

Clarity.

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ArdaghGlassPackaging 

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Recycling: as old as glass

Evidence suggests that for almost as long as people have been manufacturing glass, they have been incorporating recycled glass into their creations. And it's no wonder: glass is 100% recyclable and can be recycled endlessly without loss in quality or purity.

History of Recycling

In June 2019 Dr Peter Cosyns, an academic at the Vrije Universiteit Brussel, released a study that examines the history of glass recycling. Evidence suggests that for almost as long as people have been manufacturing glass, they have been incorporating recycled glass into their creations.

And it's no wonder: glass is 100% recyclable and can be recycled endlessly without loss in quality or purity. Recycled glass – or "cullet" – can also be melted at a lower temperature than the raw material silica, saving energy.

Dr Cosyns quotes the Roman poet Statius, who mentions the formalised exchange of goods for broken glass in his book *Silvae*:

*Ill Syrian crowds raise a shout,
Here are plebeians from the
theatre and those Who exchange
sulphur for broken glass.*

These references imply that by the late 1st century AD glass recycling was not only common, it was integrated into the economy, supporting a class of traders who collected broken glass for reuse: the first professional recyclers.



Roman green glass pilgrim flask, 2nd-4th century AD

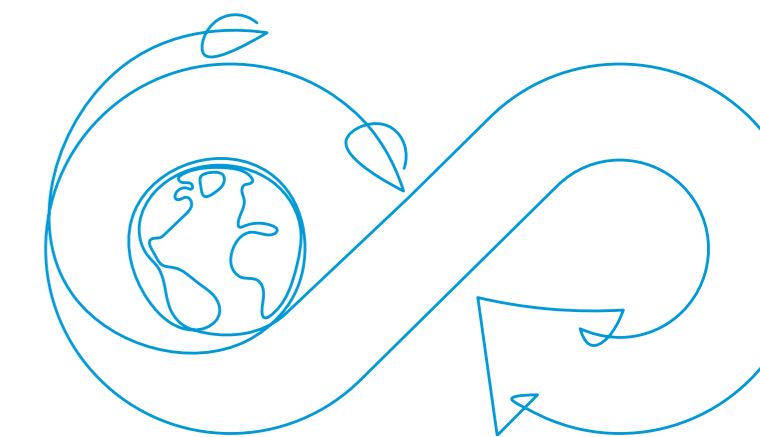
Future of Recycling

Needless to say, glass recycling has come a long way since then. Over the last thirty years in particular, advances in technology have revolutionised the efficiency with which broken glass can be sorted.

One exciting development has been the rise of optical sorting technology to differentiate between different colours of glass. Companies such as Binder+Co in Austria, and High5 in Belgium, now use high-speed cameras and machine learning to recognise and separate raw glass into four colours: white, green, amber and russet.

The machines can also identify and extract residual crystal, porcelain and ceramics, which can't be reused in the same way as cullet.

These developments will continue to increase the proportion of recycled glass used in production, thus preserving natural mineral resources, saving energy and limiting greenhouse gas emissions.



Schools get a gold for going green

The Glass Recycling Company's (TGRC's) Annual Schools Competition results for 2018, announced in mid-2019, show how committed schools around South Africa are to protecting the environment through glass recycling.

In 2018, schools across the country collected a total of 723 tons of glass – that's nearly 2.2 million glass bottles and jars.

TGRC's Annual Schools Competition aims to motivate learners and teachers to make green choices for the improvement of our country. Increased awareness of the negative impact of pollution in our public spaces,

such as beaches, public parks and roads has brought about the need for South Africans to find better ways of disposing of packaging waste.

TGRC awarded Bergvliet Primary School, based in the Western Cape, with the National Winner's prize of R20 000. During 2018 Bergvliet Primary School collected nearly 80 tons of glass.

Contribution of three top schools in each participating province

Province	Tons collected	Bottle equivalent
Western Cape	145.5	436 500
KwaZulu-Natal	128	384 000
Gauteng	87	261 000
Eastern Cape	11	33 000



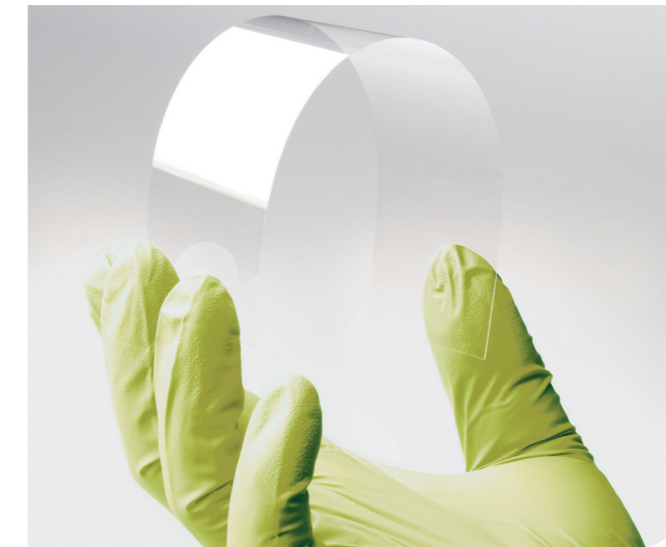
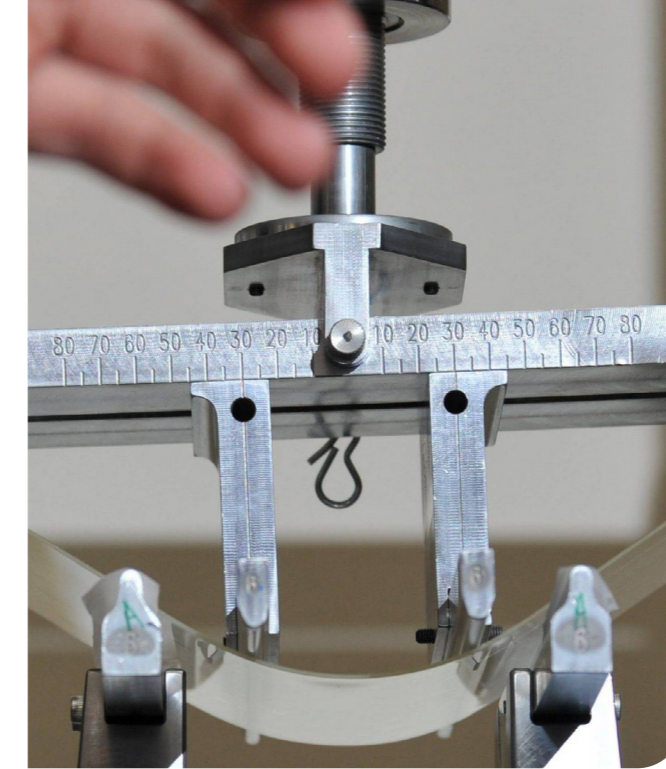
Five incredible facts about glass recycling in South Africa



Corning and the quest for flexible glass

Corning, the innovative glass manufacturer, is working on a bendable version of its famous Gorilla Glass that could be with us in less than two years.

The promise of flexible phones has been touted for years. The benefits are obvious: you get double the screen real estate, but your phone will still fit in your pocket. Consumers love large screens – average screen sizes have nearly doubled over the past ten years – but you quickly reach a point where devices become too cumbersome to carry and use. Manufacturers have gone as far as they can to maximise screen real estate, but with the current generation of bezel-less phones, they've gone as far as they can within our current limitations. That's where foldable phones come in, but thus far, despite a lot of buzz, they haven't quite delivered on their promise. The current generation of foldable phones use plastics instead of glass, sacrificing scratch-resistance and optical quality.



There have also been issues with fracturing and insufficient bend radii. So the field seems to be wide open for glass to maintain its position as the material of choice in phone design, and the big manufacturers seem to agree. In 2017, Apple said it was investing \$200 million in Corning to “support R&D, capital equipment needs, and state-of-the-art glass processing.” Meanwhile, Corning’s R&D machine continues to push the boundaries of what has been considered possible. “To go to a tight bend radius, you have to go to a glass that’s much, much thinner than what you have today,” said Polly Chu, Corning’s technology director. “Some of the glass we have in our laboratory is thinner than a human hair.” The potential of this new technology goes far beyond phones. The potential for displays of all types expands wildly when they don’t have to conform to a flat plane. Cars, for example, typically have a multitude of curved surfaces, but displays have had to remain flat until now, according to Mike Kunigonis, vice president of Corning Automotive Glass Solutions. “Inside the car ... almost all the surfaces have shape except for displays, and so what our designers are looking to do is bend those displays around the driver and around the passenger.” Thanks to Corning’s innovations, the future is clearly curved, and clearly glass.

Retail innovation for home and business

Consol's retail shops, located in Woodmead, Cornubia and Stellenbosch, open up the world of innovation in glass to homemakers, small and medium-sized businesses.

Shoppers can find their perfect match from the wide range of glassware, from cute piggybanks to juicers and graters that you'll use every day, from a one-off design centrepiece to bulk containers for your home-industry preserves. Consol Glass' retail stores are also driving innovative partnerships further afield, with the Consol Glass pop-up shop proving a perfect match for artisanal market KAMERS/Makers.

The Consol Glass pop-up shop was a show-stopper at the St John's KAMERS/Makers event, with shoppers getting first pick of new products and fantastic show specials. This will be an ongoing feature at all future shows.

Consol Glass initially joined KAMERS/Makers to assist in removing plastics from the five annual shows, in line with the organiser's intent to achieve the

dream of a zero-plastic catering impact. KAMERS/Makers have just achieved their goal of zero plastic used in their deli, and the hugely popular Consol Curvy water bottle giveaways at the events have to date prevented a staggering 120 000 plastic bottles from ending up in SA landfills!

Consol has also partnered with the Alfred Dunhill Golf Championship to radically reduce single-use plastic at the tournament.

A new partnership with Bluewater, Refill Co and Consol, the first of its kind on the Sunshine Tour, encouraged fans and golfers to purchase Alfred Dunhill Championship-branded glass bottles at the course, or bring their own reusable bottles, which they could refill free of charge at various points on the course.



Glass sparks creativity and kickstarts careers

Lighting designer Stephen Pikus, who is rapidly gaining worldwide acclaim for his creative use of recycled, repurposed and renewable materials, recently fulfilled a long-term goal, working with Consol Glass to install a 54 square meter chandelier in the company's head office.

Stephen has made a name for himself through his innovative, environmentally and socially conscious installations and product lines, including TRuK - lighting fixtures using repurposed vehicle air filters - and FIRE+ICE - chandeliers made of smoothed pieces of recycled glass.

The Consol Glass chandelier weighs nearly 300 kg, is mounted on nine separate steel frames for safety, and is made up of over four thousand 750 ml Consol Glass bottles.

Stephen and his team were assisted on the Consol Glass chandelier by interns funded by Nedbank as part of the Youth Employment Service (YES) initiative. Thirty interns, the majority of whom are women, will work with Stephen for a year, and the chandelier installation has been their first big project. The internship is facilitated by youth development specialists Unlockd.

"It's been great working with Stephen," said intern Betty Mothiba, who's looking to start a career in project management.



"We think glass is a fantastic, inspiring medium, and so we've wanted to work with Consol for a long time," Stephen said.

"This 750 ml bottle we've used is a classic Consol design, and the shape and the colour really speak to the brand. We use recycled glass in our other designs, and we believe that not only is it a fantastic material, but the recycling economy is one worth supporting."



"It's a small business, and has a very strong focus on teamwork. So you learn something new every day." Intern Thabo Lamola, who is busy studying for an N6 diploma in Mechanical Engineering, agrees. "What's exciting about this job is that there'll always be challenges, and your job is to figure out a solution and move on."

Over 18 000 work experiences across the country have been offered so far by businesses as a result of the YES initiative. In mid-May, Stats SA released crushing figures, which showed that South Africa's unemployment rate increased to 27.6% in the first quarter of 2019 - nearing a 15-year high. Critically, of South Africa's 20.3-million young people aged 15-34 years, 40.7% were not in employment, education or training.

Thami Mkhuzangwe, Human Resources Director at Consol Glass, argued in a recent Business Day op-ed that programmes such as YES were needed to reignite hope amongst unemployed youth. "Armed with our on-the-ground experience with programmes focussed on youth development and workplace experience, I predict that companies partnering with the government by taking part in YES - or youth capacitation programmes like it - can only benefit. But the biggest beneficiaries will undoubtedly be the youngsters who gain confidence, skills and hope that they do have a rightful place in the economy."



Partnership on the move

Consol has partnered with trucking company Imperial Logistics on a fleet of Consol-branded delivery vehicles. The 70 branded trucks will now be used for all Consol deliveries around Gauteng and Western Cape.



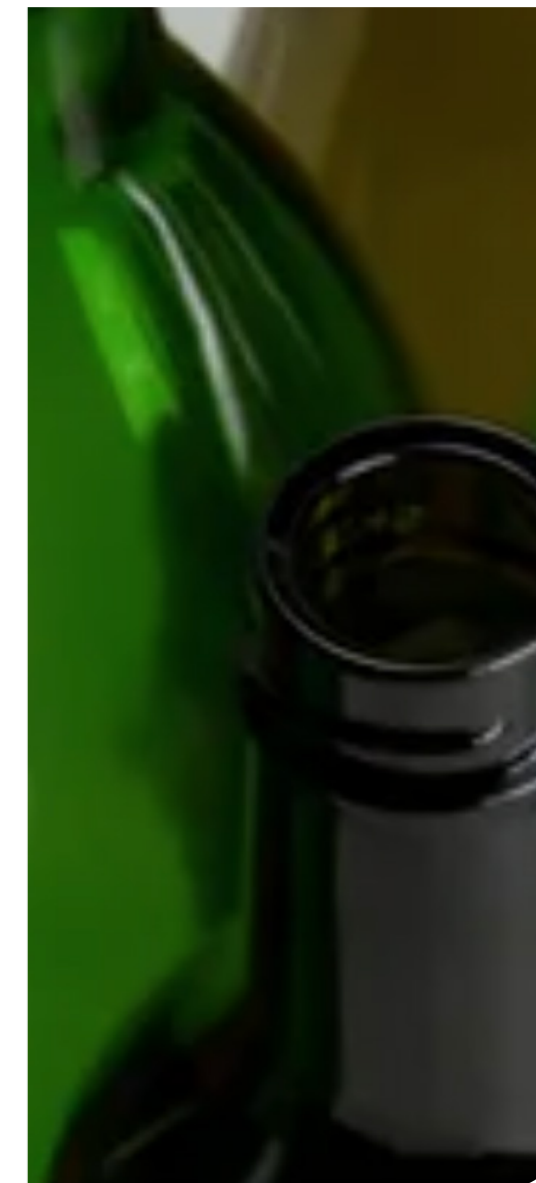
14 Thomas Shaw, Consol's Supply Chain Executive, commented on the partnership: "It's a win-win for both companies, and cements a longstanding association that has been mutually beneficial." The relationship with Imperial shows how Consol and its partners are perfectly made for each other.

Consol Glass Ethiopia begins production

Ethiopia is Africa's fastest growing economy. In 2018 Ethiopia marked GDP growth of 8%, compared to 6.6% in China, 2.2% in the USA, and 0.8% in Japan and South Africa. In 2016 Consol Glass began working closely with leading global glass engineers and equipment suppliers to build a state-of-the-art factory in Debre Birhan, 115 km Northeast of Addis Ababa. The new factory, which has now begun production, has the capacity to produce 60 000 tons of glass annually (equivalent to approximately 200 million glass bottles).

Consol has agreed with most major beverage bottlers/customers in Ethiopia to allocate the majority of their capacity to replace imports. In addition, Consol has also evaluated opportunities with international customers to export bottles into neighbouring countries. With a strong consortium of partners, suppliers and full funding in place, the project design has firmly positioned Consol for growth, with designs allowing for further expansion on relative short notice in future.

CEO of Consol Glass Mike Arnold explained how the Ethiopian development supported Consol's strategic objectives: "Our ambition is simple: to be the first choice for glass-packaging supply in Africa. To this end, one of Consol's key strategic pillars over the past few years has been to expand into high-growth African markets outside of South Africa and enhance our distinctive competencies in manufacturing high-quality container glass while lowering the cost of sales."



Consol Glass partnered with Africa-focused Greenfield investment company, Roha, in order to develop the plant. Commenting on the deal, CEO of Roha Brooks Washington said: “our partnership with Consol, will help us to realise our mission and meet the growing demand for high-quality glass bottles. We are grateful for the support of the various government entities who have played a role in getting us to where we are, including Debre Birhan Municipality, Amhara National Regional State and Federal agencies.”

Ethiopia is a high-potential consumer market, with an expanding middle class and rapid urbanisation. As Africa’s second most populated country with more than 100 million people, the beverage industry is poised to become a thriving sector of the economy. Consol Glass Ethiopia will be positioned to supply Ethiopian customers, export to regional markets and continue to expand as demand increases.



Trainees get a taste of glassmaking practice

In 2016 Consol Glass announced its expansion into Ethiopia. The glass manufacturing industry in Ethiopia is in its infancy, and because glassmaking is a unique and specialised field, we anticipated a challenge in finding local people with the required skills to ensure our high standards of quality.



We saw that as an opportunity to have a positive impact on the surrounding communities and targeted recruitment from local colleges and surrounding areas.

Learners were recruited from Addis Ababa and Debre Birhan, the community nearest the Consol Ethiopia plant. Though tertiary education is generally accessible to urban Ethiopians such as those living in Addis, it is harder for those in rural areas to access.

We therefore made it our focus to uplift and build the Debre Birhan community and

ensure they had access to the same opportunities to study and work.

To date over 130 new employees have joined the Consol Ethiopia family as a result of this recruitment drive.

In order to ensure that these new employees were exposed to best practice, practical skills and the Consol way of working, we invited all our new Ethiopian colleagues to visit our South African and Kenya sites for intensive theoretical and practical training in glassmaking.

Planet or plastic?

Consol Glass is partnering with National Geographic to create awareness of the dangers single-use packaging poses to our environment.

The one-year partnership will stretch over three critical environmental days, namely World Oceans Day, World Environment Day and Global Recycling Day. The partnership is articulated through a video that has been flighted on the National Geographic, National Wild and Fox channels on DSTV, showcasing the lifecycles of glass packaging versus single-use packaging.

Planet or Plastic was awarded two Golds in the PromaxBDA Africa 2019 Awards on 7 November. The PromaxBDA Awards are the world's premier celebration of outstanding achievement in entertainment marketing and design. The National Geographic and Consol partnership won top honours in the "Best Integrated TVC" and "Partner Sponsorship Campaign" categories.



The Refillery goes package-free

Consumers are leading a groundswell of action promoting the use of sustainable, smart packaging. Supermarkets globally are experimenting with loose-packed produce and packaging alternatives.

Taking this concept to its logical conclusion, The Refillery in Johannesburg offers responsibly sourced, refillable, everyday products for package-free pantries and households. Shoppers can fill their baskets online or visit the shop in person, bringing their own containers or using the recycled paper bags and Consol Glass containers provided in store.

For The Refillery co-owner Sam Moleta, the partnership with Consol Glass was a natural fit.

The zero-waste, weigh-and-pay retail business model is a fast-growing global trend. We have no doubt that with the benefit of hindsight, conscious entrepreneurs like Sam will be seen as having belonged to the vanguard of a global movement against irresponsible packaging.



"We'd been visiting the Consol Glass retail store weekly to stock up on jars, and eventually one of the staff suggested we formalise the arrangement, which suited us perfectly – we've always known that glass is the better natural option, especially for ingredients you need to keep safe and airtight."





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