Australian Government

Department of Climate Change, Energy, the Environment and Water

A national framework for recycled content traceability

Guidelines

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Acknowledgement of Country

Our department recognises the First Peoples of this nation and their ongoing connection to culture and country. We acknowledge Aboriginal and Torres Strait Islander Peoples as the Traditional Owners, Custodians and Lore Keepers of the world's oldest living culture and pay respects to their Elders past, present and emerging.

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The national framework at a glance

The National Framework for Recycled Content Traceability aims to boost confidence in recycled materials, by guiding the collection and sharing of information about them. It enables Australian governments to set consistent expectations and supports industry to meet these.

The framework comprises a set of guidelines designed to support a nationally standardised approach to implementing recycled content traceability. The guidance supports businesses achieve the key capability for successful supply chain traceability, as summarised below.

Key Capability	**Guidance**
Interoperability	• Align traceability activities and systems with the GS1 Global Traceability Standard
One-step forward, One-step back	• Collect, record and share information that ensures at least 'one-step forward and one-step back' traceability.
Full supply chain coverage	• Participants aim to trace recycled content across their supply chains, between the traceability entry and exit points, within four years—by the end of 2027.
Provenance	• Trace the provenance of recycled content back to this first material recovery location, where it is collected or sorted.
Composition	• Determine the recycled content composition of materials and products as they move through the supply chain using mass balance (or an identity preservation, segregation or controlled blending chain of custody) approach.
Quality	• Determine the quality of recycled content as it moves through the supply chain, by documenting processing and using a precautionary approach to risk assessment.
Minimum data elements	• Collect and share a minimum set of recycled content information (including about their composition, provenance and quality) with supply chain participants.
Verification	• Supply chain participants should verify the traceability information they receive is accurate and adequate to support any recycled content claims and enable tracing backward in the supply chain.
Certification scheme	• Participants in supply chain certification schemes can achieve traceability under the framework if those schemes provide considerations similar to the framework.
Record management	• Maintain traceability records in accordance with any legal obligations for your sector, or in the absence of any such requirements, a minimum of five years.

1 Introduction

Australia's transition towards a circular economy relies on more recycled materials being used and keeping them in use for longer. Tracing recycled materials across the supply chain supports this transition by providing information about them, and recycled content products. This information helps industry to make better decisions about how to use recycled materials and helps consumers to make sustainable choices.

This National Framework for Recycled Content Traceability (framework) provides high-level guidance to industry to implement recycled content traceability in Australian supply chains. It sets the traceability outcomes and capabilities that participants should aim to achieve to support greater use of recycled materials in the Australian economy.

This framework:

- is voluntary and can be used by businesses of all sizes in the supply chain
- is focussed on and applies to all recycled materials in Australia
- promotes interoperability and is technology agnostic, so different traceability systems can be used
- provides outcomes-focussed rather than prescriptive guidance. This means industry can choose traceability solutions and approaches that suit their specific circumstances.
- is aligned with traceability requirements in the European Union, USA and Canada, as far as practicable. This is intended to support Australian businesses access markets where, increasingly, product and material traceability must be demonstrated.

This framework provides guidance for all businesses that participate in recycled content supply chains. It is intended to be used for implementing traceability in an organisation’s operations. It can also be used by:

- organisations that verify and certify supply chain information and activities to a specified standard. These certifiers are encouraged to align their services with the framework and provide their clients with information on this alignment.
- standard-making organisations that develop and set standards relating to traceability, supply chains and related matters, to help inform a consistent approach to standards relevant to traceability.
- industry associations and peak bodies to facilitate traceability conversations and experience-sharing among members that participate in recycled content supply chains.
- technology providers, to help guide the development of interoperable traceability technologies that can accommodate recycled content traceability.
- procurement agents who purchase recycled content materials and products for businesses, to provide a basis for sustainable procurement.

The framework has been informed by broad stakeholder consultation and input. This includes stakeholders from across Australian governments, peak bodies and businesses along recycled content supply chains.

The framework is designed to be flexible, adaptable and scalable to meet the evolving needs of the recycled content supply chain. The framework is a valuable tool for businesses that want to improve the traceability of recycled content in their supply chains. It can help participants to:

- meet circular and sustainable goals
- increase transparency and accountability
- reduce risk of fraud and greenwashing
- improve efficiency and productivity
- make better decisions about product design and sourcing
- meet the expectations of customers and regulators.

The framework will be updated by the Department of Climate Change, Energy, the Environment and Water (the department) as required.

Businesses can benefit from recycled content traceability in several ways, including reducing risk, creating operational efficiencies and process consistency, improving supplier relationships, and enhancing their reputation.

Consumers and advocacy groups want to know more about the products they buy and how they are made. They want to know that the products are ethical, environmentally friendly, and reliable. In a survey of almost 19,000 international consumers, 73% say that product traceability is important to them, and of those, 71% would pay a premium for it.[1] A 2022 Deloitte survey found 1 in 3 consumers would be influenced by having a transparent, accountable, and social and environmentally responsible supply chain.[2]

[1] IBM 2020, Meet the 2020 consumers driving change (PDF 328 KB), IBM, accessed 8 December 2022.

[2] Deloitte UK 2022, Sustainability and consumer behaviour 2022, Deloitte UK, accessed 18 October 2023.

2 Objective, scope, and key principles

2.1 Objective

This framework seeks to boost confidence in, and demand for, recycled content, by increasing the amount of information that is available on these materials. It enables Australia's governments to set consistent expectations. It also recognises that supply chain participants are best placed to implement traceability for recycled content in a way that meets their needs—while meeting the objectives and guidelines of this framework. It supports industry to consider and reinforce circular and sustainable practices across the supply chain.

A key aim of this framework is for participants to achieve full traceability. This requires traceability at all stages of the supply chain between the traceability entry and exit points. This means participants must collaborate and cooperate to ensure there are no information gaps.

2.2 Scope

This framework applies to the following.

1) All supply chain activities occurring between the traceability entry and exit points, being the stages in the supply chain where traceability begins and ends respectively. Under the framework and for a simplified, representative supply chain (see Figure 1), these are:
   - Material recovery (traceability entry point)
   - Reprocessing
   - Manufacturing
   - Distribution
   - Retail or sale for final use (traceability exit point)
2) All types of recovered materials, recycled materials and recycled content products produced or imported into Australia and traded between the traceability entry and exit points. Consistent with the definitions in AS 14021:2018 and ISO 14021:2016:
   - recovered materials are end of use materials collected and recovered as a material input for further recycling or processing
   - recycled materials (or recyclate) are processed to the point of being suitable for manufacturing into a final product or product component, or for direct use in applications like construction. Recycled material incorporated into a product or product component or used in construction is considered recycled content
   - recycled content products are products that incorporate recycled materials. Under this framework, recycled content products include consumer products, and industrial and commercial materials and goods such as construction materials, machinery and equipment as well as construction projects.

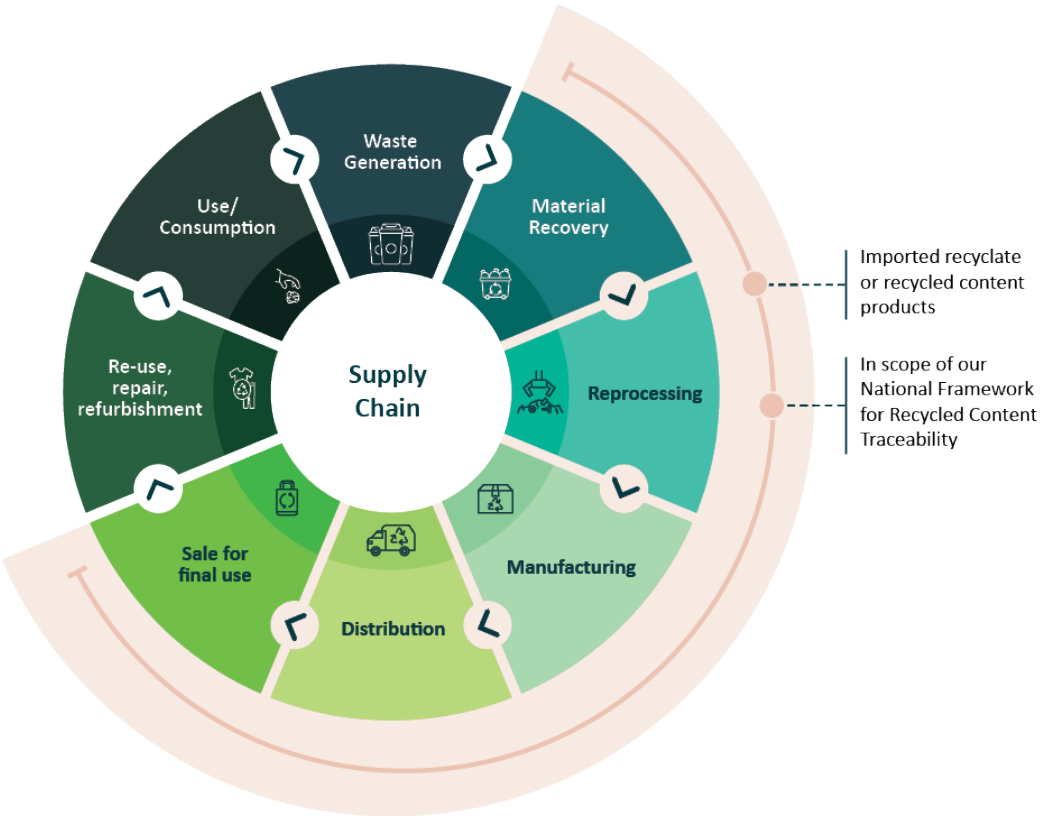
   Recycled content is the proportion of recycled materials by mass in a product. Consistent with AS 14021:2018 and ISO14021:2016, recycled materials include pre-consumer and post-consumer material.

3) Pre-consumer (or post-industrial) material. This is material diverted from the waste stream of a manufacturing process, excluding offcuts (such as rework, regrind and scrap) that are re-used in the same manufacturing process that created them (AS 14021:2018 and ISO 14021:2016).

4) Post-consumer material. This is material recycled from the waste generated by households or other end users when a product has reached end of use (AS 14021:2018 and ISO 14021:2016).

5) All recycling processes, including advanced recycling. Advanced (or feedstock) recycling refers to changing the chemical structure of a material or substance, with processes such as cracking and gasification, to produce monomers or new raw materials (ISO 15270:2008).

Figure 1: Recycled content supply chain activities in scope of the framework



Material recovery

End-of-use materials are sorted and physically processed to produce streams of sorted materials for reprocessing. Non-recycled materials are not typically added.

Processes may include, for example, sorting and baling.

Reprocessing

Recovered materials are processed to make recycled materials suitable for direct end use or for manufacturing using thermal, chemical or biological processes. Non-recycled materials and other inputs may be added.

Several reprocessing stages may be involved. For example, a plastics supply chain may include pyrolysis of plastics, refining of pyrolysis oil, resin production from refined oil, and compounding to achieve performance requirements.

Manufacturing

Recycled materials and other inputs are transformed into recycled content products.

Several manufacturing stages may be involved. For example, a beverage packaging supply chain may include manufacture of PET preform from recycled PET, blow moulding of preform to produce the bottle, filling the PET bottle with a beverage, and labelling.

Distribution

Recycled content products are shipped to final point of sale. This may be via a distribution centre where products are stored, until they are picked, packed and shipped to fill a customer order.

Sale for final use

Recycled content products are sold for final consumption or use, such as from retailers, or trade only dealers (e.g. for construction materials).

This framework does not apply to:

- non-recycled materials, except where they are blended with recycled materials that are in scope of the framework
- recycled materials and recycled content products once exported from Australia (either as raw materials or recycled content in products). However, the framework is aligned with traceability requirements in some sectors of Europe, USA and Canada to support participants in meeting the requirements of those markets.

2.3 Principles to support the framework

The following guiding principles are intended to promote and shape a consistent approach to implementing traceability activities—they are:

1) **Governments set harmonised expectations**: Australian governments will set out traceability guidance and expectations for industry consistent with the framework and, where relevant, use government programs and initiatives to support uptake and use of the framework.
2) **Industry ownership**: Industry shall retain responsibility for developing and implementing approaches and systems for recycled content traceability to meet expectations and shall not be constrained in harnessing opportunities presented by new and emerging traceability technologies and platforms.
3) **Transparency and visibility**: Traceability activities shall be conducted in an open and transparent manner across the full supply chain to facilitate trust by supply chain participants, consumers and communities.
4) **Data integrity, security and privacy:** Participants shall ensure that traceability data is accurate, complete, valid, secure from tampering, and compliant with relevant privacy laws, regulations and standards.
5) **Interoperability**: Traceability information shall be easily exchangeable between two or more systems without compromising the integrity and value of the information.
6) **Harmonisation:** The implementation of traceability shall align with relevant domestic and international standards and existing frameworks to the greatest extent possible. In doing so, opportunities to leverage and build on existing systems, processes, technologies and frameworks shall be pursued to reduce costs and duplication.
7) **Precautionary principle:** If there are threats of serious or irreversible environmental or human harm arising from use of recycled content, lack of full scientific certainty should not be used as a reason for postponing measures to prevent such harm. In the application of the precautionary principle, public and private decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment or human health.
8) **Adaptability**: The framework and a participant's traceability operations should adaptable for continuous improvement.
9) **Collaboration and cooperation**: Participants shall actively work towards shared traceability objectives and respectful collaboration. Participants are encouraged to establish partnerships and share learnings to improve implementation of traceability in recycled content supply chains.

2.4 Getting started

This section highlights the steps an organisation can take to implement traceability and how the framework fits into these steps (Figure 2).

Figure 2: Quick start guide to traceability

2.5 Registration

Supply chain participants are encouraged to register their use of this framework with the department. Registration will support the department's monitoring of the framework and enable important updates to be communicated to registered users.

Participants can register by completing the short template at **Appendix A** and emailing this to RecycledContentTraceablity@dcceew.gov.au.The department's privacy policy will apply to personal information provided by participants.

3 Traceability guidelines

The guidelines below provide clear outcomes and detailed guidance to support the implementation of recycled content traceability and increased use of recycled content in Australian supply chains.

3.1 Interoperability in and across supply chains

Align traceability activities and systems with the GS1 Global Traceability Standard.

Interoperability refers to the ability of different information technology or software systems to connect and communicate with each other to share information in a timely manner. Interoperability supports better traceability outcomes by streamlining information sharing and allowing for more efficient and effective use of resources. It enables different recycled content participants the choice of technology or software solution to suit their circumstances.

For systems to be interoperable, they must be able to share data using a common data format and interpret that shared data with common meaning. Further, globally unique identification of traceable items, businesses, and locations are required to be able to share data in international supply chains.

To achieve interoperability under this framework, participants are recommended to align with the GS1[3] Global Traceability Standard. The Global Traceability Standard defines the minimum elements for interoperable traceability systems based on the GS1 system of standards (see chapter 5 of the Standard). It also describes how additional elements can be added to address requirements of specific sectors, product categories, regions and application areas. The Global Traceability Standard is sector-neutral and applicable to companies of all sizes across industry sectors. The Global Traceability Standard also details the corresponding GS1 standards for identifying, capture and sharing interoperable traceability data.

As a starting point, a participant can assess their traceability practices against the requirements in chapter 5 of the Global Traceability Standard. This will help to identify gaps and the changes likely to be needed to align with the Standard. Appendix C of the Global Traceability Standard sets out the steps required to design, build, deploy and use a traceability system.

Participants that achieve traceability through a certification scheme (see section 3.9) should collect data in alignment with the GS1 standards, to ensure they can be interoperable with other supply chain participants.

[3] GS1 is an international, not-for-profit industry-led body that sets supply chain standards. GS1 facilitates the use of global data standards to identify, capture and share information about goods moving through global supply chains.

3.2 One-step forward one-step back traceability

Collect, record and share information that ensures at least 'one-step forward and one-step back' traceability.

Participants should aim to implement at least 'one-step forward and one-step back' traceability (also known as one-up-one-down traceability). This means a business should collect and maintain information to be able to trace recycled content to their direct customers and trace back to the direct suppliers of recycled content. Exceptions to one-up-one-down traceability under this framework would be at:

- the traceability entry point (the material recovery stage): facility operators would not be expected to trace recycled content feedstock beyond sorting or aggregation, noting they will need to collect sufficient information to characterise the feedstock.
- the traceability exit point (the sale for final use stage): the retailer or seller would normally collect traceability information from their direct suppliers only, and not from their customers.

In one-up-one-down traceability, information requests are exchanged between immediate upstream and downstream trading partners. This model enables traceability data to be exchanged and partially checked between each pair of trading partners, and further upstream or downstream one step at a time.

The data required for collection and sharing is outlined in section 3.7. This data includes general recycled content material or product information requirements, as well as information on the provenance, composition and quality. To achieve one-up-one-down traceability, participants must ensure the information collected, recorded and shared is interoperable (see section 3.1).

3.3 Working towards traceability across the supply chain

All participants should work towards tracing recycled content across their supply chains, between the traceability entry and exit points, within four years—by the end of 2027.

Extending traceability beyond a participant's immediate trading partners to additional stages of the supply chain will provide greater visibility, more reliability, fewer opportunities for fraud, and limit deceptive or misleading practices. To develop this capability within four years, participants should consider the following:

- Start an early conversation with known suppliers and partners to explore the appetite and capabilities for extended traceability.
- Map the supply chain by identifying all upstream businesses (to the material recovery stage) and downstream businesses (to the final sale stage) involved in the production and delivery of recycled content. Continue the conversation as more of the supply chain is revealed.
- Work with suppliers and partners to identify requirements for extending traceability which should be consistent with this framework. Agree important considerations such as traceability data sharing expectations, standards, responsibilities and timeframes. If suppliers and partners

are reluctant to engage, you may need to seek out more willing suppliers and partners who may be better aligned with your business goals and objectives.

- Choose traceability systems and tools that are interoperable based on the guidance in this framework, and industry standards where they exist. This will make it easier to integrate the system with the systems of suppliers and partners. Where traceability systems differ from supply chain partners, consistent data collection aligned with GS1 will allow for interoperability.
- Implement the traceability system—including providing staff training, appropriate procedures and integration with other systems, such as internal enterprise resource planning software or other essential business systems.
- Monitor and evaluate the traceability system to ensure it remains fit-for-purpose. This should include clear communication channels with suppliers and partners to ensure that any issues that arise with traceability are resolved quickly.
- Seek expert or specialist advice at any stage of the journey when necessary.

3.4 Tracing recycled content provenance

Trace the provenance of recycled content back to the first material recovery location.

Participants should trace the provenance of recycled content back to the first material recovery location at a minimum. This expectation applies equally to recyclate and recycled content products generated in Australia and those imported into Australia from other countries.

Provenance refers to the place of origin of the recycled content. For the framework, this is the location where the recycled content feedstock is first recovered, and where traceability begins (see Figure 1). The location should be recorded at the administrative division level, which refers to the level of administration below the national government. In Australia, this is a state or territory. In other countries it may be a province, district or municipality, however named.

The level of detail required for sharing location data may vary depending on the needs of the stakeholders in the supply chain. For example, a manufacturer may want to know the specific facility from which the recycled content originated, while a retailer or consumer may only need to know it originated in Australia. The framework allows you to choose what information you share with different parts of the supply chain, but participants must ensure accurate information is collected (see sections 3.7 and 3.8).

For imported materials, there may be challenges in obtaining this information from foreign businesses, for example due to unwillingness of foreign suppliers to share data; and large and complex supply chains involving many intermediaries, subcontractors and suppliers.

Strategies to improve the accuracy of information received include the following:

- Conduct independent audits of suppliers to validate the information received. This can be done inhouse or through a third-party verifier.

- Develop and implement a strategy for switching to suppliers that can provide the required level of assurance.

Where feasible, participants should also collect additional information that would enable tracing of recycled content further back to its specific source, such as the local government area or suburb for post-consumer materials.

3.5 Tracing recycled content composition

Determine the recycled content composition of materials and products as they move through the supply chain using a mass balance, controlled blending, segregation or identity preservation chain of custody approach.

A chain of custody defines the rules for managing recycled materials, to ensure their characteristics remain transparent through the supply chain and can be accounted for in the final recycled content goods (ISO 22095:2020). This is important for intangible characteristics, such as the recycled content percentage and origin, which may be claimed, but are difficult to determine or validate through testing or other methods.

Chain of custody provides the evidence to support accurate recycled content claims. Participants making these claims should be aware of their obligations under Australian Consumer Law. These obligations are explained in *Environmental and sustainability claims – Draft guidance for business,* published by the Australian Competition and Consumer Commission.

Mass balance chain of custody

In a mass balance approach, recycled materials and non-recycled materials are combined at any point in the supply chain over a defined balancing period (for example 3 months). The total volume of recycled materials supplied in outputs (recycled content materials or products) during this time must not exceed the total volume of recycled materials received into the process, applying the relevant conversion factor. Conversion factors are used to reflect actual operating yields and losses.

Mass balance calculations should demonstrate that there are sufficient supplies of recycled material to produce the amount of recycled content materials or product reported.

Mass balance may be the most accessible form of chain of custody for many participants. This is because it does not require investments in separate systems to physically segregate recycled and non-recycled materials. Rather, the segregation is done through record-keeping.

Mass balance calculations should be done in accordance with ISO 22095:2020. Recommended minimum mass balance requirements are also provided in Table 1. These requirements align with several third-party chain of custody certification schemes.

Table 1: Minimum mass balance requirements

General requirements	• Allocation of claims using mass balance must be based on known quantities of inputs and outputs, including losses, over a defined balancing period. • Mass balance allocation must be supported by a material accounting system that tracks the amount of inputs and outputs over the defined balancing period. • Mass balances have to be kept material-specific and are not permitted between product groups. • Mass balances should be kept site-specific.
Balancing period	• The time period for reconciling allocation of claims (balancing period) must be consistent. • The recommended mass balance period is 3 months, which is consistent with common supply chain certification schemes. However, other timeframes may be used up to a maximum of 12 months. Longer timeframes increase the risk of fraud. • Mass balance periods should be continuous in time, clearly documented, and be kept even if no movement of recycled materials occurs.
Credit units	• The mass of material entering a mass balance system must be transformed into a single type of currency or credit unit (for example, tonnes, net calorific value in Joules, or number of carbon equivalents). • Credits accrue in bookkeeping with each unit of material entering the system and decrease when recycled content materials or products are produced and sold.
Credit Transfers	• Surplus credits at the end of a mass balance period can only be transferred to the next mass balance period, if at least the equivalent amount of the recycled content material is physically in stock. • Transferring credits between materials or products is only allowed for identical materials (or products) or identical product groups (or material groups), and the respective recycled content claims have to be reflected. A 'material group' refers to the general family of material (such as plastic, glass, paper). A 'product group' means a set of products having similar purposes, use, functional properties or consumer perception (for example, footwear).
Allocation	• Mass balance allocation determines how recycled input credits are assigned to specific outputs. Participants may use any allocation method but must share this information with trading partners. They must also ensure the resulting recycled content claim is consistent with the allocation method and not misleading. The following allocation methods may be used: – Proportional allocation: Input credits can be split based on yield or distribution. For example, if 10% of the total inputs consist of recycled materials, 10% of each output stream is considered to have recycled content. – Free (fuel exempt) allocation: In processes that produce fuel outputs, credits apportioned to fuel outputs are excluded and the remaining credits can be freely assigned to the other outputs to carry recycled content claims. – Free (polymers only) allocation. Credits can be freely allocated only to outputs directly linked to polymer production. – Free allocation. All input credits can be freely allocated to the polymer outputs.
Conversion factors	• A conversion factor describes the change in quantity of a specific material due to processing. • Conversion factors have to be calculated on a site specific and product specific basis. • They must be based on actual data (e.g. processing or production data). • Conversion factors have to be provided by all the elements in the chain of custody where changes in quantities occur. They must be clearly documented and are subject to verification.

The framework aims to align with international standards when possible. The department will review new standards periodically and incorporate them into future revisions of the framework. This includes for standards currently under development, such as ISO/WD 13662 (Chain of custody – Mass balance – Requirements and guidelines).

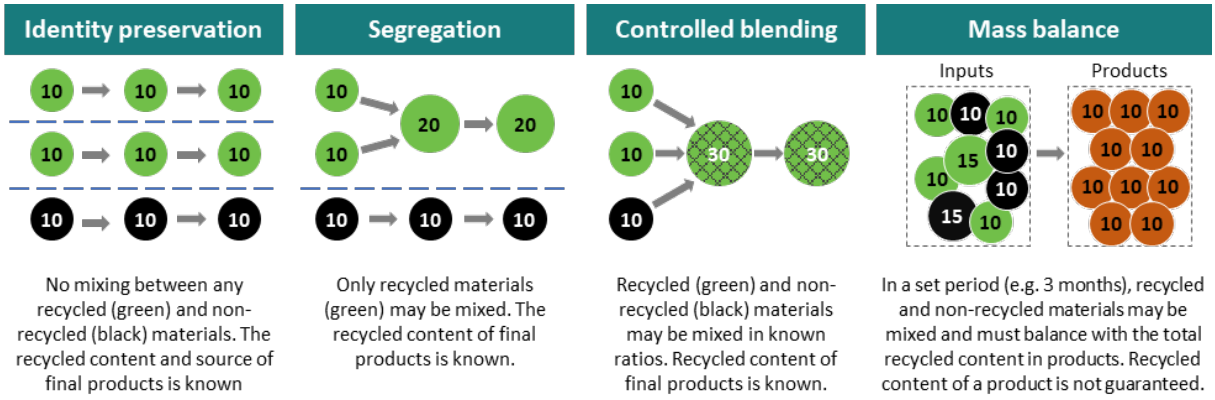
Other chain of custody approaches

Participants can also determine the composition of the recycled content within their products or materials through one or more of the following chain of custody approaches:

- Identity preservation – recycled materials from different sources (for example, different businesses) are kept separate and never mixed with non-recycled materials as they move through the supply chain. Each final product/output will contain 100% recycled content from a known source. This approach provides the highest degree of physical traceability.
- Segregation – recycled materials from 2 sources, but with identical characteristics are combined but are never mixed with non-recycled materials as they move through the supply chain. Each final product or output will contain 100% recycled content from 2 or more known sources.
- Controlled blending – recycled materials and non-recycled materials are combined in specific ratios, resulting in a known percentage of recycled content in each output or product.

Under this framework, the 'book and claim' or 'credit trading' chain of custody model, as defined in ISO 22095:2020, is not supported. This model involves the creation and transfer of credits for recycled content produced. It allows products that do not contain recycled content to carry recycled content claims by purchasing the credit from a recycler for example. The book and claim model could encourage companies to purchase credits rather than recycled materials.

Figure 3: Chain of custody models



Examples of the recycled content composition claims associated with each chain of custody approach are provided in Table 2.

Table 2: Credible recycled content claims for different chain of custody approaches

Examples of credible recycled content composition claims	Identity preservation	Segregation	Controlled blending	Mass balance
'100% recycled content from [specific source]'	Yes	No	No	No
'100% recycled content'	Yes	Yes	No	No
'Contains at least X% recycled content'	Yes	Yes	Yes	No
'Supports the production of recycled content'	Yes	Yes	Yes	Yes
'On average X% of the content sourced for this product over the last year came from recycled content'	Yes	Yes	Yes	Yes

Source: Based on ISEAL Sustainability Claims Good Practice Guide

3.6 Tracing recycled content quality

Determine the quality of recycled content as it moves through the supply chain, using a precautionary approach to risk assessment

Recycled content quality refers to the physical and chemical characteristics, and processing journey of recycled content. This information helps ensure recycled materials can be used at their highest value in manufacturing and construction.

The way a recycled material has been collected, sorted and processed enables supply chain participants to source desired materials with confidence. It enables each processor and manufacturer in the supply chain to tailor their processing to achieve targeted material properties.

Participants (such as reprocessors and manufacturers) that physically or chemically transform recycled content, should accurately document details of the transformation process. Some of this information should be shared to inform subsequent processing or manufacturing steps. For example, if you are a reprocessor, you should provide relevant details such as the technical specification or standard your recycled content has been processed to, or the results of any laboratory analysis.

Where it is appropriate to test recycled content to determine its physical and chemical characteristics, participants should be guided by a risk assessment that considers the likelihood of harm occurring to human health or the environment from recycled content that is not fit for purpose. A risk assessment should consider factors including the source of the recycled content, the likely presence of chemicals of concern, how it has been processed and its intended end market (how it will be used). For this framework, chemicals of concern include the chemicals regulated under various national and international frameworks (Appendix B).

Guidance on high-level considerations is provided in Table 3 to support a risk assessment. A template for assessing the high-level qualitative risks of recovered materials and recycled materials is suggested in Appendix D.

When there is significant uncertainty or insufficient information to support a robust risk assessment of recycled content, a precautionary approach should be taken. This means assuming that the recycled content is not safe for its intended use, until sufficient data is available to ensure it is, for example through laboratory testing. It means erring on the side of caution to avoid harm to human health or the environment.

This guidance does not override existing legislative requirements and clear expectations in relation to recycled materials, such as under the Australia New Zealand Food Safety Code. It does not seek to regulate chemicals risks and hazards addressed through national and international frameworks (see Appendix B. Rather, it seeks to promote greater information sharing and transparency on recycled content (see section 3.7).

Supply chain participants are ultimately responsible for ensuring they are aware of and meet all obligations in relation to the safety of their materials and products, including those that incorporate recycled content.

Table 3: Guidance on high-level considerations to guide recyclate testing

Risk factors	Lower risk scenarios for presence of chemicals of concern - if in doubt testing is suggested	High risk scenarios for presence of chemicals of concern. Further analysis or a more comprehensive risk assessment is recommended
Feedstock	The feedstock or recycled material is: • traceable to a single low-risk source and remains segregated through the supply chain or is recycled in a closed loop system • certified under a recognised Australian or global certification scheme that includes chemicals of concern requirements • certified to an appropriate industry standard • imported and its source and quality can be independently verified to be low risk.	The feedstock or recycled material is: • of unknown origin and composition • includes legacy, clean-up or mixed wastes • imported and its provenance and quality cannot be independently verified.
Processing	The feedstock undergoes processing that is known to limit or eliminate impurities (e.g. end-of-use plastics that undergo an advanced recycling process to produce the building blocks for new polymers).	The feedstock with characteristics above: • undergoes only primary processing (such as chipping, blending, shredding or dismantling) • is mechanically recycled to produce the manufacturing inputs • is processed with new chemicals intentionally added.
Regulatory environment	The end use market for the recycled material is known with certainty, and the recycled material or its end use market: • is subject to national or state/territory regulatory control with specified limits and requirements for chemicals of concern • involves low-risk end uses (such as fence posts and wheelie bins).	The recycled material or its end use market: • is not subject to regulatory control • involves end uses with direct exposure to humans in sensitive applications such as products for use in hospitals, schools and playgrounds, food contact materials and children's toys/products.

3.7 Collecting and sharing information (key data elements)

Collect and share a minimum set of recycled content information (including about their composition, provenance and quality) with supply chain participants.

Table 4 and Appendix C define the minimum set of information or key data elements that must be collected and shared by participants in the supply chain for a traceable item. For this framework, a traceable trade item (or traceable item) is the physical thing being traced. It includes recovered materials, recycled materials, and recycled content products. A traceable item can be traded across the supply chain as a shipment, logistic unit (such as a pallet or container), the specific item, a batch or lot of items, or a serialised item.

Table 5 shows responsibilities for collecting and sharing traceability data across the stages of the supply chain. It also identifies which data elements are recommended to be shared as mandatory. The framework gives participants control over which additional traceability information they share.

In providing information about recycled content, participants should not share information that is commercially sensitive.

Commercially sensitive information is any information of a confidential nature that has commercial value that would be reduced if the information was disclosed (Attorney-General's Department 2019).

To streamline information sharing, participants can consider registering for GS1's National Product Catalogue. The catalogue is a single, secure platform to keep all product information up to date. A participant can load their product data once (or make changes to existing product data), which is validated by GS1 for accuracy and then shared with the participant's trading partners. The National Product Catalogue improves traceability by improving data accuracy, and minimising data errors and duplication.

Table 4: Traceability information (key data elements)

Purpose	Key data element (short name)	Description
For basic traceability	Item identifier	A unique identifier for the traceable item.
	Item description	An understandable and useable description of the traceable item using brand and other descriptors.
	Quantity	A numeric value that is qualified by a relevant unit of measure. For example, the value may represent the weight, volume or count of the traceable item.
	Unit of measure	A string value indicating a measurement unit from UNECE Recommendation 20, Codes for units of measure used in international trade.
	Receipt date	Date of receiving the traceable item.
	Ship date	Date of shipping the traceable item.
	Sender identifier	A unique identifier for the party that ships the traceable item. The value may be a Global Location Number.
	Shipment identifier	A unique identifier for the shipment of traceable items. A shipment can consist of one or more logistic units that need to be delivered together.
	Receiver identifier	A unique identifier for the receiver of the traceable item. The value may be a Global Location Number (GLN) or another identifier.
	Ship from location	A unique identifier for the sender's location. The value may be a Global Location Number (GLN), or another identifier.
	Ship to location	A unique identifier for the receiver's location. The value may be a Global Location Number (GLN), or another identifier.
For recycled content provenance	Country of origin	Code indicating the country of origin of the traceable item.
	Jurisdiction of origin	Text specifying the region of origin of the item. The region is the relevant state, province or another appropriate first level administrative division of the country of origin.
	Remoteness of source	Code for the Remoteness Area Category of the recovered material. Remoteness Areas divide Australia into five remoteness categories, which are characterised by a measure of relative geographic access to services.
	Feedstock source stream	Classification of the recovered material's source stream based on Item 6 of the Australian Standard for Waste and Resource Recovery Data Reporting. Streams are MSW, C&I waste, and C&D waste

Purpose	Key data element (short name)	Description
	Feedstock type	Classification of the recovered material based on Items 7 and 8 of the Australian Standard for Waste and Resource Recovery Data Reporting.
	Feedstock source type	Whether the recovered material within the item is pre-consumer or post-consumer material as defined by AS 14021:2018 or ISO 14021:2016.
For recycled content composition	Recycled content claim	The recycled content claim attached to the traceable item. This includes claims regarding pre-consumer or post-consumer materials, which are defined by AS 14021:2018 and ISO 14021:2016. See examples of claims in Table 2.
	Chain of custody approach	The name of the chain of custody approach used to establish the recycled content claim.
	Mass balance period	The time period (in months) over which the amount of recycled content in products must match the actual amount of recycled content entering and used in the production system. This applies only to a mass balance chain of custody
	Mass balance allocation method	The name of the rule describing how the recycled material inputs into a process are attributed or allocated to the outputs from that process (see Table 1). This applies only to a mass balance chain of custody and is specific to advanced recycling processes that produce multiple products.
For recycled content quality	Processing method	Material processing methods used. Does not include information that is commercially sensitive.
	Chemical content declaration	A declaration or other information (such as a safety data sheet) is available outlining the substances within the item, or the item's compliance with relevant chemicals regulations and requirements.
	Recycled content risk assessment	Details of a high-level qualitative risk assessment of the item. This analysis informs the need for further detailed analysis of the physical and chemical characteristics of the item.
	Results of analysis	Details and results of any analysis conducted on the item by the participant internally or externally
	Certification details	Certification issued by a certifying body to a certification subject (organisation, place or product).
	Certification identifier	A reference (i.e. to a certificate instance) issued to confirm that a product, party or location has passed certification.
	Certification start date	First date of validity for the certification
	Certification end date	Last date of validity for the certification. After this date the certification lapses and would need to be renewed or replaced.

Alignment with international traceability data requirements

Where possible, the framework's data elements have been aligned with recycled content traceability data requirements in Europe, USA and Canada (see mapping in Appendix E). This may assist users of the framework that also need to demonstrate traceability to access markets in these countries.

Table 5: Traceability information for supply chain partners

Supply chain trading partner	Data to collect (mandatory – M)	Data to share (mandatory – M)	Data to record
Material recovery	**From waste collector or generator** • Quantity & Unit of measure (M) • Feedstock source stream (M) • Feedstock type (M) • Feedstock source type (M) Remoteness of source **From next trading partner** • Receiver identifier (M) • Ship to location (M)	**With previous trading partner** • Not applicable **With next trading partner** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Ship date (M) • Shipment identifier (M) • Sender identifier (M) • Ship from location (M) • Processing method (M) • Chemical content declaration (M) • Recycled content risk assessment • Results of analysis (M) • Certification details • Certification identifier • Certification start date • Certification end date	• All data to the left • Receipt date (for inputs) • Country of origin • Jurisdiction of origin
Reprocessing	**From previous trading partner** • Item identifier (M) • Item description (M) • Quantity (M) • Unit of measure (M) • Sender identifier (M) • Processing method (M) • Chemical content declaration (M) • Recycled content risk assessment • Results of analysis (M) • Certification details • Certification identifier • Certification start date • Certification end date **From next trading partner** • Receiver identifier (M) • Ship to location (M)	**With previous trading partner** • Ship to location (M) **With next trading partner** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Ship date (M) • Shipment identifier (M) • Sender identifier (M) • Ship from location (M) • Recycled content claim • Chain of custody approach • Mass balance period • Mass balance allocation method • Processing method (M) • Chemical content declaration (M) • Results of analysis (M) • Certification details • Certification identifier • Certification start date • Certification end date	• All data to the left • Receipt date (for inputs)
Manufacturing	**From previous trading partner** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Sender identifier (M) • Recycled content claim • Chain of custody approach • Mass balance period • Mass balance allocation method • Processing method (M) • Chemical content declaration (M) • Results of analysis (M) • Certification details	**With previous trading partner** • Ship to location (M) **With next trading partner** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Ship date (M) • Shipment identifier (M) • Sender identifier (M) • Ship from location (M)	• All data to the left • Receipt date (for inputs) • Recycled content claim • Chain of custody approach • Mass balance period • Mass balance allocation method • Processing method • Chemical content declaration • Results of analysis • Certification details

Supply chain trading partner	Data to collect (mandatory – M)	Data to share (mandatory – M)	Data to record
	• Certification identifier • Certification start date • Certification end date **From next trading partner** • Receiver identifier • Ship to location		• Certification identifier • Certification start date • Certification end date
Distribution	**From previous trading partner** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Sender identifier (M) **From next trading partner** • Receiver identifier (M) • Ship to location (M)	**With previous trading partner** • Ship to location (M) **With next trading partner** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Ship date (M) • Shipment identifier (M) • Sender identifier (M) • Ship from location (M)	• All data to the left • Receipt date (for inputs)
Sale for final use	**From previous trading partner** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Unit of measure (M) • Sender identifier (M) **From customer or user** • Not applicable	**With previous trading partner** • Ship to location (M) **With customer or user** • Item identifier (M) • Item description (M) • Quantity & Unit of measure (M) • Ship date (M) • Sender identifier (M) • Ship from location (M)	• All data to the left • Receipt date (for inputs)

3.8 Ensuring accuracy of recycled content information

Supply chain participants should verify the traceability information they receive is accurate and adequate to support recycled content claims and enable tracing backward in the supply chain.

Verification is the process of confirming the truthfulness of claims. It allows companies to avoid or to counter accusations of greenwashing, build credibility and assure industry and consumers of recycled content claims.

Participants should verify that the traceability information they receive is accurate and adequate to support their recycled content claims. Information should be verified as often as necessary to provide the participant the assurance and confidence they need to substantiate recycled content claims. This may occur:

- for each shipment of recycled content materials or products
- at regular intervals, such as monthly, quarterly or annually. Intervals may be determined based on the volume and frequency of transactions and the degree of trust between trading partners. For example, information may need to be verified more frequently for suppliers found to have provided incorrect information in the past.

Traceability information should also be sufficient to enable tracing backward in the supply chain. Backward tracing is important to support the recall of defective or unsafe products, or to be able to request additional recycled content information from suppliers.

Participants may request suppliers to obtain independent third-party verification of information provided. Participants can also conduct their own audits to verify traceability information, having regard to the principles and requirements set out in the following international standards:

- ISO/IEC 17029:2019: Conformity assessment – general principles and requirements for validation and verification bodies
- ISO/IEC 17065:2020: Conformity assessment – requirements for bodies certifying products, processes and services.

Participants can engage the services of a third-party verification body to verify traceability information. Verification bodies should be accredited by an accreditation body that is a member of the International Accreditation Forum. This Forum is a global association of accreditation and other bodies interested in conformity assessment in products, processes, validation and verification.

The Forum lists the Joint Accreditation System of Australian and New Zealand (JASANZ) as the accreditation body for Australia. JASANZ assesses and accredits a wide range of organisations against internationally recognised standards. Verification bodies engaged by participants should be accredited to at least one of the relevant standards indicated above.

Participants are also encouraged to refer to *Environmental and sustainability claims – Draft guidance for business* (as updated) published by the Australian Competition and Consumer Commission. It explains the obligations under the Australian Consumer Law that businesses must comply with when making environmental and sustainability claims.

3.9 Traceability and supply chain certification schemes

As an alternative to collecting and sharing traceability information, supply chain participants can achieve traceability through appropriate third-party supply chain certification schemes.

Supply chain certification schemes validate claims and certify that a material or product has been managed and controlled across its supply chain to required standards. Every stage in the supply chain that takes ownership of the material or product is usually certified. In some schemes, every batch of material or product traded is also certified. Certificates should include material or product identification (such as the product code (barcode) or batch number) that can be linked to the supplied material or product.

The certification assures supply chain partners that the relevant standards have been met without the need to share recycled content information. This does not preclude a participant from separately collecting and sharing additional information with their trading partners. Traceability through certification provides traceability and independent verification but does not necessarily allow for information transparency.

The framework recognises certification schemes as another way of achieving traceability if the schemes provide considerations similar to the framework. This will allow participants to achieve comparable traceability outcomes, although they may not be able to access all the recycled content information in their supply chain.

For consistency with the framework, participants of certification schemes should collect and share information required by the framework. This does not mean participants will be required to duplicate their data collection (see Box 1).

Box 1: Example of how participants of certification schemes can be consistent with the framework

An organisation wants to use a chain of custody certification scheme to achieve traceability, but also wants to participate in the framework to be consistent with Australian and international markets.

The certification scheme requires the collection of standard data elements, including item information and shipping information. The framework requires this information, but also requires additional information such as feedstock information and recycling or processing information.

Different certification schemes are not designed to be interoperable or based on the sharing of information. As such, participants using certification schemes may need to share additional information with trading partners to be consistent with the framework. The organisation should ensure reasonable requests for information are fulfilled. In doing so, participants should not share information that is commercially sensitive.

To achieve both goals of using a certification scheme and participating in the framework, the organisation can:

- Collect all of the information required by the framework, for their relevant stage of the supply chain. The framework includes most information required by several certification schemes.
- Share the required information to the certification scheme.
- Share your certification details with trading partners
- Share the mandatory information required by the framework, but not considered as part of the certification, to trading partners, if requested.
- Provide additional optional information identified under the framework to trading partners at your discretion.

To ensure consistency and compliance with the framework, participants should ensure that the outcomes of their preferred certification scheme align with those of the framework, and adopt the framework's principles. A certification scheme is broadly consistent with the framework, if:

- the information required for certification aligns with the framework. To ensure consistency, all information should be collected in accordance with this framework (see data definitions in Appendix C). This includes information used for certification or for sharing under the framework.
- the framework's data elements broadly align with a few certification schemes, however there will be cases where additional information will be required to meet the framework. Participants would need to collect or request this additional information through the supply chain to ensure alignment with the framework.
- the scope of the certification scheme includes the same stages of the supply chain as the framework (see section 2.2).

- the scheme allows use of chain of custody approaches that are supported under the framework. A scheme may allow additional chain of custody approaches (such as book and claim) that are not supported under the framework. Participants that use these additional approaches for certification would not be compliant with the framework.

A high-level comparison of a few certification schemes is provided in Appendix F.

The department also suggests that participants consider if the scheme is ISEAL Code Compliant. The ISEAL Alliance is a global membership organisation for credible sustainability standards. 'ISEAL Code Compliant' designates schemes that have been independently evaluated against ISEAL's three Codes of Good Practice. These codes define practices for effective and credible sustainability systems in the areas of impact assessment, standard-setting, and assuring compliance.

We also suggest that certification scheme owners and conformity assessment bodies consider the ISO Committee for Conformity Assessment (CASCO) Toolbox in their activities. The toolbox sets out the relevant international standards and guides for assessing if the requirements of a standard or service (such as a certification scheme) are being met. This can help scheme owners and conformity assessment bodies meet current best practice and client expectations.

3.10 Information management

Guideline: Maintain traceability records in accordance with any legal obligations, or in the absence of any such requirements, a minimum of five years.

Supply chain participants should put in place administrative and recordkeeping procedures to retain the records necessary to substantiate recycled content claims about their materials or products. Recommended procedures include:

- maintaining traceability records in accordance with any existing legal obligations, or in the absence of any such requirements, for at least five years after the relevant recycled content material or product has been sold or placed on the market.
- documenting an organisation's internal procedures to meet the requirements of this framework.
- procedures for notifying other supply chain participants of any discrepancies in the records.

Information privacy and security

The framework requires sharing of minimum traceability information between participants to enable traceability. It also allows participants some choice in additional information they share with other participants (see section 3.7). It does not seek to override legislated privacy obligations.

To maintain integrity, privacy and security of information, participants may wish to consider reviewing and aligning with AS 27701:2022 (Security techniques – Extension to ISO/IEC ISO/IEC 27001 and ISO/IEC 27002 for privacy information management — Requirements and guidelines).

AS 27701 provides controls and implementation guidance to ensure the privacy of personal information (at a minimum, in compliance with local legal requirements), including specifying what framework measures organisations should implement to manage personal information.

AS 27701 adopts ISO/IEC 27701, which is a global privacy standard built on top of ISO/IEC 27001 and 27002 – the most widely adopted and certified global cyber security standards. AS 27701 includes annexures that map how the AS 27701 controls meet the requirements under Australian, New Zealand and European privacy laws.[4]

[4] Standards Australia 2023, AS 27701: The PIMS standard you can't afford to ignore, accessed 17 October 2023.

4 What success looks like

Successful implementation of this framework means there will be greater implementation of traceability for recycled content providing information to boost confidence in, and demand for recycled content. This means greater use of recycled content in manufacturing and construction.

Participants are invited to register their use of the framework with the department (see section 2.5). As part of this process, registered participants will in the future be able to choose to provide de-identified data to the department to support reporting against national targets.

Registered participants may be asked to complete a voluntary annual survey to help the department understand the use and impact of the framework. Key indicators to measure the framework's use and impact include the following:

- Number of businesses that are aware of the framework
- Number of businesses that have adopted (or are adopting) the framework
- Number of businesses with one-up-one-down traceability for recycled content
- Number of businesses with end-to-end traceability systems for recycled content
- Number of businesses that independently verify recycled content information
- Amount of recycled content used in manufacturing resulting from access to traceability data
- Access to international markets attributed to traceability.

A monitoring and evaluation plan for the framework will be developed separately.

This framework will be reviewed in three years. This will help to ensure it remains relevant and current with new domestic and international policy developments as Australia transitions towards a circular economy. The department may from time-to-time update guidance under this framework, for example to account for the development of new standards and otherwise ensure that it remains fit for purpose.

Appendix A: Registration

Registration information

Supply chain participants are encouraged to register their use of this framework with the department. Registrants may be asked to voluntarily provide information to help the department understand the use and impact of the framework. Registrants may also choose to provide de-identified traceability data to the department, to support reporting against national targets.

Please refer to the privacy notice further below for information about how your personal information will be collected and used by the department after you have completed your registration.

Organisation name	
Contact name & position	
Contact email	
Contact number	
Organisation address	
Website (if available)	
Sector	
Main supply chain activity	*For example, material recovery, reprocessing, manufacturing, distribution, retail*
Would you be willing to provide information to help us understand the use and impact of the framework?	*Yes / No*
Would you be willing to provide de-identified traceability data to the Commonwealth?	*Yes / No*
I have read and understood the Privacy Notice and Consent (below)	*Yes / No*

Privacy Notice and Consent

This notice explains how your personal information will be collected and handled as part of registration for the National Framework for Recycled Content Traceability (**Framework**).

Why are you receiving this notice?

The Department of Climate Change, Energy, the Environment and Water (DCCEEW) has published the Framework to guide increased sharing of recycled content information in supply chains. As part of this, we are encouraging users to register their use of the Framework.

What personal information will be collected?

We will collect the following personal information about you:

1) Your name, email and phone number
2) Your organisation
3) Information about your employment, such as job title
4) Your views and opinions on the use and impact of the framework

How will your personal information be used and disclosed?
We will use your personal information for monitoring the use and impact of the Framework, to support reporting against national targets, and for related purposes.

Your personal information will not be disclosed to anyone other than departmental personnel involved in the administration of the framework without your consent unless required by law.

Your personal information will be handled in accordance with the *Privacy Act 1988* (Cth) and our Privacy Policy.

Your consent
This privacy notice explains how your personal information may be handled by DCCEEW in relation to the Framework. You can also contact RecycledContentTraceability@dcceew.gov.au to ask questions.

If you decide to register your response via email and provide information about your use of the Framework, you are taken to have consented to your personal information being collected, used and disclosed in accordance with this notice.

Privacy Policy and Contact Us

Our Privacy Policy explains how you can access or correct your personal information, and how to make a complaint. Available at https://www.dcceew.gov.au/about/commitment/privacy (DCCEEW).

If you have questions, please contact DCCEEW at privacy@dcceew.gov.au.

Appendix B: Chemicals of concern

Chemicals of concern could include chemicals

- which exhibit risk characteristics of chemicals in schedules 5 to 7 of the Industrial Chemicals Environmental Management Standard (IChEMS). IChEMS provides nationally consistent standards for managing the environmental risks involved in the import, manufacture, use and disposal of industrial chemicals (DCCEEW 2022).
- listed under the Stockholm Convention on Persistent Organic Pollutants. This convention aims to protect human health and the environment from persistent organic pollutants and obliges its parties to take measures to eliminate or reduce environmental releases of these pollutants.
- present in waste streams listed under Annex I of the Basel Convention on Transboundary Movements of Hazardous Wastes and their Disposal that have hazardous characteristics listed in Annex III. This convention regulates the transboundary movements of hazardous and other wastes and obliges its parties to ensure that such wastes are managed and disposed of in an environmentally sound manner.
- regulated under the Minamata Convention on Mercury. This convention seeks to protect human health and the environment from human-caused emissions and releases of mercury and mercury compounds.
- in consumer products managed under the Australian Competition and Consumer Commission's product safety system.
- regulated under the Australia New Zealand Food Standards Code, which requires manufacturers to ensure food in contact with packaging is safe.

Appendix C: Traceability data definitions

Note: In the table below, 'information source' means the participants or supply chain stages that are responsible for collecting the relevant information.

Table C1: Traceability data definitions

1. Item identifier	
Data element (data type)	itemIdentifier (string)
Description	A unique code for the traceable trade item
Relevant standards	• Global Trade Identification Number (GTIN) • GS1 General Specifications Standard • Traceability – GS1 Australia
Notes	• There are four GTIN formats that depend on the size of the item, whether it is retail or non-retail and where it is being sold. GTINs can be 8, 12, 13 or 14 digits in length and are known as GTIN-8, GTIN-12, GTIN-13 and GTIN-14 respectively. Refer to the relevant standards above for details of how the GTIN is formed and managed. • https://schema.org/identifier • https://www.gs1.org/voc/gtin
Example	For GTIN-13: 9312345000005
2. Item description	
Data element (data type)	itemDescription (string)
Description	An understandable and useable description of a traceable item using a combination of key elements such as Brand Name, Sub-Brand (if applicable), Functional Name, Variant (e.g. colour), and net content. The description should be unique and meaningful for buyers to manage the traceable item through their businesses and to describe it to their customers.
Relevant standard	Described below
Notes	• Where appropriate, the description should identify the brand, sub-brand (if applicable), the functional name (or primary use of the material or product), and the variant such as colour or product type: – Brand–Sub-brand (if applicable)–Functional name (or primary use of the material or product)–Variant (if applicable, e.g. colour or material) • https://gs1.org/voc/productDescription
Examples	• ABC Company–used agricultural ground cover film–HDPE–black • DEF Company–used bottles –HDPE–mixed colours • GHI Company–used beverage containers–aluminium–mixed colours • JKL Company–commercial demolition material–plasterboard–painted • MNO Company–flakes–HDPE–clear • PQR Company–asphalt–milled asphalt pavement • STU Brand– resin pellets–polypropylene–white • VWX Brand–packaging–composite–shrink film
3. Quantity	
Data element (data type)	quantityValue (float)
Description	The weight, volume or count of the traceable item. Must be used with 'unit of measure'.

Relevant standards	GS1 Global Data Synchronisation Network (Trade Item Modules Library) GS1 Global Data Model Attribute Navigator
Notes	• A number. The level of precision (such as for weight measurements) is at the discretion of the trading parties. • https://www.gs1.org/voc/value
Example	Any number
4. Unit of measure	
Data element (data type)	unitOfMeasure (string)
Description	Code specifying the measurement unit in which a quantity is expressed. Must be used with 'quantity'.
Relevant standards	GS1 Global Data Synchronisation Network (Unit of Measure per Category) GS1 Global Data Model Attribute Navigator
Notes	• Varies – refer to the relevant standards. • https://www.gs1.org/voc/unitCode
Examples	KGM (for kilogram); TNE (for tonne), LTR (for litre); EA (for each)
5. Receipt date	
Data element (data type)	receiptDate (dateTime)
Description	Date of receiving or shipping the traceable item. Include time when required.
Relevant standard	AS/NZS ISO 8601.1
Notes	• The formats are: – YYYY-MM-DD – YYYY-MM-DDT[hh]:[mm]:[ss]±hh:mm (for date, time and time zone) • https://schema.org/Date
Example	2023-12-05T13:15:00-01:00 (which means 1:15pm on 5 December 2023 – 1 hour behind Coordinated Universal Time)
6. Ship date	
Data element (data type)	shipDate (dateTime)
Description	Date of shipping the traceable item. Include time when required.
Relevant standard	AS/NZS ISO 8601.1
Notes	• The formats are: – YYYY-MM-DD – YYYY-MM-DDT[hh]:[mm]:[ss]±hh:mm (for date, time and time zone) • https://schema.org/Date
Example	2023-12-05T13:15:00-01:00 (which means 1:15pm on 5 December 2023 – 1 hour behind Coordinated Universal Time)
7. Sender identifier	
Data element (data type)	senderIdentifier (string)
Description	A unique identification key for the party that ships the traceable item. The value may be a Global Location Number (GLN).
Relevant standard	GS1 Global Location Number
Notes	• A GLN is a 13-digit number used to identify parties and locations. • https://www.gs1.org/voc/partyGLN
Example	9312345000012

8. Shipment identifier	
Data element (data type)	shipmentIdentifier (string)
Description	A unique identifier for the shipment of traceable items. A shipment can consist of one or more logistic units that need to be delivered together. Shipment and consignment are terms that may be used interchangeably.
Relevant standards	• Serial Shipping Container Code (SSCC) – Individual shipment/logistics unit • Global shipment identification number (GSIN) – Multiple shipments/logistics unit • Global Identification Number for Consignment (GINC)– Multiple shipments/logistics unit • GS1 General Specifications Standard • Traceability - GS1 Australia (for additional information)
Notes	SSCC is an 18-digit number, GSIN is a 17-digit number, and GINC can be up to 30 characters. Refer to the relevant standard above for details of how these are formed and managed.
Examples	SSCC: 93123450000000026 GSIN: 93123450999999991 GINC: 9312345012345678ABCDEFGH
9. Receiver identifier	
Data element (data type)	receiverIdentifier (string)
Description	A unique identification key for the receiver of the traceable item. The value may be a Global Location Number (GLN).
Relevant standard	GS1 Global Location Number
Notes or valid values	• A GLN is a 13-digit number used to identify parties and locations. • https://www.gs1.org/voc/partyGLN
Example	9312345000012
10. Ship from location	
Data element (data type)	shipFromLocation (string)
Description	A unique identification key for the sender's location. The value may be a Global Location Number (GLN).
Relevant standard	GS1 Global Location Number
Notes	• A GLN is a 13-digit number used to identify parties and locations. • https://www.gs1.org/voc/partyGLN
Example	9312345000012
11. Ship to location	
Data element (data type)	shipToLocation (string)
Description	A unique identification key for the receiver's location. The value may be a Global Location Number (GLN).
Relevant standard	GS1 Global Location Number
Notes	• A GLN is a 13-digit number used to identify parties and locations. • https://www.gs1.org/voc/partyGLN
Example	9312345000012
12. Country of origin	
Data element (data type)	countryOfOrigin (string)
Description	The country of origin of the traceable item.

Relevant standard	• AS/NZS 2632.1 (or ISO 3166-1) • GS1 Global Location Number
Notes	• Two- or three-letter code, all uppercase. Valid values are provided on ISO's Online Browsing Platform. • https://www.gs1.org/voc/countryOfOrigin • https://www.gs1.org/voc/countryCode
Examples	• Two-letter code: AU (for Australia); NZ (for New Zealand); CN (for China); US (for USA) • Three-digit number: 036 (for Australia)
13. Jurisdiction of origin	
Data element (data type)	regionOfOrigin (string)
Description	The region of origin of the traceable item. The region is the state, province or another appropriate first level administrative division of the country of origin.
Relevant standard	• AS/NZS 2632.2 (or ISO 3166-2) • GS1 Global Location Number
Notes	• Up to six characters long, comprising the two-letter country code, a hyphen, and one to three letters or digits. Valid values are available on ISO's Online Browsing Platform. • https://www.gs1.org/voc/addressRegion • https://schema.org/addressRegion
Examples	• AU-QLD (Queensland, Australia) • US-CA (California, USA) • CN-BJ (Beijing, China)
14. Remoteness of source	
Data element (data type)	remotenessOfSource (integer)
Description	Code for the Remoteness Area Category of the recovered material. Remoteness Areas divide Australia into five remoteness categories, which are characterised by a measure of relative geographic access to services.
Relevant standard	Australian Bureau of Statistics' Remoteness Areas. Participants can view this interactive map to determine remoteness classification of different parts of Australia. The classification of specific addresses can also be checked with this Health Workforce Locator, using 'ASGS Remoteness Areas 2016' as the filter.
Notes	The valid values for remoteness of source are: • 0 (for Major cities of Australia) • 1 (for Inner regional Australia) • 2 (for Outer regional Australia) • 3 (for Remote Australia) • 4 (for Very remote Australia)
Example	See above
15. Feedstock source stream	
Data element (data type)	feedstockSourceStream (string)
Description	Classification of the recovered material's source stream based on Item 6 of the Australian Standard for Waste and Resource Recovery Data Reporting.
Relevant standard	Australian Standard for Waste and Resource Recovery Data Reporting – Item 6

Notes	The valid values for the feedstock source stream are: • Municipal solid waste (MSW) • Commercial & industrial (C&I) waste • Construction & demolition (C&D) waste
Example	See above
16. Feedstock type	
Data element (data type)	feedstockType (string)
Description	Classification of the recovered material based on Items 7 and 8 of the Australian Standard for Waste and Resource Recovery Data Reporting.
Relevant standard	Australian Standard for Waste and Resource Recovery Data Reporting – Items 7 and 8
Notes	The format and valid values for feedstock type are based on Table 3 of Item 7 and Table 4 of Item 8 of the above standard and consist of: Item 7: – Category–Type–Sub-type (if specified in the standard) Item 8 (for mixed material loads): – Primary source stream– Mixed material load type
Example	• Building and demolition materials–Bricks, concrete and pavers–brick rubble • Metals–Iron and steel • Paper & Cardboard–Cardboard–Not waxed For mixed loads: • MSW–Domestic commingled recyclables (no CDS, glass included) • C&D–Mixed building and demolition wastes for recycling
17. Feedstock source type	
Data element (data type)	feedstockSourceType (string)
Description	Whether the recovered material within the item is pre-consumer or post-consumer material as defined by AS 14021 or ISO 14021.
Relevant standard	AS 14021 (or ISO 14021)
Notes	The valid values for feedstock source type are: • Pre-consumer • Post-consumer
Example	See above
18. Recycled content claim	
Data element (data type)	recycledContentClaim (string)
Description	The recycled content claim attached to the traceable item. This includes claims regarding pre-consumer or post-consumer materials, which are defined by ISO 14021. See Table 2 for examples of appropriate claims associated with different chain of custody methods. Unsubstantiated or misleading claims must not be made.
Relevant standard	ACCC's Environmental and sustainability claims – draft guidance for business

Notes	• The claim should generally include the following elements, if applicable: – for multi-component items, identify whether the claim relates to all or a component of the item (e.g. 'this product', 'the packaging', 'this product excluding component A') – the relationship between the item and the recycled content or material (e.g. 'contains', 'made from', 'comprised of', 'supports') – the percentage of recycled content (e.g. '50%', 'at least 50%', 'on average 50%') – the recycled content status (e.g. 'pre-consumer' or 'post-consumer') – Any additional information necessary to provide clarity and avoid deception (e.g. 'based on mass balance allocation') • Where appropriate, care should be taken to ensure elements of a claim are consistent with other relevant data elements (e.g. feedstock source type – item 17; chain of custody approach – item 19; mass balance period and accounting methods – items 20 and 21; and any certification awarded – items 26-29).
Examples	• Examples include: – Made with X% recycled material – Contains XX% recycled fibre – Contains a minimum of XX% recycled content – Contains XX% total recycled plastic, including YY% originating from post-consumer sources – On average, XX% of content sourced for this product over the last year came from recycled sources – XX% Post-consumer recycled content based on mass balance allocation • Also refer to Table 2 for examples associated with different chain of custody methods.
19. Chain of custody approach	
Data element (data type)	chainOfCustodyApproach (string)
Description	Description of the chain of custody approach used to establish the recycled content claim.
Relevant standard	ISO 22095:2020 – Chain of custody – General terminology and models
Notes	Four chain of custody methods are supported, which represent the valid values: • Mass balance • Controlled blending • Segregation • Identity preservation
Example	See above
20. Mass balance period	
Data element (data type)	massBalancePeriod (string)
Description	The time period (in months) over which the amount of recycled content in products must match the actual amount of recycled content entering and used in the production system. This applies only to a mass balance chain of custody.
Relevant standard	ISO 22095:2020 – Chain of custody – General terminology and models
Notes	The mass balance period is recommended to be 12 months or less, for example: • 3 months • 6 months
Example	See above
21. Mass balance allocation method	
Data element (data type)	massBalanceMethod (string)

Description	The rule describing how the recycled material inputs into a process are attributed or allocated to the outputs from that process (see Table 1). This applies only to a mass balance chain of custody and is specific to advanced recycling processes that produce multiple products.
Relevant standard	A standard may be provided in a future review of the framework.
Notes	The allocation methods and valid values that may be used, include: • Proportional • Free (fuel exempt) • Free (polymers only) • Free
Example	See above
22. Processing method	
Data element (data type)	processingMethod (string)
Description	A description of how the traceable item has been processed or transformed. Does not include information that is commercially sensitive. If the item has been analysed or tested to determine its quality characteristics and properties, details should be provided via data element 25 -Results of analysis.
Relevant standard	Described below
Notes	This data element is cumulative across the supply chain. Each participant should add their processing method(s) to the details provided by the previous participant, to progressively build the processing history of the item as it moves through its supply chain. The format consists of the following elements: **Supply chain stage description – Process(es) – the name of any standard(s) met (if relevant)** • the supply chain stage description of the participant • the high-level description of the process occurring at that stage. A non-exhaustive list of processes in recycled content supply chains is provided in Table C2 below • any standards, specifications or state or territory codes met by the item, if relevant.
Examples	For a plastics stream: • Material recovery – Optically sorted; baled • Reprocessing – Friction-washed; flaked; hot caustic washed; fresh water rinsed – APCO/ANZPAC Specifications for natural high density polyethylene (HDPE) flake for food grade applications • Reprocessing – Extruded; pelletised – PIPA POP208 Specification and testing guidelines for recycled materials suitable for non-pressure plastic pipe applications
23. Chemical content declaration	
Data element (data type)	chemicalContentDeclaration (boolean)
Description	Is a declaration or other information (such as a safety data sheet) available about the substances in the item, or the item's compliance with relevant regulations and requirements? The regulations and requirements that apply will depend on the nature of the item, its intended market, and the stage of the supply chain. Participants are responsible for maintaining knowledge of any specific regulations and requirements that apply to their business, sector or markets. Requirements may be stipulated under frameworks that regulate chemicals of concerns (Appendix B). Additional examples might include: • State and territory end of waste codes or similar • EU food contact materials regulations (e.g. 1935/2004/EC, 2023/2006/EC, 10/2011/EU) • US Federal Food, Drug and Cosmetic Act, which covers food contact materials • EU Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS).
Relevant standard	• If a declaration or other information about the chemical content will be made available on request, participants are encouraged to collect and share the following information:

	– The relevant regulations or requirements (e.g. IChEMS) for the declaration or collecting the information – A statement of compliance or non-compliance against each regulation or requirement (e.g. 'Item does not contain chemicals scheduled under IChEMS') – The Chemical Abstracts Service (CAS) Registry Number, name, and concentration of each chemical ingredient intentionally added to the item. • If the identity of a chemical ingredient is genuinely commercially sensitive, generic names can be used. A guide to selecting generic names is provided in Safe Work Australia's Model Code of Practice - Preparation of safety data sheets for hazardous chemicals. • If the exact concentration of a chemical ingredient is genuinely commercially sensitive, the following ranges can be used, consistent with the Model Code of Practice: <table><tr><td><10%</td><td>10 - <30%</td><td>30-60%</td><td>>60%</td></tr></table> • This guidance does not override or replace any regulatory requirements.
Notes	Yes (if a declaration or further information is available on request) No (if a declaration or further information is not available)
Examples	Yes; No
24. Recycled content risk assessment	
Data element (data type)	recycledContentRiskAssessment (string)
Description	Details of a high-level qualitative risk assessment of the item. This analysis informs the need for further detailed analysis of the physical and chemical characteristics of the item.
Relevant standard	Refer to Appendix D.
Notes	At a minimum, this data element should include the results of assessing the traceable item against each of the risk factors in Table 3 of the framework. A recommended format for a risk assessment sheet is provided in Appendix D.
Example	Refer to Appendix D.
25. Results of analysis	
Data element (data type)	resultsOfAnalysis (string)
Description	Details and results of any analysis conducted on the item by the participant internally or externally.
Relevant standard	Where appropriate, organisations performing analyses should be accredited to AS ISO/IEC 17025.
Notes	If applicable, results of analysis should be provided in the form of a test report that is consistent with requirements in AS ISO/IEC 17025. This includes information such as the name and address of the laboratory; method(s) used; date of receipt of the test item, sampling and laboratory test; date of issue of the report; the results; and identification of the person(s) authorising the report.
Example	-
26. Certification standard	
Data element (data type)	certificationStandard (string)
Description	Complete name of any third-party chain of custody certification awarded to the item
Relevant standard	Each certification scheme has its own standard that must be met.
Notes	Provide the complete name of the certification, as awarded by the certifying organisation.
Examples	• FSC Recycled • ISCC PLUS Certified • Global Recycled Standard (GRS) Certified

27. Certification identification	
Data element (data type)	certificationIdentification (string)
Description	The certification number or other unique reference number issued for the item, if applicable.
Relevant standard	• GS1 Global Document Type Identifier • GS1 General Specifications Standard • Traceability – GS1 Australia (for additional information)
Notes	• The format of the GS1 document identifier consists of 13-digits with optional serial component which can be up to 17 characters. • The format of certification numbers or licences issued by certification bodies will vary according to the certification body. • https://gs1.org/voc/certificationIdentification
Examples	• 9312345000012123ABC456 (for GS1 document identifier) • ISCC-PLUS-Cert-DEXXX-XXXXXXXX (for ISCC PLUS certification) • XXX-COC-000000 (for FSC certification)
28. Certification start date	
Data element (data type)	certificationStartDate (dateTime)
Description	Date of validity of certification
Relevant standard	AS/NZS ISO 8601.1
Notes	• The date format is: YYYY-MM-DD • https://www.gs1.org/voc/certificationStartDate
Example	2023-12-05
29. Certification end date	
Data element (data type)	certificationEndDate (dateTime)
Description	Date when certification expires.
Relevant standard	AS/NZS ISO 8601.1
Notes	• The date format is: YYYY-MM-DD • https://www.gs1.org/voc/certificationEndDate
Example	2025-12-05

Table C2: Examples of technical processes occurring along recycled content supply chains

Process	Description	Example feedstocks
Beneficiation	The process of sorting, cleaning and crushing glass to remove contaminants. Ferrous metals are removed with large magnets; non-ferrous metals via eddy current, and plastics and paper using negative or positive air pressure systems. Optical sorting removes other contaminants such as ceramics and sorts the glass by colour. The crushed glass may be burned and washed to remove sugars.	Glass
Compounding	Mixing of molten polymers with additives to achieve specific material properties, such as flexibility or ultraviolet resistance	Plastics
Crushing	The compression of solid material to reduce its size or change its form.	Concrete, bricks, asphalt, glass, plastics
Gasification	Degradation of materials at temperatures in excess of 750C, with a controlled amount of oxygen and/or steam to produce energy and a gas called syngas.	Plastics, tyres, mixed wastes
Granulating	Chopping and grinding of material into smaller pieces of uniform size.	Plastics, non-ferrous metals (e.g. copper)
Hydrothermal liquefaction	Materials are reacted with water molecules at high temperatures (160–450°C) at a pressure that maintains water in the liquid state, to produce a crude-like oil.	Plastics
Optical sorting	Cameras, lasers, and sensors are used to identify the colour and type of material based on absorption of light. A jet of compressed air separates the material.	Glass, plastics, wood, paper, cardboard
Pulping	Paper is graded, cleaned, shredded and mixed with water and chemicals to break down the material into separate fibres.	Paper, cardboard
Pyrolysis	Degradation of materials at temperatures between 400 and 1000C in the absence of oxygen, with or without catalysts.	Plastics, tyres, mixed wastes
Shredding	Material is torn apart into smaller pieces by actions such as cutting, tearing and chopping.	Plastics, paper, metals, timber, tyres, composite products
Smelting	Heating a material above its melting point with additives that aid the separation and removal of impurities, to produce a purified material.	Metals
Solvent-based purification	Use of solvents to remove impurities such as colourants, odours, additives and other contaminants from polymers, with the polymers subsequently recovered through precipitation to produce polymer granules.	Plastics

Note: Only a few examples of processes are shown for illustration. This is not an exhaustive list.

Appendix D: Risk assessment sheet

Item identifier:			
Item description:			
Date of assessment:			
Score	**Examples**	**Assessment Score (low or high)**	**Assessment comments or details**
Risk factor 1: Feedstock			
Low	The feedstock or recycled material is one or more of the following: • traceable to a single low-risk source and remains segregated through the supply chain or is recycled in a closed loop system • certified under a recognised Australian or global certification scheme that includes chemicals of concern requirements • certified to an appropriate industry standard • imported and its source and quality can be independently verified to be low risk.		
High	• The feedstock or recycled material is: of unknown origin and composition; includes legacy, clean-up or mixed wastes; or imported and its provenance and quality cannot be independently verified.		
Risk factor 2: Processing			
Low	The feedstock undergoes processing that is known to limit or eliminate impurities (e.g. waste plastics that undergo an advanced recycling process to produce the building blocks for new polymers).		
High	The feedstock: • undergoes only primary processing (such as chipping, blending, shredding or dismantling) • is mechanically recycled to produce the manufacturing inputs		
Risk factor 3: Regulatory environment			
Low	The end use market for the recycled material is known with certainty, and the recycled material or its end use market: • is subject to national or state/territory regulatory control with specified limits and requirements for chemicals of concern, or • involves low-risk end uses (such as fence posts and wheelie bins).		
High	The recycled material or its end use market is: • is not subject to regulatory control, or • involves end uses with direct exposure to humans in sensitive applications such as products for use in hospitals, schools and playgrounds, food contact materials and children's toys/products.		

Further analysis or a more comprehensive risk assessment is recommended if a score of 'high' is assessed against any one of the three risk factors.

Appendix E: Mapping international traceability data requirements

The following table maps this framework's key data elements against the traceability data elements in other relevant frameworks in Europe, USA and Canada.

Table E1: Traceability requirements in other frameworks

Framework	Relevant data requirements or obligations. This may not be definitive or exhaustive. Refer to the source for complete information	Corresponding data element under the framework (see Table 4)
Proposed Ecodesign for Sustainable Products Regulation (EC 2022a)	Unique product identifier (unique string of characters for the identification of products that also enables a web link to the product passport)	Item identifier
	Global Trade Identification Number as provided for in standard ISO/IEC 15459:2015	Item identifier
	Relevant commodity codes, such as a TARIC code as defined in Council Regulation (EEC) No 2658/871	Nil
	Compliance documentation such as the declaration of conformity, technical documentation or conformity certificates (relating to compliance with the regulation requirements)	
	Unique identifiers for operators, compliant with ISO/IEC 15459:2015	• Sender identifier • Receiver identifier
	Other manufacturer information	Nil
	Unique facility identifiers (unique string of characters for the identification of locations or buildings involved in the value chain of a product or used by actors involved in the value chain of a product)	• Ship to location • Ship from location
	Importer information, including name, registered trade name or trade mark, postal address, and email	Sender identifier (for importer)
	Information to enable the tracking of all substances of concern throughout the life cycle of products, including: • the name of the substances of concern present in the product	• Results of analysis • Chemical content declaration
	• the location of the substances of concern within the product	Nil
	• the concentration, maximum concentration or concentration range of the substances of concern, at the level of the product, its main components, or spare parts	Results of analysis
	• relevant instructions for the safe use of the product	Nil
	• information relevant for disassembly.	Nil
	Information on the performance of the product across a range of product parameters (as listed in Annex I), including use or content of recycled materials	Recycled content claim *Note: other product parameters are not in scope of the framework,*

Framework	Relevant data requirements or obligations. This may not be definitive or exhaustive. Refer to the source for complete information	Corresponding data element under the framework (see Table 4)
	Information for users on how to install, use, maintain, repair, return or dispose of the product	Nil
	Information for treatment facilities on disassembly, recycling or disposal	Nil
	User manuals, instructions, warnings or safety information, as required under applicable EU law	Nil
	Information on specific voluntary labels applicable to the product, including whether an EU Ecolabel has been awarded	• Certification details • Certification identifier • Certification start date • Certification end date
	Other notable requirements: • Information must be based on open standards, developed in an interoperable format and be machine readable, structured and searchable • Consumers, supply chain participants and others shall have free access to the product passport based on access rights to be set out in future implementing legislation • Data authentication, reliability and integrity must be ensured. • Product passports must be designed and operated to ensure a high level of security and privacy and avoid fraud	These requirements are broadly reflected in the framework's guiding principles
Regulation (EU) 2022/1616 on recycled plastic materials and articles intended to come into contact with foods, and repealing Regulation (EC) No 282/2008 (EC 2022b)	Unique identification of individual batches of recycled plastic materials and articles	Item identifier
	Batch level records of quality of recycled plastic materials/ articles, and name of the manufacturing stage from which they originate	• Processing method • Results of analysis
	Declaration of compliance to: • establish the identity of the recycler	• Sender identifier • Receiver identifier
	• establish the recycled origin of the plastic	Feedstock source stream
	• provide instructions to the converters and final users regarding the use of the recycled plastic (includes maximum recycled content, present recycled content, list of added substances with migration limits)	• Recycled content claim • Chemical content declaration
	Collection and pre-processing requirements include: • the plastic waste originates only from MSW, or from food retail or other food businesses	Feedstock source stream
	• the plastic waste originates only from plastic materials and articles made in accordance with this Regulation or the Food Contact Plastics Regulation	Certification standard
	• the plastic waste is subject to separate collection for recycling	Feedstock type
	• contaminants (including caps, labels and adhesives, are reduced to a level specified by the receiving recycler and which shall not compromise the achieved level of decontamination	• Processing method • Results of analysis

Framework	Relevant data requirements or obligations. This may not be definitive or exhaustive. Refer to the source for complete information	Corresponding data element under the framework (see Table 4)
	• quality assurance systems are in place to ensure conditions above are met and traceability of each batch up to the point of the first sorting of collected plastic waste. Systems shall be certified by an independent third party	Nil
Canada's proposed recycled content and labelling rules for plastics (Government of Canada 2023)	Report annually on the amount of total plastic and the amount of recycled content used in each packaging (rigid and flexible) and product category in the previous calendar year	Nil
	Keep records on the use of recycled content in all product categories	Recycled content claim
	Keep records on the use of reusable packaging	Nil
	Keep records that demonstrate any reported recycled content is post-consumer resin	• Feedstock source type • Recycled content claim
	Keep records that demonstrate compliance with the provisions for chemically recycled resin, that is, any recycled content that comes from a recycling process that uses mass balance allocation only allocates recycled content to the outputs that are used in the production of plastic products	• Chain of custody approach • Mass balance allocation method
	Keep records that demonstrate that no recycled content reported is representative of credits generated through a book and claim chain of custody model	Chain of custody approach
Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) framework (EC 2023a)	The supplier of an article containing an SVHC in a concentration above 0.1% by weight must provide the recipient with sufficient available information, to allow safe use of the article including, as a minimum, the name of that substance. *Note: Substances of very high concern (SVHCs) are substances that are carcinogenic, mutagenic, reprotoxic, persistent, and bioaccumulative*	• Chemical content declaration • Results of analysis
	On request by a consumer, any supplier of an article containing an SVHC in a concentration above 0.1% by weight must provide the consumer with sufficient available information, to allow safe use of the article including, as a minimum, the name of that substance	• Chemical content declaration • Results of analysis
	Each supply chain actor must communicate to the next actor, new information on hazardous properties, regardless of the uses concerned	• Chemical content declaration • Results of analysis
	Each supply chain actor must communicate to the next actor, any other information that might call into question the appropriateness of the risk management measures identified in a safety data sheet supplied to him, which shall be communicated only for identified uses	Nil
	Each manufacturer, importer, downstream user and distributor must keep records required to meet their obligations for at least 10 years after the last manufacture, import, supply or use of the substance or preparation	The framework requires recordkeeping for at least 5 years

Framework	Relevant data requirements or obligations. This may not be definitive or exhaustive. Refer to the source for complete information	Corresponding data element under the framework (see Table 4)
Restriction of Hazardous Substance 1 & 2 (Directive 2002/95/EC and Directive 2011/65/EU, respectively) (EC 2023b)	Electrical and electronic equipment (EEE) placed on the market must not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), polybrominated dipheyl ethers (PBDE) in concentrations greater than 0.1% by weight	Chemical content declaration
	Manufacturers and importers must keep a register of non-conforming EEE and product recalls, and keep distributors informed of them	Nil
	Manufacturers must ensure their EEE, its packaging or accompanying documentation carries an identification number such as type, batch or serial number	Item identification
	Importers must ensure an appropriate conformity assessment procedure has been carried out by the manufacturer on the EEE	Nil
	Portable RoHS analysers, also known as X-ray fluorescence or XRF metal analysers, are used for screening and verification of the restricted metals	Results of analysis
	Each supply chain actor (manufacturer, importer, or distributor) placing the product on the EU market should maintain records to show compliance	Nil
	RoHS2 requires recordkeeping from everyone in the supply chain (minimum of 10 years) to demonstrate compliance	The framework requires recordkeeping for at least 5 years

Appendix F: Comparison of chain of custody certification schemes

Table F1: Comparison between the framework and selected certification schemes*

Comparison points	National Framework for Recycled Content Traceability	International Sustainability and Carbon Certification Scheme (ISCC)	Forestry Stewardship Council (FSC)	Textile Exchange Global Recycled Standard (GRS)
Key Data Elements	As shown in section 3.7	Most elements in common with the framework	Most elements in common with the framework	Most elements in common with the framework
Scope (entry point)	Material recovery	Collector	Point of reclamation (material recovery)	Raw material purchase
Scope (exit point)	Retail or sale for final use	Final product	Sale of finished FSC-labelled product or product carrying FSC claim in sales documents	Final sale
Supports identity preservation	Yes	Yes	Yes	Yes
Supports physical segregation	Yes	Yes	Yes	Yes
Supports controlled blending	Yes	Yes	Yes	Yes
Supports mass balance	Yes	Yes	Yes	Yes
Supports book and claim	No	No	No	No
Verification	As required	Required	Required	Required
Information Management	Maintain records for 5 years	Maintain records for 5 years	Maintain records for 5 years	Maintain records for 5 years
Geography	Australia	Global	Global	Global

* Note: The schemes listed in this table were most frequently identified during stakeholder consultation to develop the framework. The comparison is based on information in the public domain.

Glossary

Term	Definition
Advanced recycling	Changing the chemical structure of a material or substance, with processes such as cracking and gasification, to produce monomers or new raw materials.
Book and claim	Consistent with ISO 22095:2020, book and claim is a chain of custody model in which the physical flow of recycled content in the supply chain is not connected to the administrative record flow. For each unit of recycled material placed on the market, credits are created, which can be bought and attributed to products which may not physically contain any recycled content. Note: The Book and claim model is not recognised under this framework as an acceptable chain of custody model for recycled content.
Chain of custody	Consistent with ISO 22095:2020, chain of custody describes the rules for managing recycled materials, to ensure their characteristics remain transparent through the supply chain and can be accounted for in the final recycled content goods.
Chemicals of concern	Refer to Appendix B.
Commercially sensitive information	Any information of a confidential nature that has commercial value that would be reduced if the information was disclosed (Attorney-General's Department 2019).
Controlled blending	Consistent with ISO 22095:2020, controlled blending is a chain of custody model in which recycled and non-recycled materials with different characteristics are mixed in specific ratios resulting in a known percentage of recycled materials in each output/product.
Conversion factor	In mass balance, a conversion factor describes the change in quantity of a specific material due to processing
Entry point	The stage in the supply chain where traceability begins.
Exit point	The stage in the supply chain where traceability ends.
IChEMS	Industrial Chemicals Environment Management Standard. This is a national approach to manage chemical use, storage, handling and disposal
Identity preservation	Consistent with ISO 22095:2020, identity preservation is a chain of custody model in which recycled materials from different sources are kept separate and never mixed with each other or with non-recycled materials as they move through the supply chain.
Interoperability	The ability of systems to connect and communicate with each other to share information.
Mass balance	Consistent with ISO 22095:2020, mass balance is a chain of custody approach in which recycled materials and non-recycled materials are combined at any point in the supply chain over a defined period. The total amount of recycled materials incorporated into outputs must not exceed the total input amount after accounting for system losses. The percentage of recycled content in individual products or outputs is not known, but the average content for all the products or outputs produced during the defined period can be calculated.
One step forward, one step back traceability	The ability of a supply chain participant to track movements of their outputs one step forward to their customers and trace the associated inputs one step back to the immediate suppliers
One-up-one-down traceability	See 'one step forward, one step back traceability'.
Participant	A business or entity involved in moving recycled content along the supply chain.
Precautionary Principle	If there are threats of serious or irreversible environmental or human harm arising from use of recycled content, lack of full scientific certainty should not be used as a reason for postponing measures to prevent such harm. In the application of the precautionary principle, public and private decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment or human health.

Term	Definition
Post-consumer recycled material	Consistent with AS 14021 or ISO 14021:2016, post-consumer recycled material is recycled from the waste generated by households or other end users when a product has reached end-of-use.
Pre-consumer recycled material	Consistent with AS 14021:2018 or ISO 14021:2016, pre-consumer recycled material is recycled from the waste discarded from manufacturing processes, excluding offcuts which are used again in the same manufacturing processes that created them (such as rework, regrind and scrap).
Recovered material	Consistent with AS 14021:2018 or ISO 14021:2016, recovered material is end of use material collected and recovered as a material input for further recycling or processing.
Recyclate	See recycled material.
Recycled content	Consistent with AS 14021:2018 or ISO 14021:2016, recycled content is the proportion by weight of recycled materials in goods.
Recycled material	Recovered materials processed to the point of being suitable for manufacturing into a final product or product component, or for direct use in applications like construction. Recycled material that has been incorporated into a product or product component or used in construction or
Recycled content product	A product that incorporates recycled materials. This includes consumer products, industrial and commercial materials and goods (such as construction materials, machinery and equipment), and construction projects.
Segregation	Consistent with ISO 22095:2020, segregation is a chain of custody model in which recycled materials with identical characteristics from different sources are combined, but are never combined with non-recycled materials, as they move through the supply chain.
Supply chain	People and businesses involved in the movement of recycled materials along the supply chain from material recovery to sale of recycled content products to the final end-user.
Traceability	Consistent with ISO 22095:2020, traceability is the ability to trace the history, application, location or source of a material or product (backward or forward) throughout its supply chain.
Traceability system	A system to capture, share and access documented information.
Verification	Consistent with ISO 22095:2020, verification is the process of confirming the truthfulness of claims.

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