

Energy-Intensive Industry – Leakage to low price regions

Chris Dye, Category Manager – Energy
(Europe) & Renewable Energy (Global)

NSG Group Today



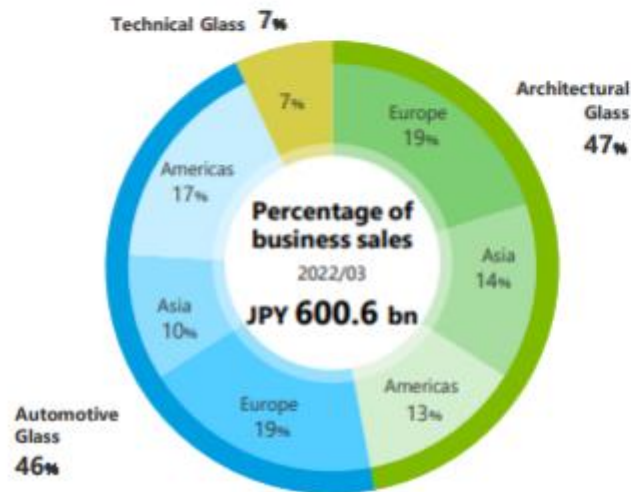
- The NSG Group is one of the world's largest manufacturer of glass

Three Global Businesses : Architectural, Automotive, and Technical Glass

Principal operations around the world, with sales in over 100 countries

Approximately 26,000 employees globally (as of March 2022)

The NSG Group is striving to realize a sustainable society by offering new values and services with glass swiftly and appropriately to meet the growing needs of our customers and society



- Contributing to society with a variety of glass products

Architectural

Leading supplier for architectural glazing and thin film solar panels

Optiwhite™ used for Midtown Hibiya in Tokyo

Glass for electrochromic applications
Courtesy of View Inc.

Glass for thin film Solar panels
Courtesy of First Solar Inc.

Antiviral glass

Automotive

Key supplier globally in new vehicle (OE) and automotive aftermarket (AGR)

Windshields with head-up display (HUD)

Lightweight laminated glass
Infrared reflective solar control coating

Glass compatible with ADAS*

Technical Glass

Unique 'Number One' and 'Only One' niche products

SELFOC™ Lens Array

Metashine™

NSG Purity
Antibacterial and antiviral coated glass

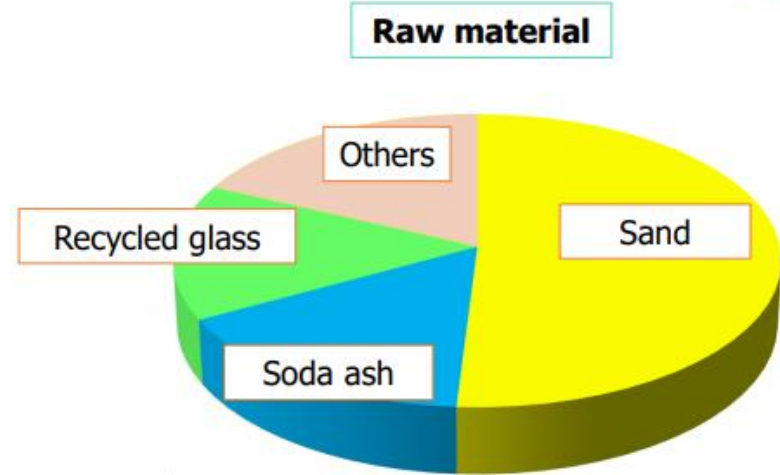
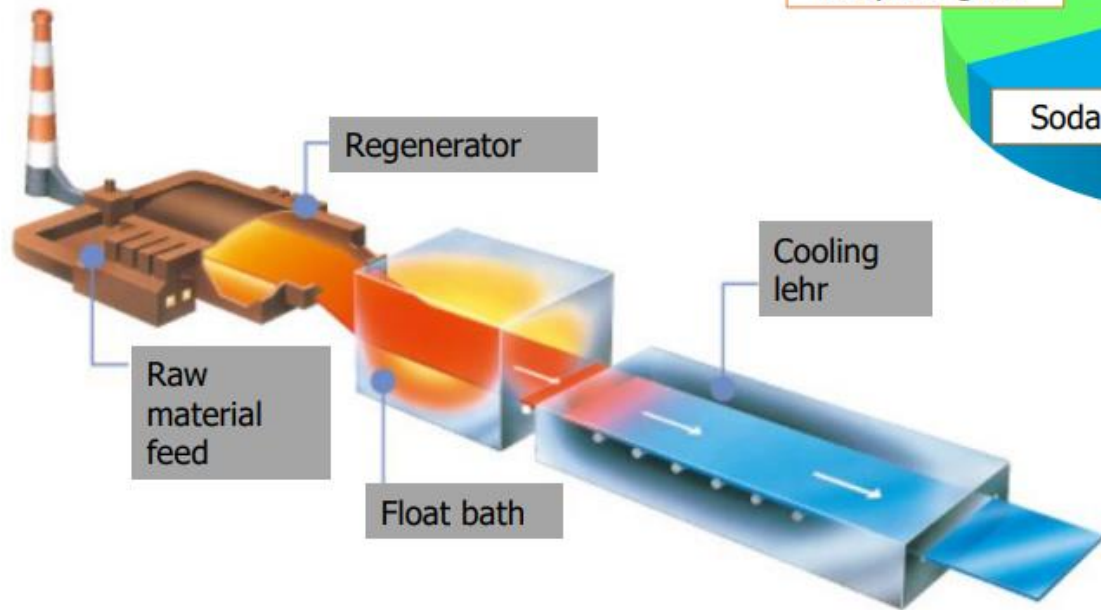
Glass cord

Super Glass Paper™

Float Process

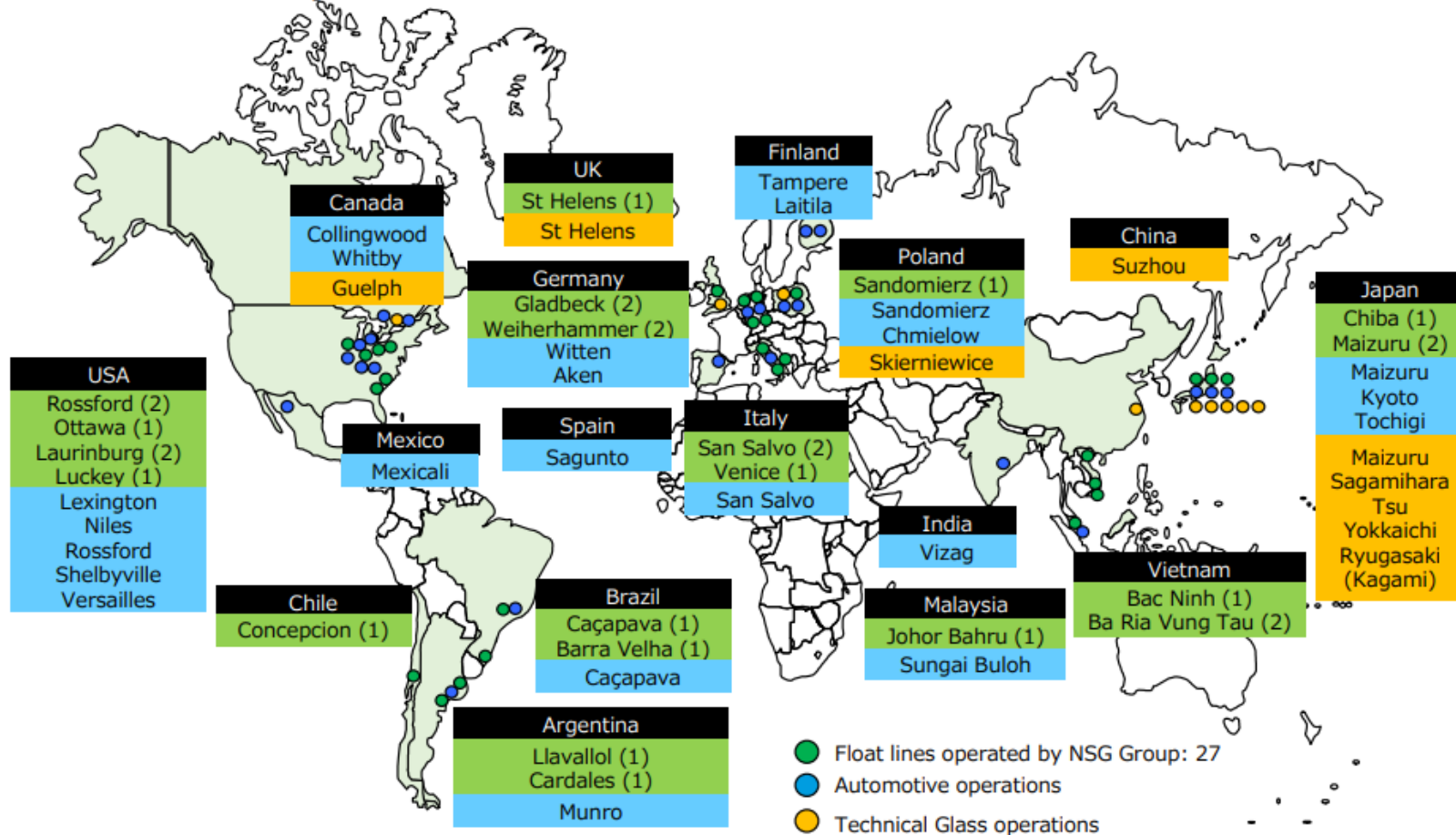
Float glass:

Molten glass is poured continuously from a furnace onto a shallow bath of molten tin. It floats on the tin, spreads out and forms a level surface. This method was introduced to the world as the float process in 1959.



- Float furnaces run 24/7/365 often for 15+ years
- Temperatures in the furnace are $\sim 1500^{\circ}\text{C}$
- Furnace can produce up to 800 tonnes of glass per day

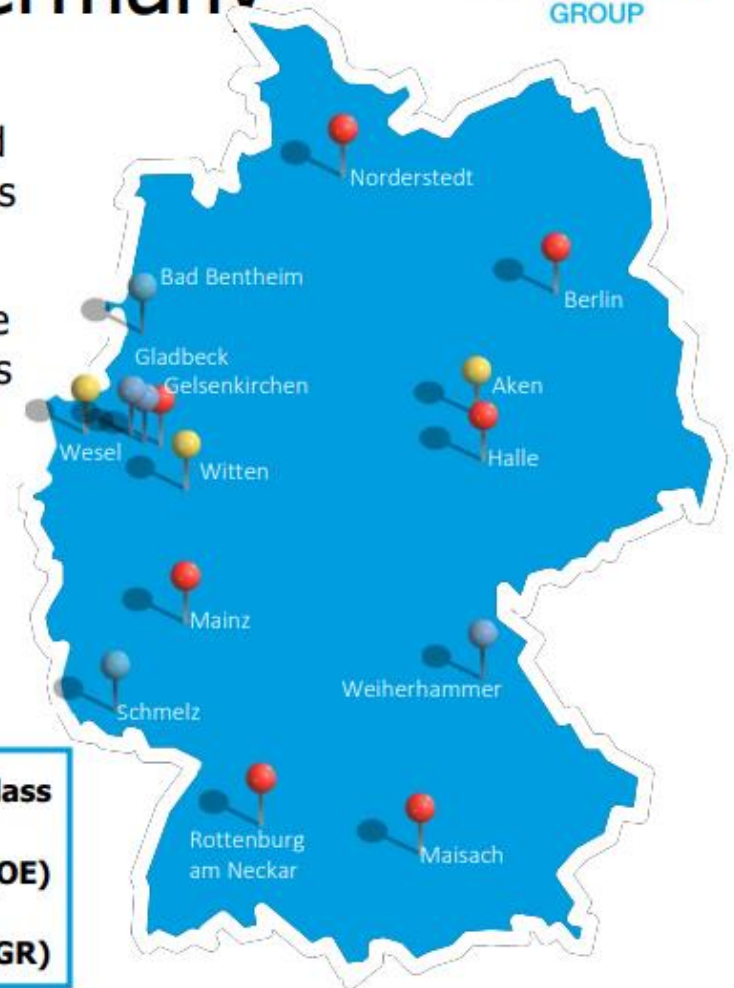
Global Footprint



- Global footprint to match our customer base

The NSG Group in Germany

- **Architectural Glass:** Production of float glass, semi-finished products and U-shaped profiled glass as well as fire protection glass and glass for solar applications.
- **Automotive OE:** Production of automotive glazing for original equipment. Sales Offices in Braunschweig, Frankfurt and Güglingen-Frauenzimmern.
- **Automotive AGR:** Supplier of the automotive glass replacement market.



About 2,500 employees in total

Architectural - Germany



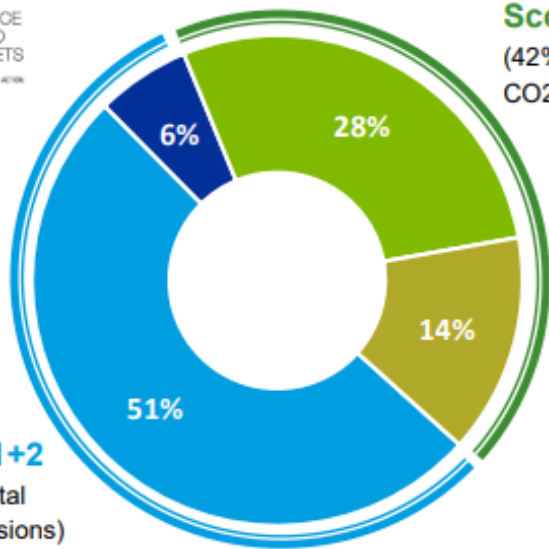
← **Gelsenkirchen**
Weierhammer →
Gladbeck ↓



Architectural - Germany



GHG Footprint - Float Glass Production⁽¹⁾



Scope 3
(42% of total CO2 emissions)

Scope 1+2
(57% of total CO2 emissions)

- Scope 1
- Scope 2
- Scope 3 (raw materials)
- Scope 3 (others)

NSG Group's 2030 SBTi Approved Targets

Scope 1+2 (Direct + Indirect Emission)	Scope 3 (Supply Chain Emission)	Carbon Neutrality
30% reduction by 2030 Benchmark: 2018 (certified by SBTi)	30% reduction by 2030 Benchmark: 2018 (certified by SBTi)	Commit to achieve by 2050

(1) Share of Scope 1, 2 and 3 emissions shown in the chart indicates a typical UK based float glass production

Energy-Intensive Industry

- Glass manufacturing is an energy-intensive process
- This process has been constantly refined since Pilkington introduced the float process almost 60 years ago
- Energy costs are a high % of total costs and so our products are sensitive to market fluctuations
- Carbon costs increase the risks of leakage as they are not applied everywhere
- However they encourage the sector to decarbonise
- Many of our value added products require more energy to produce but help to reduce our customers emissions

Innovation

Home / News Insights / Insights / Biofuel trial by St Helens glass giant marks new world-first towards decarbonisation

Biofuel trial by St Helens glass giant marks new world-first towards decarbonisation

PRESS RELEASE

28 Feb 2022

Pilkington United Kingdom Limited, part of the NSG Group, has become the world's first flat glass manufacturer to fire its furnace on 100% biofuel, as part of an industry trial to find sustainable alternatives to natural gas.

A sustainable biofuel made from organic waste materials powered the St Helens glass manufacturer's furnace entirely for four days, creating 165,000 sq ft of the lowest carbon float glass ever made. The fuel emits circa 80% less CO₂ than traditional natural gas used in the sector.

The trial forms part of a £7.1 million project led by industry research and technology organisation Glass Futures, working under the Department for Business, Energy and Industrial Strategy's Energy Innovation Programme. It aims to demonstrate that the furnace could run safely at full production on the low-carbon fuel without impacting product quality.



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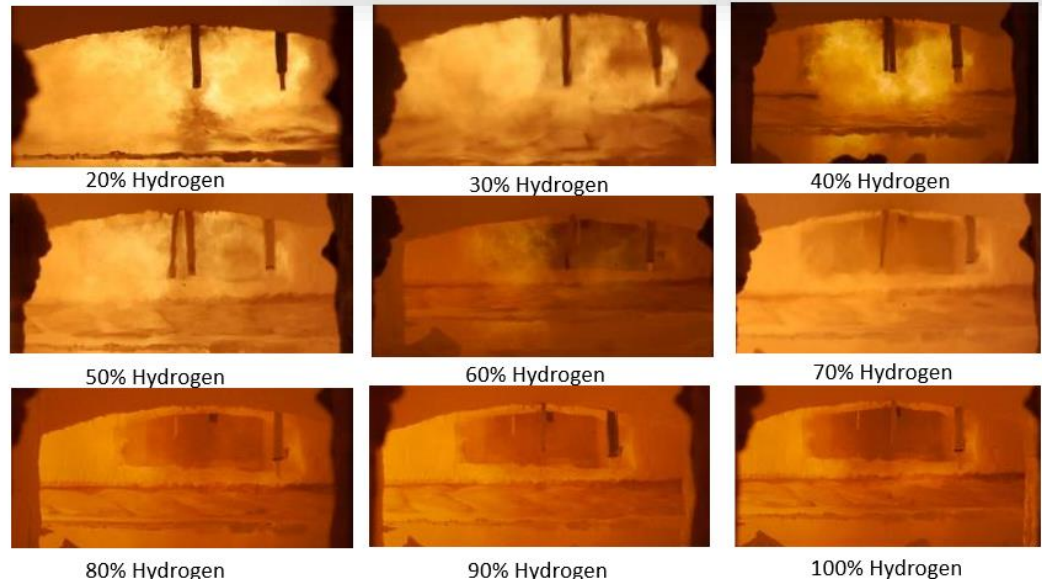
HyNet achieves world first as 100% hydrogen fired at Pilkington UK, St Helens

Share

In a world first, and just one week after the Government's Hydrogen Strategy was released, trials have started in the Liverpool City Region to produce float (sheet) glass using hydrogen.

The natural gas fossil fuel, normally used in the manufacturing process, will be completely replaced with hydrogen – showing how industry can significantly cut carbon emissions and take a big step towards reaching net zero.

The trials are taking place at Pilkington UK's St Helens facility, where the company first began making glass in 1826.



Thank you for listening..

Any questions?

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