EAME SHEET BUSINESS

Shaping a greener, brighter, stronger, more durable world

We've reduced our carbon footprint

by installing a new heat recovery circuit and infrared lighting sensors

Fact: We've been driving down our carbon emissions since 1899.

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

1987 UN Brundtland Commission

Developing a sustainable business for the future

Our products help to create a greener, brighter, stronger, more durable world, and our actions to too. Read on to discover how our products and processes enhance the world we live in.

LUCITE INTERNATIONAL

A global leader in the design, development and manufacture of acrylic-based products, everyone here lives our company promise of going further in all that we do. We set ourselves the highest of standards from the efficiency of our operations and our safety, health and environmental performance to the positive contribution we make to our customers, colleagues and the industries and communities we serve.

2020 ENVIRONMENT TARGETS

- Reduce energy and water consumption by 20%.
- Reduce our carbon dioxide emissions by 20%.
- Reuse, recycle and achieve zero waste to landfill.

These commitments aren't a trend, a fad or something brought about by new legislation. We've already come a very long way on our journey of sustainable development. Everybody here is working towards the same aim. And our improved efficiencies have benefited customers, colleagues and local communities, as well as our business and planet.

Fact: *A new £2m boiler plant aims to reduce carbon dioxide emissions by over 400 tonnes a year.*

Our products, along with our processes **offer environmental benefits**

EUROPE, AFRICA, MIDDLE EAST (EAME) SHEET BUSINESS

Passionate about continually reducing energy consumption and carbon dioxide emissions in all that we do, our flagship products Perspex and Lucite offer great versatility and flexibility.

Invented in the 1930's, the fundamental attributes of our acrylic sheet have made it the preferred material for many manufacturers, retailers, designers and architects.

Today acrylic is used in a growing range of domestic and industrial applications. And we're committed to leading the way in responding to new demands and sustainable solutions-based ideas.

PERSPEX

Offering exceptional performance characteristics and world-renowned quality, applications range from corporate identity, signage, architectural fixtures and glazing to furniture and interior design. Available in a wide range of sizes, thicknesses, colours and effects, Perspex acrylic sheet is easy to shape, fabricate and form.

LUCITE

Offering durability, exceptional strength and design freedom, almost 50% of the world's acrylic baths are made from Lucite sheet produced at our plants around the world. Warm to the touch, its unique features include lasting colour and superb surface finish and texture.

Insulation

- The thermal conductivity of Perspex is about one sixth of that of glass
- A Lucite bath loses heat slower than a cast iron or enamelled steel bath
- In glazing applications, the heat loss through Perspex is around 8% less than glass

Non-Toxic

- Non-toxic to aquatic organisms and inert in the environment
- Suitable for food contact
- No dioxins given off in a fire

Durability

- Outstanding durability extends the life of many products
- Longer lifespan means less frequent replacement

High Molecular Weight

- Unrivalled weatherability
- Good chemical resistance

- 5x impact strength of float glass
- Surface as hard as aluminum

Strength

- One of the most rigid thermoplastics
- As a result, a thinner acrylic panel can reduce the volume of material used

Rigidity

- Easy to fabricate, resulting in a low reject rate in production
- No drying required before thermoforming

Fabrication

- Half the weight of glass
- Lower transportation costs and therefore carbon dioxide emissions
- And significant savings in structural support components in construction

Weight

Maximising efficiencies in manufacturing

EAME SHEET BUSINESS PRODUCTION PROCESS

We produce cell cast acrylic sheet directly from monomer. It's poured between two sheets of high quality glass and is polymerised in batches and carefully controlled manufacturing process. Our production methods offer various benefits:

- **Lucite and Perspex have over 97% manufacturing efficiency.**
  This enables us to use our raw materials very efficiently and minimises waste in our manufacturing process.

- **The cell casting process is inherently flexible in nature with various colours, thicknesses, textures and manufacturing batch sizes.**
  And when we 'change over' to produce different thicknesses and colours, there is low waste compared to extruded products.

- **Cell cast acrylic can improve cutting efficiency and reduce loss.**
  Bath and glass sizes are matched to minimise cutting loss. By working closely with our customers, we're able to improve and incentivise efficiencies at the design stage.

Saving one of the planet's most precious resources

Our main casting plant in Darwen may be situated in an area of high rainfall, but we're never wasteful and we always believe in going further. Committed to using water responsibly and further reducing our water usage at the site we:

- Recently made a significant investment to reduce water usage by more than 24 million litres a year.
- Maintain good water quality by ensuring only minimal chemical oxygen demand.
- Have commissioned a warm water recycling project that will save almost 80 tonnes of carbon dioxide per annum.
- Have implemented compressor efficiency projects that have saved more than 13,000 litres of water a year.

Product fact: Acrylic fibre has improved sustainability

A major investment at our Darwen plant has reduced water usage by around 24 million litres a year

Fact: A Lucite® bath loses heat slower than a cast iron or enamelled steel bath.

Energy reduction projects since 2005

have saved enough energy to power 1,700 homes a year

To enable us to identify new ways to improve the environmental impact of our products and operations, we're working with CEFIC (The European Chemical Industry Council) and its acrylic member companies to define the carbon footprint and other Life Cycle impacts of our methacrylate products. This methodology will be externally verified to meet ISO 14044 Life Cycle Assessment requirements. It will be implemented for our products ranges to pinpoint opportunities, drive further progress and provide accurate information to customers and designers.

Maximising efficiencies in manufacturing

ENERGY & GREEN HOUSE GAS EMISSIONS

Dedicated to making our processes as efficient as possible, at our Darwen site we've:

- Been reducing our carbon footprint per tonne of production since 1989 when we signed up to meet biannual targets, as part of the Government's Industry Climate Change Agreement scheme.
- Saved enough energy to power 1,700 homes a year by investing in a variety of energy reduction initiatives since 2005.
- Reduced energy use by fitting infrared sensors and timers to lighting circuits in our plant, warehouse and offices.
- Installed a new heating control circuit in our warehouse to lower our carbon footprint, reduce costs and maximise efficiency.
- Invested £2 million in a new boiler plant to reduce carbon dioxide emissions by over 400 tonnes a year.

REDUCING PRODUCT MILES

All of our sheet products sold in Europe are produced in Europe. We've also situated our manufacturing and warehouse operations in close proximity to each other to minimise the distance our sheet travels during initial transport.

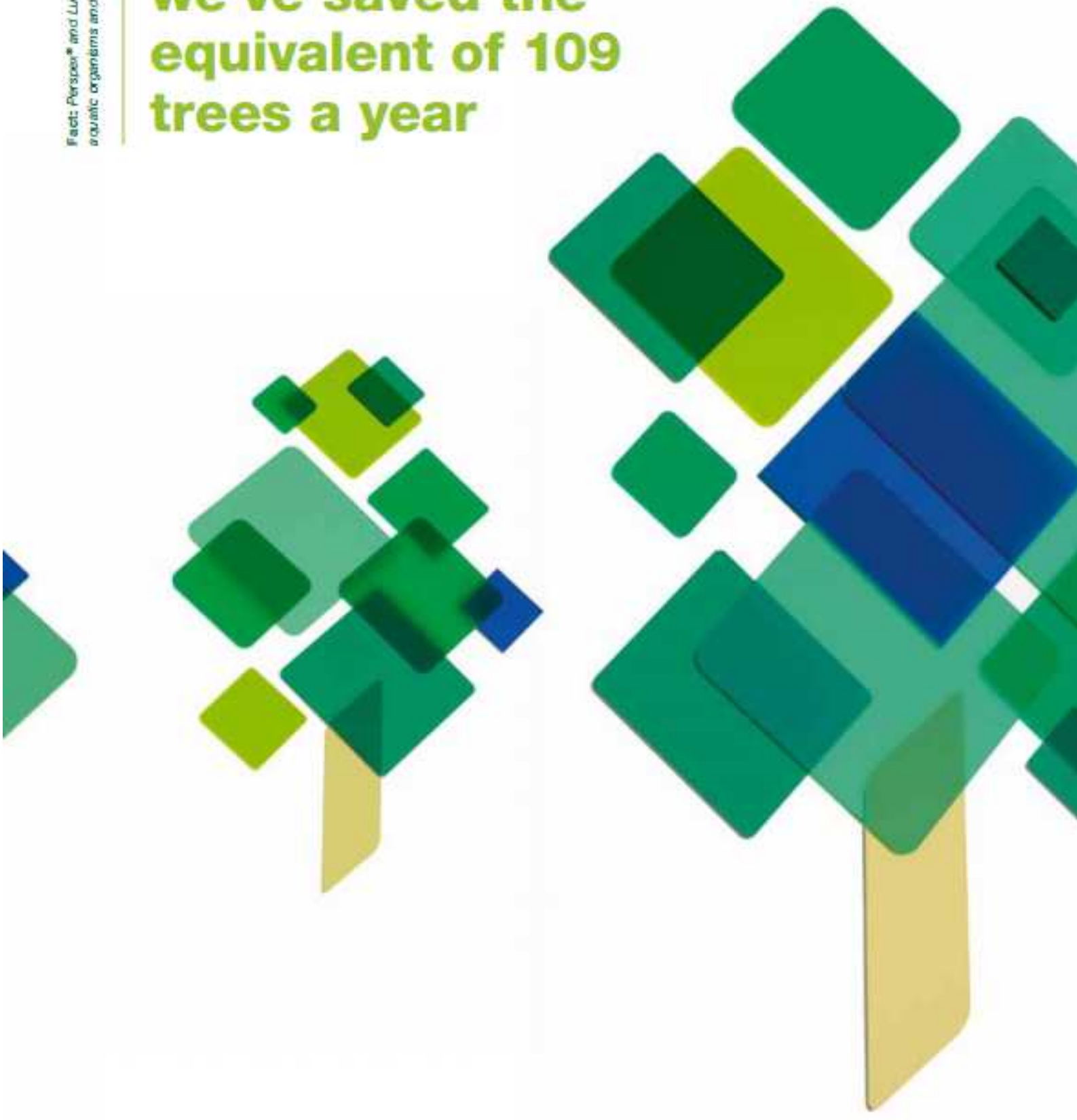
Reducing and recycling non-acrylic waste

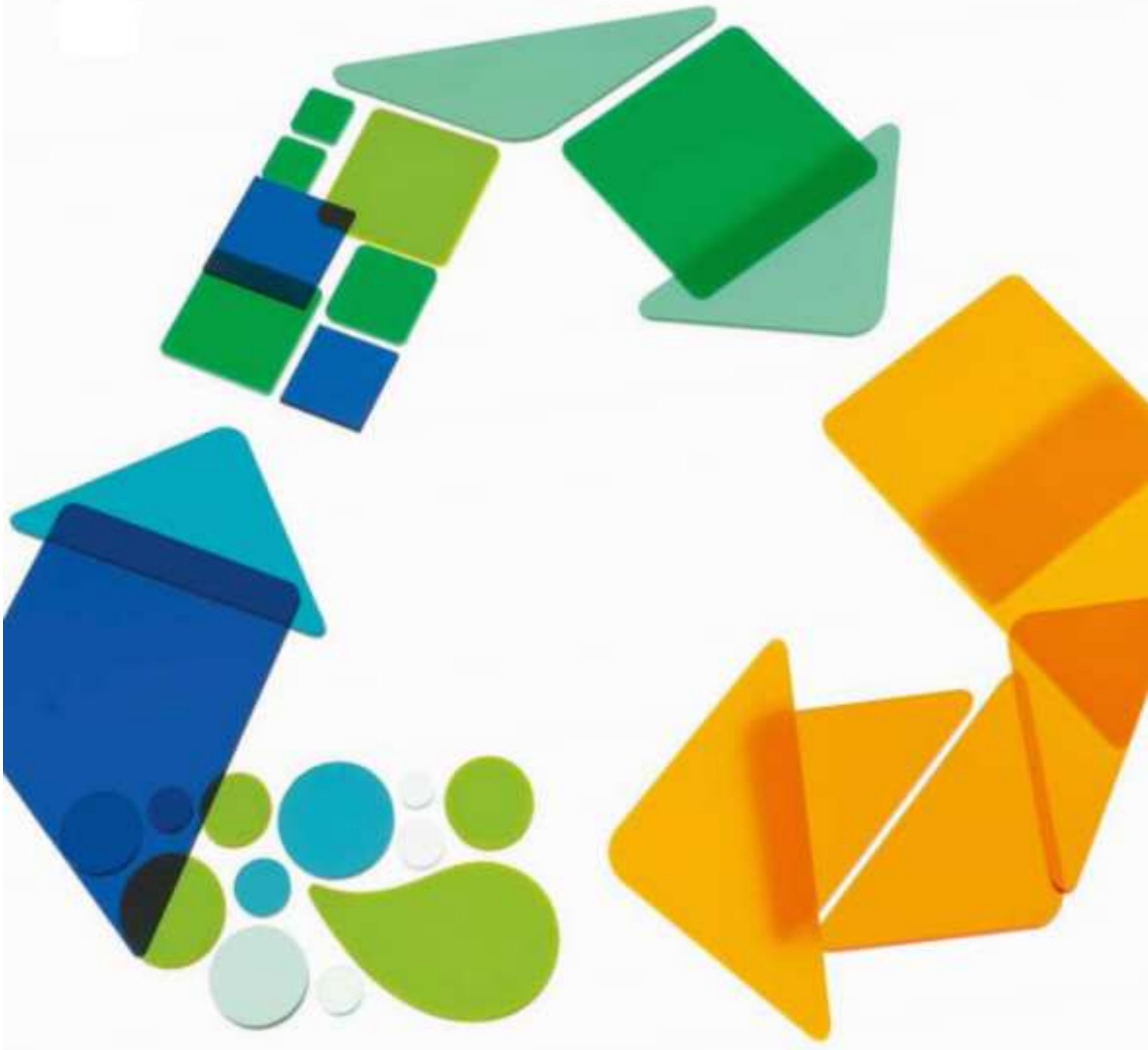
Committed to creating as little waste as possible and sending less and less to landfill, we're well on our way to achieving our aim. Reusing, reducing and recycling as much as we can, we:

- Recycle around 500 tonnes of glass a year – the equivalent to 2.3 million 330ml bottles.
- Have reduced the amount of fibreboard we use in our packaging – saving the equivalent of 109 trees a year.
- Recycle all kinds of waste from gasket tails, masking and fibreboard to metal, filters and wood.
- Currently only send 0.2% of our total waste to landfill. And we're working on Groundwork, a local environment charity to further reduce this.
- Have introduced single sided masking to Lucite sheet – effectively halving the amount of masking used.

Fact: Parsorb® and Lucite® are non-toxic to aquatic organisms and inert in the environment.

By reducing the amount of fibreboard in our packaging, **we've saved the equivalent of 109 trees a year**





We make sure all acrylic is either **sold, recycled or reused**

Fact: We send zero acrylic to landfill.

"PMMA is different from virtually all other plastics in that it can be readily recycled back to the original monomer. Thermal cracking, the process by which PMMA is converted to MMA can be carried out with almost 100% recovery"

Dr I Boustead

European Plastics Industry Report 1997

Recycling from start to finish

A REMARKABLE PROPERTY OF LUCITE AND PERSPEX

Unlike most plastics, our cast acrylic sheet, poly-methyl methacrylate (PMMA) can be readily recycled all the way back to the original raw material 'monomer' – regardless of colour or aesthetic effect.

REDUCING, REUSING AND RECYCLING

We're dedicated to reducing waste, increasing efficiency and reusing and recycling waste wherever possible.

Reducing

- We're committed to actively reducing the amount of waste we generate across every aspect of our operations.
- Through our manufacturing excellence programme, we implement a continuous improvement strategy to give us world class production efficiency.
- Focused on 'getting it right first time', our manufacturing efficiency of over 97% minimises waste and the energy we use whilst reducing our impact on the environment.

Reusing and recycling

- The solid by-product from our manufacturing and cutting operations is sold as a valuable raw material for other processes – even the sawdust.
- All waste from our sheet syrup process is recycled and reused which provides the recycled content in our sheet.
- Acrylic syrup waste recycled from the production process at our Darwen site meets the ISO 14021 definition of 'pre-consumer recycling'.

End of life recovery and recycling

- The opportunities for recycling Lucite and Perspex even extend beyond the factory gates. For example, significant users of acrylic are dismantling products (such as point of sale displays that have been used for many years) and then recovering the acrylic to sell as raw material for other applications.
- We are building relationships with local companies across Western Europe to establish small-scale, post-consumer acrylic recovery options.

Acting responsibly to shape a safer world

Our safety and environmental performance ranks amongst the best in the chemical industry. But we're always looking to improve and go further. After all, we truly believe that safeguarding people and the environment is the only acceptable way to treat our most valuable resources and is essential to the long-term viability of our business.

Placing paramount importance on the safety, health and wellbeing of everyone we impact upon, we're proud of our strong safety culture that goes back many years. Our high SHE (Safety, Health & Environmental) standards have led to many achievements, including:

- Being awarded a certificate of excellence from the CIA (Chemical Industries Association) for Lucite International's commitment to product sustainability.
- Our Perspex and Lucite cell cast acrylic sheet manufacturing sites achieving ISO 9001 registration.
- Our manufacturing sites in Darwen and Clairvaux exceeding all current REACH, IPPC, and EU environmental regulations.
- Ensuring our products DO NOT contain carcinogens, heavy metals, phthalates or any of the banned substances on the Ericsson list.
- Our Darwen site becoming the first plastics manufacturer in the UK to achieve Carbon Trust certification in 2009.
- A rigorous manufacturing excellence programme that continually improves and develops our processes.
- Our UK pallets are FSC (Forest Stewardship Council) certified.

Passionate about reducing our environmental impact, we use cardboard manufactured from 70% virgin fibre pulp that's produced under FSC certification using forest thinning and sawmill waste. The other 30% of raw pulp material is from recycled fibre.

In conclusion

Today sustainability is an integral part of Lucite International. And the advantages for society, the planet and our business are clear. However, it's not about a single action or measure. Rather it's a package of continuous improvements across all aspects of our organisation to benefit all.

As well as our strong commitment to improve our own sheet business, we're working closely with other parts of Lucite International on such initiatives as:

- Active long-term research programmes to investigate improvements to existing manufacturing processes.
- Developing bio-feedstock routes for use in new and existing processes that do not use fossil fuels.

Why acrylic?

- Easy to reuse or recycle
- Non-toxic pure material
- Long life in service

Why Lucite International?

- Our efficient processes
- Our environmental commitments
- We're a true partner for the future, not just another supplier

Faerie Glen are one the first UK plastics manufacturer to achieve Carbon Trust certification in 2009.

Shaping a brighter future for our customers,

the world and future generations