



SABIC Recognized as the

2021

Company of the Year

Global Sustainability and Circular Economy of
Plastic Recycling and Resource Recovery Industry

Excellence in Best Practices

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. SABIC excels in many of the criteria in the global circular economy of plastic recycling and resource recovery space.

AWARD CRITERIA	
<i>Visionary Innovation & Performance</i>	<i>Customer Impact</i>
Addressing Unmet Needs	Price/Performance Value
Visionary Scenarios Through Mega Trends	Customer Purchase Experience
Implementation of Best Practices	Customer Ownership Experience
Leadership Focus	Customer Service Experience
Financial Performance	Brand Equity

Market Overview

The use of plastics in consumer packaging has exponentially increased and at the same time plastic waste has become one of society’s most significant challenges, overshadowing the benefits that plastic brings (e.g., extending shelf life and promoting the smooth handling of food items). With consumer habits changing rapidly in a convenience-obsessed world, the widespread preference for plastics above other packaging materials (such as glass, paper, and aluminum) prevails. Moreover, urbanization impacts plastic waste generation, particularly in developing and some developed countries deprived of the infrastructure to manage waste segregation for recycling. In developed countries, the lack of advanced technologies in material recovery facilities enabling the economic viability of, for example, polyolefin-based plastic recycling exacerbates the issue. Furthermore, recycled polyolefin materials obtained in the form of grey or black pellets often have a pungent odor and low tensile strength, resulting in non-utilization in highly-sensitive applications such as food and beverage packaging. Also, the low volumes of polyolefin recycling directly impact the uptake of circular economy principles in various industries and, ultimately, impedes sustainability. According to the United Nations (UN), plastics’ cost on environmental degradations, climate change, and health hazards accounts for \$139 billion annually.¹

¹ United Nations Development Program. (2019). *Plastics and Circular Economy: Community Solutions*

The plastics industry's main challenge is to enable and expedite progress towards the UN Sustainable Development Goals (SDGs) by achieving a circular economy that minimizes waste by reducing, reusing, and recycling materials. Hence, businesses should replace the traditional linear approach of "take, make, and dispose" with appropriate sustainable supply chain and corporate social responsibility objectives. A 100% recyclable packaging plastics industry implies that market participants divert all plastic waste from the environment to restore the planet's natural capital. The Association of Plastic Recyclers explicitly acknowledges chemical recycling technologies' potential to accelerate the plastics circular economy and reduce dependency on non-renewable resources. Although technological innovation can advance solutions, it will require collaboration from a range of key stakeholders across the plastic packaging industry's value chain, securing commitments in the form of strategic partnerships, a strong value proposition, and a business model that enables successful financing. Frost & Sullivan believes that plastic pollution is a global issue that requires concerted efforts and collaboration amongst many stakeholders such as petrochemical enterprises, OEMs, waste management companies, businesses, local and national governments, and consumers to enact change. The petrochemical industry plays a critical and important role in society as it touches many aspects of consumers' lives. Hence, its unique position enables petrochemical companies to make wide-ranging and tangible contributions to sustainability, both in value and scale. Civil cooperation and smart regulation can also support sustainability-related goals by advancing seamless implementation and scalability across various markets.

Visionary Innovation and Customer Impact of SABIC

Saudi Basic Industries Corporation (SABIC), a global leader in diversified chemicals, was incorporated in 1976 and started production in 1981. In 2019, SABIC's overall production was 72.6 million metric tons, which created net profits of \$1.5 billion, strengthened by total assets valued at \$82.6 billion. Petrochemicals is this multinational enterprise's largest strategic business unit. It serves customers in key end markets (such as packaging, clean energy, transportation, construction, medical devices,

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- Riana Barnard, Best Practice Research Analyst

personal hygiene, and electrical and electronics) through its extensive infrastructure, including manufacturing plants and compounds, distribution facilities, research and technology centers, and sales offices across the Middle East, Asia, the Americas, and Europe. Headquartered in Riyadh, Saudi Arabia, SABIC focuses specifically on technology and innovation to deliver unique and sustainable process, product and application solutions to drive a circular economy. Committed to serving customers' ever-evolving needs and the value chain, SABIC established a network of cutting-edge innovation hubs where expert teams (comprising 1,600 employees in five key geographies) develop new

patents and certification, thereby providing smarter process, product design and functionality with improved resource efficiency. Fortified by more than 12,540 existing global patents, the application technology division generates around 95 new applications annually.

By integrating the economic, environmental, and social dimensions of sustainability into its business strategy, SABIC purposefully immerses this core value in its processes, tools, and priorities. Conscious of megatrends that shape the industry landscape, the company also aligns its technology, operations, and collaborations with partners across the value chain (including governments, non-governmental organizations, and academia) according to the UN's framework for sustainable business practices. SABIC identified the top SDGs where it could achieve the most impact: zero hunger, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry innovation and infrastructure, sustainable cities and communities, responsible consumption and production, climate action, life below water, and finally, reinforcing global partnerships to attain these goals.

SABIC Offers Innovative Solution Designs with TRUCIRCLE™ Program

In 2019, SABIC introduced its TRUCIRCLE™ portfolio and services, with the aim to provide customers with more sustainable solutions and at the same time help close the loop and prevent valuable used plastic from becoming waste.² As part of this program, which also includes design for recyclability, certified renewable products from bio-based feedstock and mechanically recycled products, SABIC launched its pioneering certified circular products from advanced recycling of mixed and used plastic. Initial introduction to the market has resulted in unprecedented demand from businesses looking for commercially and environmentally viable solutions. By addressing post-consumer plastics forcefully, SABIC now faces the exciting challenge of managing the product demand in the market due to a

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- Fredrick Royan, VP: Sustainability and Circular Economy Practice

robust pipeline of opportunities with customers and the value chain. SABIC was the first in the industry to commit to investments in advanced recycling (e.g., a world first commercial plant under construction on its Geleen-site in the Netherlands) and collaborates with high-caliber partners to bring advanced products and solutions swiftly to the market. SABIC roots its advanced recycling focus on two aspects: the feedstock it can take (i.e., a wide range of mixed plastics, which is not suitable for mechanical recycling) and the product it produces (i.e. a polymer with the same quality as virgin polymer,

as opposed to mechanical recycling, where a downgrading in quality occurs). By taking used plastics back to its basic building blocks, the process produces new high quality plastics that can be continuously recycled.

² <https://www.sabic.com/en/sustainability/circular-economy/trucircle-portfolio-and-services>

SABIC's certified products from its TRUCIRCLE™ portfolio are made through the adoption of a mass balance accounting system according to the International Sustainability and Carbon Certification scheme (ISCC PLUS). This approach traces the flow of materials along a complex supply chain, where SABIC combines one of two alternative feedstocks with fossil-based feedstock. The first alternative feedstock, bio-naphtha (derived from Tall-oil), is a byproduct of wood and paper production processes and not in direct competition with the human food chain. The second alternative feedstock is pyrolysis oil, made from used and mixed plastic.

As a result, the ISCC PLUS certification approves SABIC's products as certified renewable products or certified circular products. Hence, SABIC's TRUCIRCLE™ portfolio can enable companies to increase their brand value while helping address their sustainability goals. For example, tenter frame, biaxially-oriented polyethylene (TF-BOPE), one of SABIC new product developments that can be supplied in the form of certified circular polymers from the TRUCIRCLE™ portfolio, promotes easy and full recyclability by enabling mono-polyethylene material structure in a multilayer flexible packaging.

As part of its design for recyclability focus, this product aims to decrease material consumption and waste. Because the mono-web TF-BOPE film structure has a thickness of only 20 micrometers, it allows potential packaging material reduction of 35% to 50% (compared to incumbent blown polyethylene film). The solution is attractive from both a commercial and sustainability viewpoint as it offers significantly higher throughput and potential down-gauging. Moreover, it is 100% recyclable, which means it can further reduce the environmental impact and can strengthen the sustainability credentials. Close collaboration with film suppliers Plastchim-T and Ticinoplast, as well as with packaging machine manufacturer Syntegon and film machinery manufacturing leader Brückner Maschinenbau, equipped SABIC³ to design an innovative packaging solution for frozen food that measures up with conventional sealing technologies (in terms of sealing quality, processing speed, and product protection). Yet, it increases the visibility of packaged products due to higher light transmission and lower haze, while the high gloss enhances first-class design and aesthetics.

Purposeful Partnerships: The Cornerstone of SABIC's Success

Committed to driving the uptake of recycled plastic, SABIC aims to increase the volume of plastic it processes through its TRUCIRCLE™ initiative to 200,000 metric tons by 2025. Ignited by a spirit of ingenuity, the company leads the way through alliances with upstream and downstream collaborators to ensure the closed-loop recycling of plastic. Notably, reputable brand owners (such as Tupperware Brands and Unilever) launched consumer products, which leverage SABIC's ground-breaking TRUCIRCLE™ solutions.⁴

³ <https://www.sabic.com/en/news/24224-sabic-launches-innovative-tf-bope-film-for-frozen-food-packaging>

⁴ <https://www.sabic.com/en/news/21549-sabic-delivers-dynamic-showcase-of-pioneering-sustainability-solutions-at-k-2019>

Use Case 1: SABIC's Advanced Recycling Technology Application for the Cosmetics Market

Partnering with the Estée Lauder Companies (ELC) and Albéa, SABIC created the opportunity to develop tube packaging made from circular polymer resin from advanced recycling.⁵ Aligned with ELC's commitment to sustainability, prestige beauty brand Origins Natural Resources Inc. launched its Clear Improvement™ Active Charcoal Mask, a best-seller, in a luxury tube pack format manufactured from previously difficult to recycle material. Hence, SABIC's high-quality resins created an opportunity for Albéa, a beauty packaging company, to turn post-consumer waste into an industry-first sustainable beauty packaging solution. Sold in 150 territories under various prestigious brand names, ELC's products and brands thus introduces scalability that can accelerate the cosmetic market's transition to recyclable and reusable packaging.

The Origins mask, already available in 30 countries, clearly demonstrates the collaboration's potential impact. Furthermore, SABIC's TRUCIRCLE™ portfolio empowers brand owners and industry participants to enhance brand equity and help drive sustainable goals (e.g., Albéa's commitment to make its packaging solutions 100% circular by 2025).

Use Case 2: SABIC's Advanced Recycling Technology Application for Food Packaging

Embracing the challenge of making flexible plastic packaging recyclable and circular, companies across the food packaging value chain worked together to turn soft plastic, collected from Tesco customers, into new food-grade packaging. In a successful trial, Plastic Energy, SABIC, Sealed Air, and Bradburys collaborated closely to demonstrate that closed-loop recycling is possible.⁶

SABIC used the pyrolysis oil (that Plastic Energy had converted from Tesco customers' used packaging) as an alternative to fossil-based feedstock to produce new certified polymers. Sealed Air took these polymers to make flexible packaging for Bradburys Cheese (i.e., Tesco's cheese supplier). The packaging of seven Bradburys' cheeses, was introduced into selected Tesco stores, containing a minimum of 30% recycled material from SABIC's TRUCIRCLE™ portfolio.

Recently, SABIC partnered with Melitta Single Portions and Avoury® to pioneer transparent organic tea capsules, utilizing the TRUCIRCLE™ solution for certified circular polypropylene.⁷ The heat-resistant packaging protects the tea leaves and enables the tea to develop its flavors, thereby creating an exceptional tea experience, while an aesthetically pleasing design meets consumer expectations. Most importantly, the capsules are compliant with food safety regulations required for food and beverage products. The packaging also promotes the responsible use of resources.

Frost & Sullivan commends SABIC for its tremendous contribution to driving sustainability and circular packaging systems across various markets. For instance, SABIC also is also working with Mars,

⁵ <https://www.sabic.com/en/news/24482-sabics-trucircle-solution-helps-the-estée-lauder-with-its-origin-brand-mask-tube>

⁶ <https://www.sabic.com/en/news/24248-tesco-is-introducing-new-plastic-packaging-made-by-an-innovative-process-of-recycling>

⁷ <https://www.sabic.com/en/news/24385-sabic-collaborates-with-melitta-single-portions-to-bring-world-s-first-tea-capsule-made-with-circular-pp>

Incorporated to accelerate its sustainable packaging plan to use 100% reusable, recyclable, or compostable pet food packaging by 2025.⁸ In collaboration with Huhtamaki, a global food packaging specialist, the partnership aims to promote food-grade recycled plastic in the packaging of pet food brands. Through the test-and-learn pilot project with its pet food packs, Mars plans to upscale and expand the initiative to include other brands soon. As such, SABIC's contribution is paramount: it reinforces Mars' sustainable packaging ambition to use at least 30% recycled plastics (and reduce virgin plastic use by 25%) in 2025. Moreover, SABIC also supports Huhtamaki in its journey to use at least 80% renewable or recyclable raw materials in its production process.

Conclusion

The plastics industry's main challenge is to enable and expedite progress towards the United Nations Sustainable Development Goals by achieving a circular economy that minimizes waste by reducing, reusing, and recycling materials. Frost & Sullivan believes that plastic pollution is a global issue that requires concerted efforts and collaboration amongst many stakeholders such as petrochemical enterprises, waste management companies, businesses, local and national governments, and consumers to enact change. SABIC's TRUCIRCLE™ portfolio and services, can provide customers with more sustainable solutions and at the same time help close the loop and prevent valuable used plastic from becoming waste. Committed to serving customers' ever-evolving needs and the value chain, SABIC established a network of cutting-edge innovation hubs where expert teams develop new patents and certification, thereby providing smarter product design and functionality with improved resource efficiency. Hence, SABIC ensures the closed-loop recycling of plastic through alliances with upstream and downstream collaborators. Many reputable brand owners recently launched consumer products, proving the validity of the TRUCIRCLE™ portfolio, strengthened by expert teams and state-of-the-art infrastructure across the globe.

With its all-embracing commitment to innovation and technology, fortified by pioneering partnerships and perfected through leadership excellence, SABIC earns Frost & Sullivan's 2021 Global Company of the Year Award for sustainability and circular economy in the plastic recycling and resource recovery market.

⁸ <https://www.sabic.com/en/news/24616-sabics-certified-circular-pp-from-will-be-introduced-in-primary-pet-food-brand-packaging-by-mars>

What You Need to Know about the Company of the Year Recognition

Frost & Sullivan's Company of the Year Award is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

Best Practices Award Analysis

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Visionary Innovation & Performance

Addressing Unmet Needs: Customers' unmet or under-served needs are unearthed and addressed by a robust solution development process

Visionary Scenarios through Mega Trends: Long-range, macro-level scenarios are incorporated into the innovation strategy through the use of Mega Trends, thereby enabling first to market solutions and new growth opportunities

Leadership Focus: Company focuses on building a leadership position in core markets and on creating stiff barriers to entry for new competitors

Best Practices Implementation: Best-in-class implementation is characterized by processes, tools, or activities that generate a consistent and repeatable level of success

Financial Performance: Strong overall business performance is achieved in terms of revenue, revenue growth, operating margin, and other key financial metrics

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

