Cradle to Cradle (C2C) Certification

MARK230 - Assessment 3

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Introduction

Cradle to Cradle (C2C) certification is a globally recognised product standard that evaluates sustainability performance across five categories: Material Health, Product Circularity, Clean Air & Climate Protection, Water & Soil Stewardship, and Social Fairness (Cradle to Cradle Products Innovation Institute [C2CPII], 2025). Products are assessed across four levels: Bronze, Silver, Gold, Platinum, with the overall certification level being the lowest level achieved among them. To maintain certification, companies must reapply every two years, ensuring their products continue to align with the updated criteria and demonstrate measurable improvement. The Gold level, the second-highest tier, signifies that a product has been externally assessed and meets rigorous environmental and social performance standards. Attaining certification not only demonstrates a company's commitment to sustainability but also strengthens its market positioning, consumer trust, and brand equity in an increasingly conscious global market (McKinsey & Company 2023).

Many products have achieved C2C certification over time, illustrating the framework's versatility and credibility. The majority of early certifications were awarded to building materials, resulting from their stable, uniform compositions with fewer mixed materials, which allow for easier tracing and recycling (Kingspan 2022). This highlights how C2C principles are particularly aligned with industries capable of maintaining material traceability and circularity (Sempergreen 2025). However, the framework's adaptability has allowed it to expand far beyond traditional sectors. For instance, Method attained C2C Gold for several non-toxic cleaning products, and Aveda achieved Gold for its range of naturally derived personal care items (Mazzoni 2015). Likewise, Dopper's *Original Bottle* became the world's first C2C Gold-certified reusable water bottle in 2023, marking a milestone in consumer goods by combining functional design with closed-loop material recovery (Dopper 2024). Collectively, these examples demonstrate that while achieving certification is challenging and relatively rare, it is attainable through deliberate design, material innovation, and supply chain collaboration.

This report presents a strategic proposal for attaining C2C Gold certification for a Designer Reusable Water Bottle, modelled on sustainable brands such as Dopper and Frank Green. The product targets a growing segment of eco-conscious, design-oriented consumers who seek premium lifestyle goods that align with their values. The proposed design focuses on utilising mono-material copolyester (Eastman's Tritan™ Renew), a BPA-free polymer containing

certified recycled content, enabling complete recyclability, durability, and non-toxic material health (Mansfield 2023). It will incorporate a refill-based model, encouraging long-term use while reducing waste. Furthermore, partnerships will be initiated with renewable energy manufacturers and ethical suppliers to ensure adequate compliance with the Gold level certification standards.

By emulating successful precedents such as Dopper's Gold-certified bottle, this designer bottle aims to position itself as a premium, mission-driven brand, merging sustainability with design. C2C will be utilised as an operational framework and a marketing differentiator, appealing to consumers willing to pay more for a measurable environmental impact. The report concludes by outlining the practical steps, potential challenges, and proposed timelines for achieving C2C Gold certification, ensuring that sustainability translates into both environmental integrity and commercial advantage.

Material Health

To achieve Gold level certification in *Material Health*, the chemicals and materials incorporated into the product must prioritise human health and environmental protection, ensuring that components contribute to safer material streams for future recycling and manufacturing processes (C2CPII, 2025). To meet this goal, the bottle's design uses non-toxic and traceable materials that comply with global chemical safety standards. This requires responsible sourcing of components by selecting suppliers that can provide full transparency of material composition and follow the leading chemical safety regulations worldwide. A suitable material to achieve these requirements can be that used for the Dopper Bottle, Eastman's Tritan™ Renew copolyester (Mansfield 2023). This component is BPA-free and contains 50% certified recycled content while maintaining high purity. Sourcing materials that have already been certified or approved removes the risk of including toxic or prohibited substances in the final product.

Beyond the primary bottle material, all secondary materials such as seals, coatings, dyes and packaging must be assessed. These auxiliary components significantly shape the product's safety, durability, and recyclability. Their selection determines whether the entire product meets safety standards and fully aligns with circular design principles. To maintain strict compliance with C2C Gold Standards, all inputs must be verified as safe, recyclable or reusable, and entirely

free of substances listed on the C2C Banned List. Furthermore, suppliers will be required to provide full material disclosure for each homogenous material to enable the 100% assessment of chemical ingredients as required for the Gold level. Any suppliers lacking adequate transparency or utilising unassessed materials will be supported through improvement initiatives to correct deficiencies. However, persistent failure to change will result in a replacement with a partner that meets the transparency and safety standards. This regulation of the supply chain is integral since over 96% of the roughly 85,000 chemicals on the U.S. market have never been fully screened for health effects (U.S. Green Building Council 2025). Therefore, to adequately ensure that nothing in the product has a high-risk associated with it, materials will be proactively screened utilising hazard databases.

In addition, an optimisation plan (material health roadmap) will be formulated to ensure continuous progress towards increasing the percentage of preferred chemicals (A/a and/or B/b certified) in the product over time, phasing out any C-rated substances. This measure safeguards product integrity, ensuring that no new problematic substances enter the supply chain.

Product Circularity

To achieve Gold level certification in *Product Circularity*, products must be purposefully designed with planned end-of-life applications, ensuring their components support ongoing material circulation by being compatible with established recovery, recycling, or reuse pathways (C2CPII, 2025). For the reusable water bottle, circular design thinking is pivotal as it moves away from the linear take, make, dispose model and shifts to a model that minimises overproduction and pollution (UN 2024).

Given the product's durable nature, a technical cycle is most appropriate: the bottle will be composed of recyclable technical nutrients such as polymers or metals, with mechanical recycling as the primary end-of-life pathway (Ellen Macarthur Foundation 2021). This ensures materials are kept in circulation and are reused, repaired and remanufactured. Furthermore, any biodegradable elements will be processed through the biological cycle for nutrients to be returned to regenerate nature. By assigning each material to a defined cycle and designing accordingly, the "nutrients" are looped back into new usage.

The product's strategy centres on ease of disassembly. The bottle will incorporate as few material types as possible, ideally achieving mono-material construction to simplify recycling.

This approach draws on the Napapijri Circular Series jacket, which achieved C2C Gold by using a single material (100% polyamide) for all components, simplifying recycling (Schmid 2024). The bottle is designed with copolyester, making up approximately 90% of its total weight, supported by minor non-permanent mechanical components that enable disassembly and allow for high-value cycling. Furthermore, the use of recycled input materials will promote circularity, supported by periodical reviews to identify better alternatives that match or exceed current industry benchmarks.

To ensure a closed-loop system, partnerships will be established with recyclers, community collection programs, and retail outlets to increase take-back and material recovery. Expanding the accessibility of recycling areas increases the convenience and serves as a visual reminder, ultimately making it more difficult to avoid (The Vanella Group 2022). Furthermore, the strategic decision to implement premium pricing and achieve profitability gains through circularity financially enables the provision of discount codes to consumers, thereby promoting their participation in recycling. Additionally, rather than using a QR code, which often requires additional plastic or printed materials, each bottle will feature a unique engraved code that can be entered on the company's website, providing composition and recycling instructions, ensuring transparent end-of-life handling. This enables digital traceability, allowing the tracking and subsequent analysis of return or recycling rates.

Furthermore, the Material Circularity Indicator (MCI) will be applied to evaluate the bottle's material inputs and outputs, with a target score of approximately 0.85, which appropriately signals near-closed-loop performance consistent with Gold-level circular design standards (Ellen MacArthur Foundation 2021). Continuous review and assessment will ensure the design remains aligned with circular principles, ultimately closing the loop on the product's life cycle. Together, these measures fulfil C2C Gold-level circularity criteria, positioning the product as a superior alternative.

Clean Air and Climate Protection

To achieve Gold level certification in *Clean Air and Climate Protection*, the product must be designed and produced to minimise greenhouse gas emissions, prevent air pollution, and prioritise renewable energy use across its entire life cycle (C2CPII, 2025). The reusable bottle will reflect these principles through a transition to 100% renewable energy and the adoption of

low-emission manufacturing practices. This demonstrates a strong commitment to climate action, positioning the product as a leader in climate-conscious production and a benchmark for sustainable innovation.

The initial focus is to transition to renewable energy for all production and assembly operations. At least 50% of energy will be sourced from renewables immediately, progressing to 100% through the installation of on-site solar panels, long-term Power Purchase Agreements (PPAs) with wind and solar providers, and verified GreenPower certificates as a bridging measure. This commitment highlights a forward-looking sustainability strategy, focused on investing in renewable developments that expand overall grid capacity and contribute to new clean energy, rather than relying on pre-existing sources. This strategy aligns with industry examples such as Dopper, whose Gold-certified bottle is made with 100% renewable energy (Dopper 2024).

Building upon the transition of renewable energy, comprehensive energy efficiency and emissions reduction measures will be applied throughout operations. By performing energy audits every two years, inefficiencies in production can be identified, enabling process improvements that cut overall energy consumption by 20-30% and lower on-site emissions. Furthermore, the strategic decision to utilise copolyester as a primary material supports compliance with air emissions as production processes are thermal rather than combustion-based, thereby eliminating harmful emissions (Chen et al. 2022). Additionally, the reliance on renewable electricity instead of fossil-fuel energy ensures the process produces no direct carbon emissions. However, minimal surface coating emissions may still occur, though these can be eliminated by using non-toxic, water-based alternatives.

Another essential aspect is addressing the embodied carbon in the product's supply chain. A cradle-to-gate Life Cycle Assessment (LCA) will be conducted to measure greenhouse gas emissions from material extraction to final manufacturing. These results will be verified and publicly disclosed to promote transparency and continual improvement. Understanding the carbon hotspots allows for the setting of targeted reduction strategies with suppliers, with preferential treatment provided to those operating with low-carbon production systems. This encourages suppliers to adopt their own reduction targets, and this influence can be seen through gDIapers, a small company that convinced its large manufacturing partner to switch to 100% renewable energy as part of achieving C2C certification (Lumsden 2014).

Through the integration of renewable energy, supplier collaboration and transparent carbon assessment, the bottle's production will achieve near-carbon neutrality. Despite challenges in cost, data transparency, and supply chain alignment, these actions foster regenerative, climate-resilient manufacturing and reinforce leadership in sustainable innovation under the Cradle to Cradle framework.

Water and Soil Stewardship

To achieve Gold level certification in *Water and Soil Stewardship,* water and soil must be recognised as vital, interconnected resources that support all life (C2CPII, 2025). Safeguarding these ecosystems ensures clean water and healthy soils remain available to humans and all other living organisms. Therefore, the strategy for the bottle seeks not only to minimise harm to these resources but also to contribute positively wherever possible, a holistic view that spans from manufacturing processes to raw material sourcing.

During manufacturing, a comprehensive water stewardship approach will be implemented, focused on reduction, reuse, and the elimination of harmful discharge. Producing a reusable bottle is not highly water-intensive; however, optimising efficiency remains essential, as continuous improvement in this area supports broader environmental sustainability (Water Footprint Calculator 2017). The initial task will be to quantify current water usage, as establishing a baseline is essential for accurately measuring and guiding future efficiency improvements. From this baseline, a technical breakdown of water usage will be conducted, allowing for a targeted approach to identifying and reducing water consumption. All facilities will also ensure access to safe drinking water, sanitation, and hygiene for workers, reinforcing ethical and environmental responsibility.

For the reusable water bottle, the majority of water consumption occurs at the upstream processes, such as material recycling and purification. To mitigate this, collaboration with Alliance for Water Stewardship suppliers that employ closed-loop water systems and advanced filtration technologies will be essential (AWS 2023). In practice, these systems continuously recycle process water, adding only small amounts of make-up water to compensate for evaporation. Furthermore, if any water is to be discharged, it will meet or exceed the quality of the incoming water to comply with all regulations for effluent quality and C2C guidelines. If relying on municipal treatment, facility performance will be verified against international

effluent standards, with gaps addressed through pre-treatment or collaboration. Production chemicals will be limited to biodegradable or safely treatable types, and discharge will be routinely tested to confirm safety for local ecosystems. Furthermore, contributions will be made to local wetland restoration projects to regenerate soil health and enhance water infiltration, ensuring a measurable positive impact beyond operations.

In parallel, soil protection will be addressed by ensuring that no manufacturing or recycling process contributes to land contamination, microplastic release, or hazardous sludge disposal. Spill prevention and emergency protocols will be established and reviewed through ongoing environmental risk assessments, and only safe, biodegradable chemicals will be used to protect surrounding soil and waterways. Furthermore, the sourcing strategy will prioritise suppliers that adopt regenerative or certified sustainable practices to minimise soil erosion and nutrient depletion. This indirectly addresses water and soil impacts upstream in the supply chain.

Social Fairness

To achieve Gold level certification in *Social Fairness,* organisations must demonstrate a genuine commitment to upholding human rights, ensuring fair and equitable working conditions, and maintaining responsible business practices throughout their entire value chain (C2CPII, 2025). This will be guided by a Human Rights and Labour Policy aligned with the *Universal Declaration of Human Rights* (United Nations 1948) and the *International Labour Organisation's* core conventions (ILO 2023). The policy will prohibit child and forced labour, discrimination, and unsafe conditions, while guaranteeing fair wages, reasonable hours, and freedom of association. It will apply to all operations and suppliers, with executive approval and oversight to ensure full accountability.

To implement the policy, a human rights risk assessment will be undertaken across the entire value chain. This process will map all raw materials and components to identify regions or processes posing potential social risk. By mapping raw materials and components, the process will identify areas of potential social concern. This categorisation will guide the responsible sourcing of high-risk materials through C2C-recognised or equivalent certifications. Where certifications are unavailable, rigorous traceability and audits will verify whether sourcing is responsible. Furthermore, preference will be given to suppliers accredited by SA8000 (SAI 2025) or the Fair Labor Association (Fair Labor Association 2023). A beneficial side effect of

using recycled materials is the reduced dependence on extraction industries, indirectly limiting links to labour exploitation.

Inclusive and fair workplace practices will be promoted across all internal and external production facilities, cultivating an inclusive and equitable workplace culture. This involves transparent and equitable hiring and promotion practices, such as diverse panels and basing promotions on clear merit to avoid bias (Workplace Gender Equality Agency 2019). A zero-tolerance stance on harassment or discrimination will be enforced. Furthermore, fair compensation is essential, and wage assessments will be conducted to ensure all employees earn a living wage and advocate the same from our key suppliers.

In addition, a grievance mechanism will be implemented to provide internal and external stakeholders with a safe and accessible channel, managed by a third party, to report misconduct and seek remediation. This system provides ongoing visibility into workplace conditions, allowing issues that formal audits may overlook to be identified and addressed promptly. It also empowers workers by affirming that their voices are heard and respected, cultivating a culture of fairness. The mechanism will also serve as a platform for broader community and stakeholder engagement, enabling local communities and Indigenous groups to voice concerns and grant consent, while allowing NGOs to raise supplier-related issues transparently.

Finally, a social initiative will be established in collaboration with schools and community organisations to install water filtration systems and deliver hygiene workshops. This project will enhance access to clean drinking water while promoting sanitation awareness. Its impact will be measured through measurable outcomes such as the number of filtration systems installed, litres of water filtered and individuals educated. This demonstrates a tangible and lasting contribution to community wellbeing beyond the company's operations.

Conclusion

Pursuing a Cradle to Cradle Gold certification for the designer reusable water bottle is an ambitious undertaking that requires coordinated efforts across all facets of design, production and operations of the business. Central to this strategy is the consistent use of Eastman Tritan™ Renew copolyester, which caters for high-value cycling (Mansfield 2023). The previous sections outlined how to meet each Gold-level criterion, from ensuring toxic-free materials and circular

design to using renewable energy, protecting water/soil, and becoming a leader for social responsibility. To conclude, recognising potential challenges or caveats is pivotal, and a realistic timeline towards certification, including contingency plans to overcome obstacles, is essential.

A substantial challenge is the complexity of achieving full material transparency and green chemistry solutions across the supply chain. This resultant of the dependency of suppliers, and their willingness and ability to disclose information and reformulate materials. Furthermore, suppliers might be reluctant to share private information about how they formulate their products, and potentially might not be in a position to acquire non-toxic alternatives. Despite this, the contingency plan is to build strong partnerships and trust with suppliers, possibly signing NDAs to reassure their data will be handled confidentially. However, if a particular supplier cannot meet our requirements, materials will instead be sourced from certified, value-aligned suppliers, despite potential cost increases. This ability to absorb the higher prices reflects its status as a premium brand and can be justified to consumers, highlighting its superior quality and safety. Ultimately, early supplier engagement is essential to ensure the most suitable arrangements can be met from the outset, thereby reducing the likelihood of non-compliance later in the process.

Another challenge lies in the financial and technical investment required for sustainability upgrades, including renewable energy, water recycling, and emissions control. This demands substantial funding that low-cost competitors could not feasibly sustain. While the premium pricing provides the capacity to invest, the transition will still require careful financial management and potential government grants or incentives for the investment in clean technology. Implementation will therefore proceed gradually, starting with low-cost improvements and progressing to large-scale upgrades.

A realistic timeline for achieving C2C Gold certification is approximately three to five years. During the first year, baseline assessment, policy development, and removal of banned substances would further the product towards achieving Bronze-level readiness. The following year, the implementation of material substitutions, renewable energy sourcing, and supplier training could advance progress towards Silver. Ultimately, the final two to three years will experience complete transparency, high recyclability, and verified social fairness. This accommodating sufficient time for the gradual advancement through C2C's Bronze, Silver, and Gold milestones.

In conclusion, achieving C2C Gold certification is challenging but achievable through strategic planning and commitment to continuous improvement. This report demonstrates that even a simple product, such as a reusable bottle, can reach world-class sustainability standards. This serves not only as a mark of excellence but also a point of differentiation that accommodates a growing sector of consumers who seek genuine sustainability. Ultimately, this strategy demonstrates that C2C Gold Certification is not merely an environmental goal but a pathway to redefining product excellence, proving that sustainability and commercial success can coexist through circular, ethical, and innovative design.

References

AWS 2023, *About the Alliance for Water Stewardship*, Alliance for Water Stewardship, viewed 29 October 2025, <https://a4ws.org/about/>.

Chen, H, Chen, F, Chen, H, Liu, H, Chen, L & Yu, L 2022, 'Thermal degradation and combustion properties of most popular synthetic biodegradable polymers', *Waste Management & Research*, vol. 41, SAGE Publishing, no. 2, pp. 431–441.

Cradle to Cradle Products Innovation Institute 2025*, Cradle to Cradle Certified® Product Standard: Version 4.1,* Cradle to Cradle Products Innovation Institute, Oakland, CA.

Dopper 2024, *Cradle to Cradle: Going circular*, Dopper, viewed 25 October 2025, <https://www.dopper.com/blog/cradle-to-cradle>.

Ellen MacArthur Foundation 2021, *Material Circularity Indicator (MCI)*, www.ellenmacarthurfoundation.org, viewed 27 October 2025, <https://www.ellenmacarthurfoundation.org/material-circularity-indicator>.

Ellen Macarthur Foundation 2021, *The butterfly diagram: visualising the circular economy*, ellenmacarthurfoundation.org, Ellen MacArthur Foundation, viewed 27 October 2025, <https://www.ellenmacarthurfoundation.org/circular-economy-diagram>.

Fair Labor Association 2023, *Fair Labor Association*, Fairlabor.org, viewed 30 October 2025, <https://www.fairlabor.org/>.

ILO 2023, *International labour organization*, Ilo.org, viewed 29 October 2025, <https://www.ilo.org/>.

Kingspan 2022, *Cradle to Cradle Certified®: A framework for safe, circular and responsibly manufactured products*, Troldtekt.com, viewed 25 October 2025, <https://www.troldtekt.com/themes/sustainability-in-the-built-environment/a-framework-for-safe-circular-and-responsibly-manufactured-products/>.

Lumsden, F 2014, *Cradle to Cradle: 4 success stories, from countertops to fabrics*, Trellis, viewed 28 October 2025, <https://trellis.net/article/cradle-cradle-4-success-stories-countertops-fabrics/>.

Mansfield, L 2023, *Dopper Announces First Cradle to Cradle Gold Certified® Reusable Bottle*, Eastman, viewed 26 October 2025, <https://www.eastman.com/en/media-center/news-stories/2023/dopper-first-cradle-gold-certified>.

Mazzoni, M 2015, *3p Weekend: 8 Companies Going Cradle-to-Cradle*, Triplepundit.com, viewed 26 October 2025, <https://triplepundit.com/2015/3p-weekend-8-companies-going-cradle-cradle/>.

McKinsey & Company 2023, *Consumers care about sustainability – and back it up with their wallets*, McKinsey & Company, viewed 25 October 2025, <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/consumers-care-about-sustainability-and-back-it-up-with-their-wallets>.

SAI 2025, *SA8000® Standard*, SAI, viewed 30 October 2025, <https://sa-intl.org/programs/sa8000/>.

Schmid 2024, *Napapijri Circular Series is Cradle to Cradle Certified™ Gold*, Epeaswitzerland.com, viewed 27 October 2025, <https://www.epeaswitzerland.com/case-study/napapijri-circular-series-is-cradle-to-cradle-certified-gold>.

Sempergreen 2025, *Cradle to Cradle certification is one of the most respected labels*, SemperGreenwall, viewed 25 October 2025, <https://sempergreenwall.com/news/what-is-the-meaning-of-cradle-to-cradle/>.

The Vanella Group 2022, *5 Ways to Encourage People to Recycle*, www.vanellagroupmn.com, viewed 27 October 2025, <https://www.vanellagroupmn.com/5-ways-to-encourage-people-to-recycle>.

U.S. Green Building Council 2025, *Material Ingredients Guide BDC | U.S. Green Building Council*, Usgbc.org, viewed 27 October 2025, <https://www.usgbc.org/node/2756138>.

UN 2024, *Circular Design Thinking - UN Global Compact Network Australia*, UN Global Compact Network Australia, viewed 27 October 2025, <https://unglobalcompact.org.au/our-members/circular-design-thinking/>.

United Nations 1948, *Universal Declaration of Human Rights*, United Nations, viewed 29 October 2025, <https://www.un.org/en/about-us/universal-declaration-of-human-rights>.

Water Footprint Calculator 2017, *The Hidden Water in Everyday Products*, Water Footprint Calculator, viewed 29 October 2025, <https://watercalculator.org/footprint/the-hidden-water-in-everyday-products/>.

Workplace Gender Equality Agency 2019, *Gender Equitable Recruitment and Promotion | WGEA*, www.wgea.gov.au, viewed 1 November 2025, <https://www.wgea.gov.au/publications/gender-equitable-recruitment-and-promotion>.

Appendices

Material Health Requirements

Gold Level Certification Requirement	**Strategy**
4.1: Product is in compliance with leading chemical regulations.	The bottle will comply with all relevant international chemical safety standards. Suppliers will provide full chemical composition disclosures to ensure conformity with global regulations and avoid restricted substances.
4.2: Product does not contain materials with > 1% carbon-bonded halogens by weight, or recognised PBTs or vPvBs. Product does not contain EU CLP Cat.1 and 2 CMRs or substances causing an equivalent level of concern, or exposure is unlikely or expected to be negligible.	All materials will be screened using established hazard databases and verified to exclude any substances of concern. The main material, Eastman's Tritan™ Renew copolyester, is BPA-free and tested for chemical stability and consumer safety
4.3 and 4.4: 100% of homogeneous materials subject to review are assessed (i.e., none have a grey rating due to insufficient data).	Full supplier transparency will be mandated, requiring complete chemical disclosure for every homogeneous material. Any supplier unable to provide such data will undergo improvement initiatives or be replaced to ensure 100% assessment completion with no grey ratings.
4.5: Strategy developed to either increase the percentage of preferred (A/a and/or B/b assessed) materials and chemicals in the product or optimise the chemistry in the supply	A long-term material health optimisation plan will be developed to progressively increase the use of preferred (A/B-rated) materials. Continuous supplier engagement

chain	will drive the replacement or reformulation of lower-rated substances, supported by material health tracking tools.
4.6: Product is optimised for Material Health (i.e., all x-assessed chemicals replaced or phased out).	Any x-assessed or unverified materials will be systematically phased out. The material selection process prioritises safe, traceable, and recyclable inputs, ensuring no hazardous substances remain in the final product.
4.7: Product has very low VOC emissions or is inherently non-emitting (required for products permanently installed in buildings).	**Not relevant.** The product is not intended for permanent building installation.
4.8: Product complies with VOC content limits (required for liquid and aerosol consumer and construction products)	**Not relevant.** The bottle contains no volatile components.

Product Circularity

Gold Level Certification Requirement	**Strategy**
5.1: Intended cycling pathway(s) for the product and its materials are defined.	The product is designed for the technical cycle, using Eastman Tritan™ Renew copolyester, enabling continuous material reuse through mechanical recycling. Any biodegradable elements will follow the biological cycle, ensuring all materials safely re-enter natural or industrial systems.
5.2: Partnerships for cycling (recovery and processing) of the product according to all intended cycling pathways have been initiated	Strategic partnerships will be developed with local recyclers, collection programs, and retail outlets to support efficient

	material recovery. Collaboration agreements will be formalised to ensure end-of-life take-back and recycling logistics.
5.3: Percentage of cycled and/or renewable content, by weight, is consistent with values achieved by industry leaders for the product type. Alternative: Limitations that prevent achievement of this requirement are publicly reported.	The bottle aims to incorporate at least 50% recycled or renewable material (Tritan™ Renew copolyester). Benchmarking against industry leaders such as Dopper will guide material composition and transparency reporting.
The strategy has been implemented, including: 5.3: Increased use of post-consumer and/or responsibly sourced renewable material as relevant to the product type. Alternative: Limitations that prevent increased use are publicly reported. 5.7: A circular opportunity or innovation that increases product circularity.	The product increases circularity through the use of Eastman's Tritan™ Renew copolyester containing 50% certified recycled content, alongside a unique engraved digital traceability code that eliminates additional labelling materials and enables tracking of return and recycling rates.
5.4: ≥ 90% of materials by weight are compatible with the intended cycling pathway(s) (i.e., recyclable, compostable, or biodegradable) and support high-value cycling. This means that the materials are of high quality and are likely to retain their value for subsequent use. 5.7: If relevant, parts containing these materials are designed for easy disassembly	Approximately 90% of the product weight will consist of recyclable copolyester components. Mechanical fastenings (threads or snaps) will allow full disassembly, ensuring that the bottle can be recycled without contamination.

5.5: Circularity data and cycling instructions are publicly available	Each product will feature an engraved code linked to the company's website, providing transparency on material composition, recycling pathways, and collection points. This facilitates consumer education and responsible disposal.
A strategy for improving product circularity is developed, including plans for: ● 5.3: Increasing the amount of post-consumer recycled content and/or responsibly sourced renewable material, as relevant to the product type, ● 5.6: Implementing a circular opportunity or innovation, and ● 5.7: Improving the product's design for disassembly (if relevant).	The engraved digital code system introduces an innovative traceability mechanism without additional material inputs (like QR labels), improving recycling data collection and consumer engagement in take-back programs.
5.8: The product is actively cycled (recovered and processed) and/or a program is implemented to increase the cycling rate or quality of the product's materials after use. (Both are required for short-use phase products and for products required to be cycled per leading regulations; one is required for long-use phase products.) For select single-use plastic products, a minimum cycling rate of 50% is achieved.	Take-back programs and retailer drop-off systems will ensure consistent collection and reprocessing. Recycling rates will be tracked through the engraved digital codes, and improvement targets will be set annually based on MCI results.

Clean Air & Climate Protection Requirements

Gold Level Certification Requirement	**Strategy**
6.1: Final manufacturing facilities comply with air emissions regulations or guidelines—i.e., permits, international guidelines, or industry best practice	Use of a thermal rather than combustion-based process eliminates harmful emissions. Non-toxic, water-based coatings will be utilised. The manufacturing process is powered by renewable electricity, producing no direct carbon emissions.
6.2: For all other product types, the embodied emissions associated with the product from cradle-to-gate or through end of use have been quantified and third-party verification or an internal review is conducted.	A cradle-to-gate Life Cycle Assessment will be conducted to quantify greenhouse gas emissions. The results will be verified either externally or internally and publicly disclosed to ensure transparency and continual improvement.
6.3: The renewable electricity and greenhouse gas reduction strategy includes long-term target(s) in addition to the near- and mid-term targets.	Strategy sets near, medium and long-term goals: ● At least 50% renewable energy immediately progressing to 100% through on-site solar panels, long-term Power Purchase Agreements ● GreenPower certificates as a temporary measure
6.4: 50% target(s)* for procuring or producing	50% of renewable energy will be sourced

renewable electricity and/or addressing greenhouse gas emissions have been achieved. Applicable to final manufacturing stage electricity and emissions only. 50% of the renewable electricity (25% of total electricity used) is either produced on site or procured through long-term power purchase agreements (PPAs) or PPAs signed pre-financing supporting new renewable electricity installations. Alternative: Renewable electricity procurement matches 100% of the electricity used at final manufacturing facilities.	from renewables immediately. Advancing to 100% renewable electricity through PPAs and on-site generation.
6.5: Products that use energy during the use phase (e.g., appliances) or that greatly impact the energy efficiency of buildings (e.g., windows, insulation), are certified using a C2CPII-recognized energy efficiency standard or similar, if available.	Not applicable. Does not consume energy.
6.6: Embodied greenhouse gas emissions data are made available to stakeholders.	Results of the LCA and carbon hotspot analysis will be publicly disclosed.
6.7: Blowing agents used in the manufacture of the product's foam materials (any foam > 1% of product by weight) have low to no global warming potential and no ozone depletion potential.	Not applicable.
6.8: 25% of the embodied emissions associated with the product from cradle-to-gate or through	Embodied emissions are addressed through supplier collaboration and the prioritisation

end of use are offset or otherwise addressed (e.g., through projects with suppliers, product redesign, savings during the use phase).	of low-carbon producers. Suppliers are encouraged to set their own reduction targets.

Water and Soil Stewardship

Gold Level Certification Requirement	**Strategy**
7.1: Water and soil-related risks are characterised. (Required for select tier 1 suppliers of key materials.)	Water and soil are recognised as vital, interconnected resources essential to life.
7.2: Government-owned, off-site, independently operated effluent treatment facilities (if any), comply with effluent quality guidelines or regulations. Alternatively, a strategy to address the issue has been developed. For recertification at the Gold level, all off-site, independently operated effluent treatment facilities (if any), comply with effluent quality guidelines or regulations. Alternatively, manufacturing facilities comply with effluent quality guidelines for direct discharge or otherwise address the issue.	Effluent discharge will meet or exceed the minimum water quality standards. Where treatment is used, performance will be compared against international standards and any gaps addressed through pre-treatment or collaboration.
7.3: Water use at final manufacturing stage facilities is quantified.	A baseline assessment will quantify water use at all final manufacturing facilities. Following this, a technical breakdown will occur, guiding water reduction and efficiency improvements.

7.4: Adequate drinking water, sanitation, and hygiene are provided (final manufacturing stage facilities only).	All manufacturing facilities will ensure safe access to drinking water, sanitation, and hygiene for workers.
7.5: A strategy for achieving the Gold-level water and soil conservation requirements has been developed. Progress is reported at recertification.	Strategy outlining the reduction, reuse, and safe discharge practices. Ongoing monitoring to ensure continuous improvement.
7.6: The Silver level water and soil conservation strategy has been implemented, including: ● Conservation technologies and best practices at facilities are expected to have the greatest water and/or soil-related impacts. (Required for all final manufacturing facilities with high-volume or pollutant-intensive processes and/or in stressed locations.) ● Actions to conserve water and/or soil in the supply chain, including the use of certified materials, working as part of multi-stakeholder group(s), and/or working directly with suppliers to implement water and soil stewardship requirements and address the processes of concern. (Required for key materials in scope.)	Collaboration with Alliance for Water Stewardship suppliers using closed-loop systems. Sourcing strategy prioritises the regeneration of certified sustainable suppliers.
7.7: Product-relevant chemicals in effluent and sludge are assessed and optimised (i.e., none	Only biodegradable or safely treatable production chemicals will be used.

are x-assessed or grey-rated). (Required for the final manufacturing stage.)	Discharge will be routinely reviewed to confirm safety for ecosystems.
7.9: A positive impact project that addresses local and/or product-relevant water and/or soil issues has been implemented.	Contributions will be made to local wetland restoration projects to regenerate soil health and enhance water infiltration, ensuring a measurable positive impact beyond operations.

Social Fairness

Gold Level Certification Requirement	**Strategy**
8.1: A human rights policy based on international human rights standards and an understanding of the company's risk areas is in place.	A comprehensive *Human Rights and Labour Policy* is established based on the *Universal Declaration of Human Rights* and *ILO core conventions.*
8.2: Human rights risks are assessed for the product's components and raw materials (regardless of tier).	Human rights risk assessment maps all raw materials and components to identify potential social risks across the value chain.
8.3: Materials associated with a high risk of child or forced labour or support of conflict are certified to a C2CPII-recognised certification program or an equivalent alternative is in place. If a certification program is not available, a traceability exercise is conducted upon recertification	High-risk materials are sourced through *C2C-recognised or equivalent certifications (*Fair Trade, SA8000). Where unavailable, traceability and audits will ensure responsible sourcing and verification.
8.4: A strategy for implementing the human rights policy is developed. At recertification,	Implemented through supplier engagement, risk mapping, and audits, ensuring progress

progress toward achieving the strategy is measured.	is monitored.
8.5: Company executives demonstrate commitment and support for establishing, promoting, maintaining, and improving a culture of social fairness.	Will be approved and overseen by executive leadership to ensure accountability and reinforce ethical and fair business practices.
8.6: Responsible sourcing management systems support the implementation and oversight of the policy within the product's supply chain.	Supplier selection will prioritise partners holding accreditations such as SA8000 or Fair Labor Association membership.
8.7: A grievance mechanism permits contract manufacturer employees and other stakeholders to obtain redress for negative human rights impacts.	A third-party managed grievance mechanism will provide a safe, accessible channel for reporting misconduct. This also allows local communities, Indigenous groups and NGOs to raise concerns or provide consent.
8.8: An assessment has been conducted to determine the impact of the positive impact project using quantitative metric(s). Measurable progress is demonstrated at recertification.	Installation of water filtration systems and hygiene workshops in manufacturing communities. Impact is measured by systems installed, litres of water filtered, and individuals educated.
8.9: The company incorporates stakeholder engagement and feedback into human rights risk management. Stakeholder feedback informs strategy and operations.	Integrated through the grievance mechanism, enabling workers, communities, and Indigenous groups to share feedback that informs ongoing improvements.

Note: All certification requirements in the following tables are drawn from the Cradle to Cradle Certified® Product Standard Version 4.1 (Cradle to Cradle Products Innovation Institute, 2025).