologies like smartphones, low-energy lighting and solar panels.

We do this within a robust sustainability framework, always balancing economic performance with environmental stewardship and social responsibility.

For further information please email us at: info@sibelco.com

