Recycled Material Standard

Framework

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About GreenBlue

GreenBlue is an environmental nonprofit dedicated to the sustainable use of materials in society. Our mission is to promote the principles of sustainable materials management — use wisely, eliminate toxicity, and recover more. Through our projects, we achieve our goal by influencing the debate, enhancing supply chain collaboration, and creating action. GreenBlue is the parent nonprofit to The Sustainable Packaging Coalition, How2Recycle, CleanGredients, Forests in Focus and other programs.

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Recycled Material Standard – Framework

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Unless otherwise referenced as normative, appendices are not considered an integral part of the Recycled Material Standard. They are provided as general guidelines to the manufacturer, regulatory agency, user, or certifying organization.

Contents

1 GENERAL

1.1 Introduction

GreenBlue's Recycled Material Standard (RMS) is a voluntary, market-based framework that enables consistent labeling of products and packaging that contain or support verified recycled material, either through a certified chain of custody or via the Attributes of Recycled Content (ARC) certificate trading system.

The RMS was developed by GreenBlue and NSF International to provide a rigorous and widely available scheme for consistent labeling of recycled material.

This document presents the RMS Framework, which provides the overarching guidelines for RMS certification for all materials. Additional requirements can be found in the RMS Material Modules which provide material-specific guidance and requirements. The RMS Plastics Module is the first to be developed along with the overall Framework.

Hereafter, the use of "Standard" or "RMS" shall refer to this document, the RMS Framework.

The terms "shall" and "must" are used throughout this Standard to indicate mandatory requirements for conformance to this Standard; the terms "should" and "may" are used to indicate preferred and allowable actions, respectively. "Can" is used for statements of possibility and capability, whether material, physical or causal.

1.2 Purpose

The purpose of the RMS is to support the growth of the recycling industry and increased use of recycled material in product and packaging supply chains in order to realize the environmental benefits associated with decreased extraction of virgin natural resources.

The Standard intends to address challenges that participants in the recycling industry and value chain face in trying to incorporate higher levels of recycled content into products and packaging. The Standard does so by providing a consistent framework with flexible certification options that enable verified content claims, mass-based allocation claims, and certificate trading. Through establishment of a certificate trading system, the RMS also aims to encourage continued investment and advancement in recycling technology and infrastructure.

The requirements in this Standard are intended to be science-based, provide transparency, and offer credibility for manufacturers in making claims related to the use of recycled content in their product(s) and/or supply chain(s).

1.3 Scope

1.3.1 Geographic Scope

Entities located in North America are eligible for certification to the Standard.

1.3.2 Recycling Stages

This Standard applies to entities who generate, reprocess, and/or purchase recycled material. The scope does not include raw material extraction (e.g. mining of metals or production of virgin plastic resin) or material disposal.

1.3.3 Life Cycle

This Standard is limited to the processing and use of recycled materials and does not include or reference life cycle attributes or other environmental considerations of material manufacturing processes, material or product performance, or health and safety considerations.

1.3.4 Other

This Standard is not intended to interfere with or supersede any applicable laws, regulations, or standards programs.

1.4 Principles

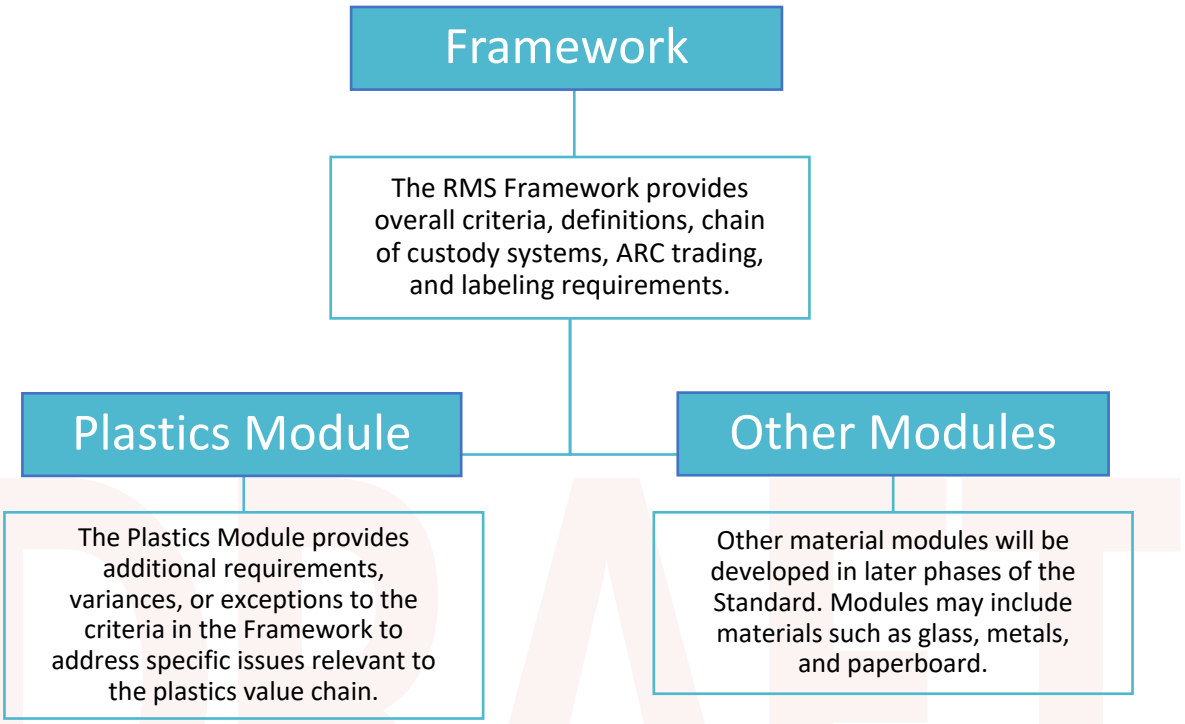
This Standard was developed in accordance with the following principles:

- **ISEAL Credibility Principles:** The ISEAL Credibility Principles of Sustainability, Improvement, Relevance, Rigor, Engagement, Impartiality, Transparency, Truthfulness, and Efficiency were used to guide development of the Standard.
- **Scientific basis:** The criteria contained in this Standard were developed and selected based on sound scientific and engineering principles intended to produce accurate, meaningful, and verifiable results.
- **Innovation:** Use of this Standard is intended to support, not inhibit, innovation that maintains or improves environmental performance of the materials recycling industry over time.
- **International trade aspects:** The procedures and requirements included within this Standard have not been prepared, adopted, or applied with the intention of creating unnecessary obstacles to international trade.

1.5 Material Modules

The RMS applies to those materials used in end consumer and business-to-business products and packaging such as plastics, glass, metals, and paperboard. This Framework includes general requirements for all applicable materials. The RMS Material Modules provide additional requirements and examples for individual material groups.

The Plastic Material Module is the first to be developed in conjunction with the launch of the RMS Framework. Ultimately, additional Modules will be created allowing certification of other material types to the RMS.



2 NORMATIVE REFERENCES

The following documents contain requirements that, by reference in this text, constitute requirements of this Standard. At the time of publication, the indicated editions were valid. All documents are subject to revision and parties are encouraged to investigate the possibility of applying the recent editions of the documents indicated below. The most recent published edition of the document shall be used for undated references.

- International Social and Environmental Accreditation and Labeling (ISEAL) Credibility Principles
- ISEAL Alliance "Chain of custody models and definitions", September 2016.
- ISO Standard 14021:2016 Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling)
- US EPA 40 CFR Ch. 1 (7-1-11 Edition)
- Federal Trade Commission Green Guides
- GreenBlue Recycled Material Standard Good Practice Principles
- Recycled Material Standard Labeling Guidelines

3 DEFINITIONS

Within this Standard, the following terms shall be interpreted as defined here.

1. **Attribute of Recycled Content (ARC**): A tradable environmental commodity (certificate) representing the environmental attributes associated with producing one metric ton of recycled material.
2. **Base material:** Physical recycled material eligible for RMS claims that is used to generate ARC certificates.
3. **Functional unit:** The base amount of recycled material used for the accounting of recycled material throughout the chain of custody and in the ARC system. In the ARC system, the functional unit is specified as 1000 kg of recycled material.
4. **Lower heating value:** Also known as the net calorific value or lower calorific value, the amount of heat released during combustion of a material, less the heat of vaporization of water.
5. **Material classification:** Assignment of the recycled status and material type of eligible material. For example, material may be classified as "post-consumer recycled polypropylene" or "recycled pulp".
6. **Material Identification Code:** The letter-number combination that represents the material type and recycled status for the purpose of consistent classification for the RMS. Material ID Codes are provided in the Material Modules.
7. **Materials Recovery Facility (MRF):** A facility that sorts reclaimed materials into specific packaging categories.
8. **Material type:** The standard categorization to identify certified materials under RMS. Refers to the material category based on chemical, physical, or functional properties. Material types are further defined within each Material Module.
9. **Material group:** The general family of material (e.g. plastic, glass, paper, or metal) applicable to the material being certified under RMS.
10. **Post-consumer material:** Material generated by households, or by institutional, commercial or industrial facilities as end-users of products, that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain such as obsolete inventory or damaged goods.
11. **Post-industrial material:** Material diverted from the waste stream during a manufacturing process that cannot be reclaimed within the same process that generated it. May also be referred to as pre-consumer material. Refer to the Material Modules for material-specific definitions.
    NOTE: A manufacturing process is defined by a combination of equipment, operational settings, material specifications and formulation of materials. The same or similar equipment using different input materials is not considered the same process.
12. **Product group:** The set of similar products defined by each certified organization for the purposes of material accounting and certification.

13. **Reclaimed material:** Material that would have otherwise been disposed of as waste or used for energy recovery but has instead been collected and recovered [reclaimed] as a material input, in lieu of new primary material, for a recycling or a manufacturing process. May also be referred to as scrap materials or scrap.
14. **Recycled content:** The proportion by mass of recycled material in a product or packaging. Fillers, coatings and additives are excluded from the calculation. Recycled content is expressed as a percentage and is calculated based on the primary material category as follows:

    RC = 100 x RM / (RM + VM)

    Where ***RM*** = mass of recycled material; ***VM*** = mass of virgin material

15. **Recycled material:** Material that was diverted from the waste stream and has been collected, sorted and reprocessed and converted into a feedstock to be used in a product. Recycled material includes post-industrial and post-consumer sources.
16. **Recycled status:** The designation used to identify eligible RMS material and differentiate between qualified claims. RMS recycled statuses include: recycled, post-consumer recycled, and post-industrial recycled.
17. **Required participant:** Entity that is required to be audited and certified to RMS in order for material to carry RMS claims.
18. **RMS Claim:** An RMS claim represents the information required on sales documents (such as invoices and delivery documents) that convey the amount of recycled material represented by the claim expresses as a percentage, the recycled status, and the accounting system designation. RMS claims are required to maintain chain of custody.
19. **RMS Disclaimer:** An RMS disclaimer is required on sales documents at ARC generating facilities for materials sold without recycled content status.
20. **RMS On Product Label:** An RMS on product label is a graphic depiction supported by specific language that allows consumers to recognize and identify RMS certified products in the market place. The use of labels is optional.
21. **Scrap:** A term used to describe recycled materials prior to re-processing. Within the context of the Recycled Material Standard scrap refers broadly to the recyclable inputs that are converted to recycled material outputs. May also be referred to as reclaimed materials.
22. **Value chain:** The framework for the transfer of material from generation through to end use. The value chain may include entities such as processors, brokers, distributors, and brands.
23. **Value chain participant:** Any entity that participates in the movement or sale of material. Value chain participants may or may not be exempt from certification under RMS.

4 ELIGIBILITY

Material must meet the requirements contained in this section in order to be eligible for RMS certification, in addition to any eligibility requirements contained in the Material Module for the relevant material group.

4.1 Material Requirements

4.1.1 Material must be verified as recycled according to the RMS definitions in this Framework and the relevant Material Module.

4.1.2 Material may be from post-consumer or post-industrial sources.

4.1.3 Material sourced from illegal operations is not eligible for certification to RMS. Illegal operations are considered those without a current, valid legal license to operate in their region.

4.2 Organizational Requirements

4.2.1 Organizations intending to certify material under RMS must submit a signed commitment to uphold the GreenBlue Recycled Material Standard Good Practice Principles.

4.2.2 Organizations suspected or found to be in violation of these Principles may be subject to suspension or revocation of certification.

4.3 Processing Limitations

4.3.1 Material must be recycled in such a way as to not require excessive processing.

4.3.2 Processing is considered excessive if it is conducted in a manner that requires extensive resources, such as energy or other material inputs, equivalent or greater than those required to extract and process virgin material.

4.4 Exclusions

4.4.1 Fuels are excluded from eligibility under the RMS. This includes but is not limited to:

- The re-use or re-processing of used oils, such as cooking or motor oil, into a usable fuel or lubricant;
- The processing of materials into fuels, such as the generation of gaseous or liquid fuels through chemical means or pelletized solid fuels for incineration.

4.4.2 This exclusion does not apply to chemical intermediaries generated from recycled sources that are further processed into usable non-fuel materials.

EXAMPLE 4.1: ELIGIBLE CHEMICAL INTERMEDIARIES

Naphtha generated from recycled materials that is further processed into plastic is eligible for RMS.

5 MATERIAL ACCOUNTING

This section provides requirements for classifying and accounting for materials within and between operating systems to ensure transparency throughout the chain of custody and verify that claims are consistently documented and communicated.

In addition to the below criteria, eligible material must also meet requirements within the relevant Material Module where applicable.

5.1 Material Classification

5.1.1 General

5.1.1.1 Certified materials must be classified and documented throughout the chain of custody and when generating ARCs. Classification must include the recycled status and material type.

5.1.1.2 When material classification is modified, documentation must be available to support the modification.

5.1.2 Recycled Status

5.1.2.1 All certified material shall be assigned a recycled status that accurately represents the nature of the material. Eligible material must at a minimum be assigned as Recycled ("R"). Where applicable, material may be further categorized as Post-Industrial ("PI") or Post-Consumer ("PC"). Post-Consumer is designated as the highest recycled status claim, followed by Post-Industrial, and Recycled as the least claim.

Hierarchy	*Recycled Status*	*Definition*
Highest	**Post-Consumer (PC)**	*Material generated by households, or by institutional, commercial or industrial facilities as end-users of products, that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain such as obsolete inventory or damaged goods.*
	**Post-Industrial (PI)**	*Material diverted from the waste stream during a manufacturing process that cannot be reclaimed within the same process that generated it. May also be referred to as pre-consumer material. Refer to the Material Modules for material-specific definitions.*
Least	**Recycled (R)**	*Material that was diverted from the waste stream and has been collected, sorted and reprocessed and converted into a feedstock to be used in a product. Recycled material includes pre-consumer and post-consumer sources.*

Table 5.1. Recycled Status Definitions

5.1.2.2 The recycled status must be assigned and documented at the time eligible material is generated.

5.1.2.3 A post-consumer or post-industrial recycled status may be modified to a lesser claim. If a product contains a blend of materials with different recycled statuses, participants may use the lesser claim or maintain the individual recycled status claims based on the mass of the component(s). No other modifications to recycled status are permitted.

EXAMPLE 5.1: ASSIGNMENT OF RECYCLED STATUS

A plastic bottle manufacturing plant creates scrap in the manufacturing of their bottles that contains 30% post-consumer material. The plant sells the scrap and can choose to establish a claim as either: 30% post-consumer/70% post-industrial, 100% post-industrial or simply 100% recycled material.

5.1.3 Material Type

5.1.3.1 Eligible material must be assigned a material type in alignment with the Material Identification System for the relevant Material Module.

5.1.3.2 The material type must be assigned and documented at the time eligible material is generated.

5.1.3.3 When certified material is physically and/or chemically modified, the material type must be re-assigned and documented according to the conversion factor.

5.2 Product Groups

5.2.1 The organization shall define product groups for the purposes of certifying eligible material, based on products with like composition and characteristics. To be considered like composition, inputs to all products in the product group must be the same material type or combination of material types.

5.2.2 The organization shall maintain records for each certified product group, including:

(i) Name of product group
(ii) List of products included in the product group
(iii) Material classification and RMS Material ID code(s) for input materials
(iv) Material classification and RMS Material ID code(s) for output materials
(v) The control system (i.e. average content, mass balance, or ARCs) used for the product group

5.2.3 The Material ID Code used to define certified product groups shall be assigned as follows: [Recycled Status Code]_[Material Group Code].[Material Type Code] See Tables 5.2 and 5.3 for guidance. Additional information is available in the Material Modules.

	ID Code
Recycled Status	
Recycled	**R**
Post-Industrial	**PI**
Post-Consumer	**PC**
Material Group	
Plastic	**P**
Additional Material Groups to be added over time.	**TBD**
Material Type	
See Material Modules	

Table 5.2 RMS Material Identification Codes

EXAMPLE 5.2: MATERIAL IDENTIFICATION CODES

Recycled Status	Material Group	Material Type	Material ID Code
Recycled	Plastic	Recovered PET	R_P1.1.6
Post-Industrial	Plastic	LDPE Resin	PI_P3.1.5
Post-Consumer	Plastic	Multimaterial Film	PC_P4.1.7

5.2.4 Organizations shall maintain volume and certification records for each product group. Annual volume summaries must be provided based on either fiscal or calendar year. Volume summaries must appropriately reflect the control system used for each product group.

5.2.5 Multi-site certification participants shall follow consistent product group definitions and accounting methods for all sites contributing to a certified product group.

5.2.6 Certified organizations shall publicly share information in the RMS Certificate Database about their saleable product groups so that downstream participants and other stakeholders can verify which products are eligible to carry a certification claim.

5.2.7 The organization shall ensure that certified material is not double counted across product groups.

EXAMPLE 5.3: DEFINING PRODUCT GROUPS

A company manufactures several brands of retail grocery bags and can liners (trash bags) with various levels of recycled content. These are defined as one product group with the following characteristics.

Inputs	*Outputs*	*Control System*	*Certified Brands*
P3.1.5 Post-consumer and post-industrial Polyethylene resins	*P5.1.1 Polyethylene bags*	*Average Content*	*Eco-liners, Eco-retail bags*

5.3 Accounting Systems

5.3.1 The organization shall define the accounting system boundaries used for the site(s) and product group(s) within the intended scope of certification.

5.3.2 System boundaries shall be defined based on the transfer of legal ownership or physical control of the certified material. Legal ownership is the preferred and predominant system of accounting in order to maintain chain of custody. However, accounting system boundaries may be based on physical control for the case of RMS-certified contractors providing certified products for non-RMS certified contracting organizations, if:

(i) The input material for the contract work is shipped directly from a certified supplier to the contractor; and

(ii) The contractor is provided with documentation sufficient to link invoices and related transport records to the certified materials.

EXAMPLE 5.4: ACCOUNTING SYSTEM BOUNDARIES

A non-certified beverage company purchases RMS certified PET resin directly from a compounder and contracts a converter to make RMS certified bottles. The resin is shipped directly from the compounder to the converter with accompanying documentation. In this case, because the beverage company never took position and physical control was maintained, the chain of custody is valid.

5.3.3 Outsourced activities may be included in the certified entity's accounting system if legal ownership does not change and outsourced activities are accurately represented in the certified entity's conversion factors and accounting records.

5.3.4 The following boundary definitions shall apply based on the scope of certification:

5.3.4.1 **Single-site certification**: The boundary shall be defined where material enters or leaves the legal ownership or physical control of the certified facility.

5.3.4.2 **Multi-site certification**: The boundary shall be defined where material enters or leaves the legal ownership or physical control of the certified organization. Material transferred between sites is considered to be within the same system.

5.3.4.3 **Group certification:** The boundary shall be defined where material enters or leaves the legal ownership or physical control of group members. Certified material transferred between group members may be considered to be within the same system.

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5.4 Conversion Factors

5.4.1 Where a physical or chemical transformation process occurs within the system that results in a change in mass, composition, or material type of the certified material, the organization shall accurately document the transformation process and conversion factor based on, at minimum, the points at which the certified material enters and leaves the system boundary. The organization may also document conversion factors for intermediate steps in the process.

5.4.2 Documentation of conversion processes shall include:

(i) **Input Value(s):** The characteristics of the input material(s), including mass, material type, recycled status, and Material ID code. There may be more than one material input value associated with a conversion process.

(ii) **Transformation Type:** e.g., Physical or Chemical transformation.

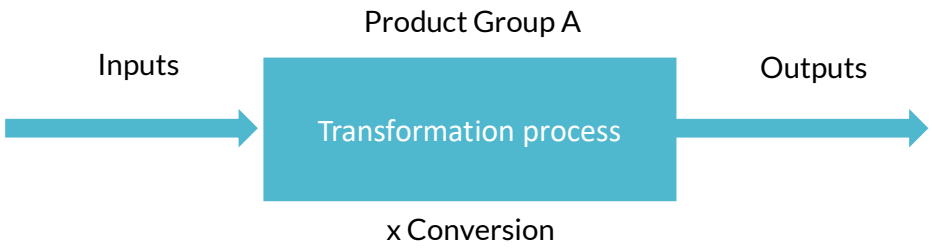
(iii) **Process Description:** A brief description of the main processing steps in the transformation (i.e. how the material is modified).

(iv) **Conversion Factor**: The documented efficiency or yield of the transformation process based on mass of inputs and outputs, in the form of a percent. Conversion factors must be based on actual production data and must reflect system losses, uncertified by-products and any conversion to fuels.

(v) **Justification:** Documentation or rationale for the conversion factor applied.

(vi) **Output Value(s):** The final mass of the certified output material(s), including material type, recycled status, and Material ID code. There may be more than one certified material output value associated with a conversion process.

EXAMPLE 5.5: CONVERSION OF PRODUCT GROUPS



5.4.3 Conversion factors and associated documentation must be kept up to date.

5.4.4 Conversion factors must be applied to processes within a single accounting system.

5.4.5 Conversion factors may not be applied to transitions between system boundaries.

5.4.6 Conversion factors may not be applied across product groups.

5.4.7 Additions of non-certified materials do not contribute to the conversion factor.

EXAMPLE 5.6: CONVERSION FACTOR DOCUMENTATION

Input Value(s)	**1000 lbs Recycled PET Resin / R_P3.1.1**
Transformation Type	Physical
Process Description	Melting and formation into film
Conversion Factor	95%
Justification	Inventory/sales volumes
Output Value(s)	**950 lbs Recycled PET film / R_P4.1.1**

6 CHAIN OF CUSTODY

RMS certification is based on a continuous and transparent chain of custody of certified material. This section includes the requirements for maintaining and documenting control of certified materials.

6.1 Continuous Chain of Custody

6.1.1 RMS certified material must maintain a continuous, unbroken chain of custody for all required participants in order to carry an RMS claim.

6.1.2 Uncertified inputs may only enter the chain of custody system from value chain participants not that are not required to be certified. Otherwise, uncertified materials entering the system may not carry a claim.

6.1.3 Once certified materials leave the chain of custody system they may not carry a claim.

6.1.4 Certified Sources

6.1.4.1 When purchasing from RMS certified suppliers, the buyer must seek verification that the supplier has valid certificate status (i.e. not expired or revoked) and that the product being purchased is within the supplier's scope of certification. This information can be obtained from the RMS Certification Database housed at RMSCertified.com.

6.1.4.2 Verification of each supplier must be conducted at least annually.

6.1.5 Uncertified Sources

6.1.5.1 It is recommended that organizations purchase materials from certified sources when possible. When purchasing from uncertified sources, buyers must ensure the eligibility of the input materials for the intended RMS claim through a due diligence system described in this section.

6.1.5.2 Buyers purchasing from uncertified sources must maintain a due diligence system that includes:

(i) Documentation of all non-certified suppliers comprising greater than 1% of annual inputs contributing to RMS claims, including the name of the supplier, type of entity and activities (i.e. MRF, trader), materials supplied, and quantities supplied.

(ii) Documented risk assessment process used to determine the eligibility of uncertified suppliers. The risk assessment must include a determination of supplier risk level based on supplier activities and/or material types or volumes sold.

(iii) Documented process for validating the eligibility of purchased materials based on supplier risk level. This process may include:

- Visual inspection process upon receipt of material;
- Onsite supplier validation or audit program;
- Declarations from suppliers affirming eligibility of materials sold;
- Material testing and/or quality control program;
- Other validation or assessment activities required to provide sufficient evidence of material eligibility.

(iv) Documented training of employees responsible for implementing the due diligence system.
(v) A contingency plan to address non-conforming material and/or documentation, and records of any non-conformances and corrective actions taken.

6.2 Required Participants

6.2.1 The following participants are required to be part of the RMS chain of custody in order to sell certified material: 1) organizations that produce recycled material from reclaimed inputs; and 2) organizations that buy, sell, transport, process, store, or otherwise handle RMS certified material.

6.2.2 Required participants include, but are not limited to, organizations that:

- Recycle materials;
- Trade certified materials;
- Provide fulfillment services for products or packaging comprised of certified materials;
- Manufacture products or packaging using certified material; and
- Store or transport certified product that is not enclosed or pre-packaged for the entire duration of ownership.

6.3 Optional Participants

6.3.1 Organizations that may, but are not required to be certified to RMS and participate in the chain of custody include entities that do not attain legal ownership of certified material or do not manipulate certified material in any way. Optional participants include:

- Material Recovery Facilities (MRFs) or other entities that generate, collect and/or sort reclaimed post-consumer or post-industrial materials;
- Brokers that handle only feedstock from MRFs and do not handle certified recycled product;
- Retail establishments that sell packaged, labeled product to consumers;
- Operations that handle only packaged or enclosed certified product that remains in the same package or container for the entire duration of ownership, and do not manipulate the product;
- Entities that do not take legal ownership and do not manipulate the certified product, such as for transportation or distribution of finished goods.
- Brands that market products with an on-product RMS label that are produced at certified facilities.

6.3.2 Optional participants may be required to maintain transaction documentation to fulfill the chain of custody requirements of their suppliers or customers (such as bill of lading documentation for transporters).

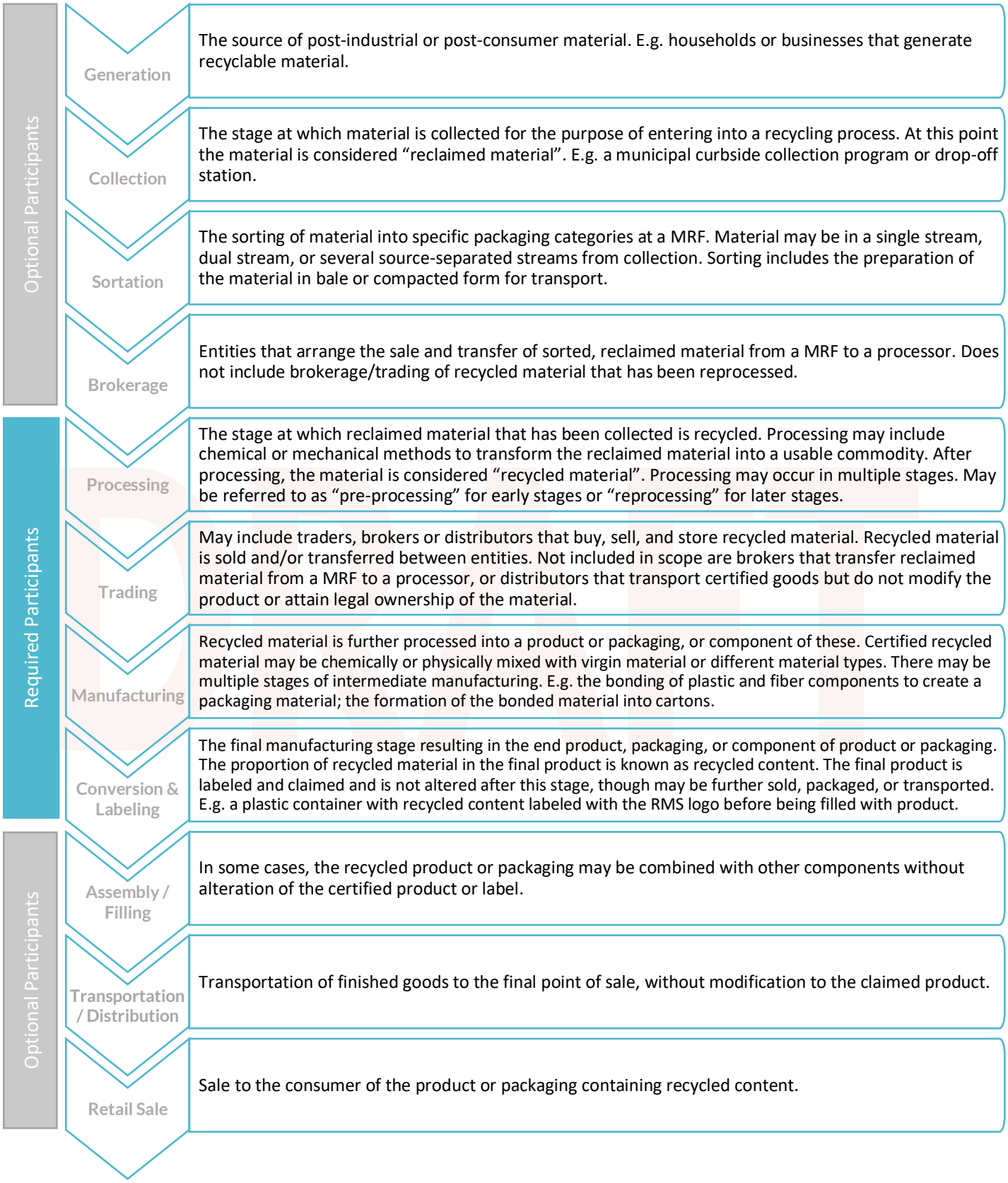


Figure 6.1: Required and Optional Participants for RMS Chain of Custody

6.4 Chain of Custody Control Systems

6.4.1 Hierarchy of Control Systems

6.4.1.1 The chain of custody control systems under this Standard are defined in alignment with the ISEAL Alliance. Each control system supports specific certification claims and in turn, the claims are eligible for different on-product labels. Control systems follow a hierarchy that reflects the level of physical control within the value chain. Segregation has the highest level of control whereas multi-site mass balance has the lowest level of control. The hierarchy of control systems for RMS certification is organized as follows, from most to least robust:

1. Segregation
2. Average content (batch level)
3. Average content (rolling average)
4. Mass balance allocation (single-site)
5. Mass balance allocation (multi-site)

Refer to the next sections for more information on each type of control system.

6.4.1.2 RMS chain of custody must be maintained using a consistent designated control system. The control system used dictates the permitted certification claim.

6.4.1.3 The designated control system may be transferred to a 'lesser' (i.e. less robust) system as certified material moves through the value chain. Once a lesser system is applied, a higher control system may not be claimed for that material, even if a higher level of control is implemented.

6.4.2 Segregation Control System

6.4.2.1 The segregation control system maintains RMS certified material from one or more sources physically separate from non-certified material of the same type throughout the supply chain. This control system is commonly used for distributors or converting operations where materials are not blended together.

6.4.2.2 Incoming and outgoing claim types shall match or may be downgraded to a lesser claim.

EXAMPLE 6.1: SEGREGATION CONTROL SYSTEM

1) A stocking merchant buys and sells rolls of film with various certified content levels. If the merchant can maintain physical control of the materials, each roll is sold with the same claim that it was purchased with.

2) A plastic film carrying a 10% post consumer content claim is converted into plastic bags. The film is physically segregated and never blended with another material. The bag can be sold with the same claim as the film.

6.4.3 Average Content Control System

6.4.3.1 The average content control system allows physical mixing of certified and uncertified material. RMS certified and uncertified material may be mixed for a specific batch, lot, or other controlled quantity of product, over a specified period of time, if the quantities of incoming and outgoing certified material are known and controlled.

6.4.3.2 Until the point of blending or mixing occurs RMS material must be kept separate from uncertified material.

6.4.3.3 *Average Content (Batch Level)*

(i) The batch level average content control system may be used to issue recycled content claims based on the known recycled percentage of a specific batch or production lot. The end product must contain a known mass of certified material.

(ii) Each batch or production lot must be uniquely identified and documented.

EXAMPLE 6.2: BATCH-LEVEL AVERAGE CONTENT CALCULATION

A batch process mixes seven tons of RMS certified recycled material with three tons of virgin material, with uniform losses of 10%. The nine tons of product produced from this batch are eligible for a 70% average content claim.

6.4.3.4 *Average Content (Rolling Average)*

(i) The rolling average content control system may be used to issue recycled content claims to product groups that are manufactured on a recurring basis (e.g. daily or weekly runs) throughout a defined time period.

(ii) The rolling average percentage of certified material is calculated for each product group based on the known inputs and outputs, including losses, over the defined time period.

(iii) The time period for the rolling average must be consistent and shall not exceed twelve months. There must be a regular and consistent reconciliation period for recalculation of the rolling average. For example, a rolling average may be based on a 12-month time period and recalculated every month.

(iv) Rolling average calculations must be supported by volume summaries showing inputs and outputs for the defined time period and reconciliation periods.

(v) Fluctuations in inventory accumulation must be taken into consideration to ensure claims are not over-counted. Volume summaries for the defined time period plus one reconciliation period must demonstrate that the volume of products sold with claims does not exceed the contributing inputs.

(vi) The rolling average content control system may be applied across multiple sites as long as:

a. The percentage calculation is applied to common product groups manufactured at each site;

b. Each site contributing to the calculation is included within the scope of the certificate;

c. Each contributing site's individual rolling average is no less than 20% of the overall multi-site rolling average percentage.

EXAMPLE 6.3: SINGLE-SITE ROLLING AVERAGE CONTENT CALCULATION (1)

A participant chooses to use a twelve-month rolling average based on monthly reconciliation periods. Volume summaries for any given period must demonstrate that the claims in a given month do not exceed inputs. If a product group carries a claim of 25% average certified content in July, the average volume of certified inputs from the prior twelve months (July through June) must be at least 25% of outputs.

EXAMPLE 6.4: SINGLE-SITE ROLLING AVERAGE CONTENT CALCULATION (2)

A PET bottle producer is aiming to produce roughly 1000 tons per month with a 15% recycled material claim using a 6-month rolling average. The table below shows their calculations of the rolling average content beginning in Period 1. From Periods 9 through 15, the 15% average content claim would be acceptable.

Period	Certified Recycled Input (tons)	Virgin Material Input (tons)	Monthly Average	Sum of Certified Material for prior 6 months (tons)	Sum of Virgin Material for prior 6 months (tons)	6-Month Rolling Average
1	**110**	900	10.9%	**110**	900	**10.9%**
2	**120**	900	11.8%	**230**	1800	**11.3%**
3	**130**	900	12.6%	**360**	2700	**11.8%**
4	**140**	900	13.5%	**500**	3600	**12.2%**
5	**150**	900	14.3%	**650**	4500	**12.6%**
6	**160**	900	15.1%	**810**	5400	**13.0%**
7	**170**	900	15.9%	**870**	5400	**13.9%**
8	**170**	880	16.2%	**920**	5380	**14.6%**
9	**170**	880	16.2%	**960**	5360	**15.2%**
10	**170**	870	16.3%	**990**	5330	**15.7%**
11	**170**	850	16.7%	**1010**	5280	**16.1%**
12	**160**	850	15.8%	**1010**	5230	**16.2%**
13	**150**	840	15.2%	**990**	5170	**16.1%**
14	**150**	850	15.0%	**970**	5140	**15.9%**
15	**140**	860	14.0%	**940**	5120	**15.5%**

EXAMPLE 6.5: MULTI-SITE ROLLING AVERAGE CONTENT CALCULATION (1)

Three locations manufacture the same product group using a rolling average content control.

- *Site 1 manufactures 1000 tons with a rolling average content of 35% (C = 350, T = 1000)*
- *Site 2 manufactures 1000 tons with a rolling average content of 30% (C = 300, T = 1000)*
- *Site 3 manufactures 500 tons with a rolling average content of 50% (C = 250, T=500)*

For the entire product group: C = 900, T= 2500; Average content = 900/2500 = 36%

All products from these sites for this product group may carry a claim of 36% average content.

EXAMPLE 6.6: MULTI-SITE ROLLING AVERAGE CONTENT CALCULATION (2)

Three locations within a company manufacture the same product group.

- *Site 1 manufactures 1000 tons with a rolling average content of 40% (C= 400, T=1000)*
- *Site 2 manufactures 1000 tons with a rolling average content of 35% (C=350, T=1000)*
- *Site 3 manufactures 500 tons with a rolling average content of 5% (C=25, T=500)*

Across the three locations: C=775, T=2500; Average content = 775/2500 = 31%.

*In this case, because Site 3's average content of 5% is less than 20% of the overall rolling average, Site 3 does **not** meet the contribution threshold, their products cannot contribute to a multi-site rolling average claim of 31%.*

6.4.4 Mass Balance Allocation Control System

6.4.4.1 The mass balance allocation control system may be used to issue mass-based allocation of claims within a product group. This occurs when a portion of the output products carry the certification claim representing the equivalent amount of inputs, while the remaining products carry no claim.

6.4.4.2 Mass balance allocation of claims must be based on known quantities of inputs and outputs, including losses, over a defined time period.

6.4.4.3 The time period for reconciling allocation of claims must be consistent and shall not exceed twelve months.

6.4.4.4 Mass balance allocation must be supported by volume summaries of certified inputs and outputs over the defined time period**.** Volume summaries must be based on data entirely within the previous 18 months of the audit date.

6.4.4.5 Mass balance allocation is not permitted between product groups.

6.4.4.6 Material contributing to mass balance allocation claims may be accumulated for up to 12 months and should be consumed on a first in-first out basis. Materials not consumed within 12 months must be retired from eligibility of claims.

EXAMPLE 6.7: MASS BALANCE ALLOCATION
***Allowed**: If 10 tons of product within Product Group A contain 30% RMS certified content, 3 tons may be sold as 100% RMS Certified Sourcing while the remaining 7 tons carry no certification claim.*

6.4.4.7 *Mass Balance Allocation (Single-Site)*

(i) The site-level mass balance control system allows a single site, plant, or facility to allocate RMS claims based on the amount of certified material that passes through the plant over the defined reconciliation period.

EXAMPLE 6.8: SINGLE-SITE MASS BALANCE ALLOCATION
Converter X sources plastic film from two suppliers. Supplier A provides 100% RMS certified product and Supplier B provides virgin product. Over a period of 12 months, Converter X sources 25% of all film from Supplier A and 75% from Supplier B.

Converter X may 1) claim all plastic film in that period as 25% certified based on mass balance; or 2) claim 25% of material as 100% certified based on mass balance and assign no claim to the remaining 75%.

6.4.4.8 *Mass Balance Allocation (Multi-Site)*

(i) The Multi-Site Mass Balance chain of custody model allows an entity under common ownership, such as a multi-site organization to allocate RMS claims based on the amount of certified material that passes through the organization over a defined reconciliation period.

(ii) The organization must document the quantities of certified and non-certified material that transfer in or out through the ownership boundary.

(iii) Multi-site mass balance allocation is not permitted between members of certification Groups.

6.5 Chain of Custody Claims

6.5.1 Certified material must be assigned either an average content or mass balance allocation claim, based on the control system utilized.

6.5.2 The claim shall be designated on sales documents accompanying the physical material.

6.5.3 Claims must be expressed as a percentage rounded to the nearest whole number.

6.5.4 Claims may designate the recycled status (post-consumer or post-industrial). If the recycled status is not designated in the claim, it defaults to the lesser status 'recycled'.

6.5.5 If recycled status is designated, the claim must include the corresponding percentage of each designation.

6.5.6 Certified material assigned a higher claim may be transferred to a lesser claim category in accordance with the control system hierarchy. Lesser claims may not be transferred to a higher claim category.

6.5.7 Average content claims

6.5.7.1 Average content claims are based on either a batch-level or rolling average percentage. The percentage claim for average content is calculated as:

***% certified** = **C/T x 100**; where*
***C** = RMS certified mass of material category*
***T** = total mass of material category*

6.5.7.2 Rolling average content claims must be made based on the most recent reconciliation period.

6.5.8 Mass balance allocation claims

6.5.8.1 Mass balance allocation claims are based on either a site-level or multi-site allocation of claims, represented as a percentage. The percentage claim for mass balance is calculated as:

***% certified** = **M/T x 100**; where*
***M** = Mass of material category with an allocated RMS claim*
***T** = total mass of material category*

6.5.8.2 Material that has been assigned a claim based on mass balance allocation at any point is not permitted to carry an average content claim, even if the control system changes.

6.5.9 Claim Syntax

6.5.9.1 RMS claims must be made in a consistent manner on sales documents according to the syntax described in this section and shall include the control system and percentage claimed. Claims may optionally include a recycled status designation. Refer to Table 6.2 for example syntax.

6.5.9.2 Each claim must be made in the following consistent order:

1) RMS
2) Percentage designation – total claim
3) Percentage designation – post-consumer claim (optional)
4) Recycled status designation (optional)
5) Control system designation

6.5.9.3 If a blend of post-consumer and post-industrial materials is used, the specific quantity of post-consumer may be designated. The order of the claim must be maintained as %total/%post-consumer.

6.5.9.4 If specific designations are not used, the claims default to lesser claims in the category hierarchy.

6.5.9.5 The control system used to support the claim must be designated in the following claim syntax:

Control System	Claim Syntax
Average content	AC
Mass balance allocation	MB

Table 6.2 Control system claim syntax

Example Syntax	Represents
RMS 40% PC AC	40% post-consumer material supported by an average content control system
RMS 90% PI AC	90% post-industrial material supported by an average content control system
RMS 50%/10% PC MB	50% recycled including 10% post-consumer material supported by mass balance allocation control system
RMS 100% PC MB	100% post-consumer material supported by mass balance allocation control system

Table 6.3 Example claim syntax

6.6 Chain of Custody Documentation

6.6.1 Recordkeeping

6.6.1.1 Participants shall maintain the relevant documentation needed to verify conformance with the RMS and the claim associated with the certified material. Relevant documentation may include records such as purchase and sales transactions, production and shipping records, equipment specifications, or material testing results.

6.6.1.2 Documentation used for certification to RMS shall be retained by the participant for a minimum of 5 years.

6.6.2 Material Records

6.6.2.1 Participants shall maintain records of incoming and outgoing certified material for each product group. Records must include the material type, recycled status, associated certification claims, and the mass of certified material and any fillers or non-certified parts.

6.6.2.2 Records shall demonstrate a balance between incoming and outgoing claimed material. Where an imbalance occurs, the organization shall provide adequate rationale.

6.6.2.3 Volume and claims records must be supported by:

(i) Supplier lists, including name of supplier, certification status, and material supplied;
(ii) Contractor lists for any party handling certified materials through an outsourced activity
(iii) Purchase records, including mass of material, recycled status, and certification claim(s) where applicable;
(iv) Bill of materials for product groups using the content claim control system;
(v) Sales records; and
(vi) Shipping/receiving records.

6.6.3 Sales Transactions

6.6.3.1 All outgoing sales transactions must contain the seller's RMS certification number issued by the certification body. The certification number will be in the format RMS-XXX-######, where the middle three letters identify the certification body that issued the certificate and are followed by a six-digit number series representing a unique identifier for the participant.

EXAMPLE 6.9: RMS CERTIFICATION NUMBERS
The certification number RMS-NSF-00234 represents the RMS certificate for an entity certified by NSF for the company identified as #00234.

6.6.3.2 If a sales or shipping document represents more than one item or product, RMS certification claims must be clearly and accurately represented for each item.

6.6.3.3 If all items included in the sales document carry the same RMS claim, the claim may be made one time on the document and must clearly indicate it applies to all items.

6.6.3.4 If the items included in the sales document carry different claims, or some items do not carry a claim, each line item must specify the RMS claim being made.

7 CERTIFICATION

This section details the RMS certification process including audit schedules and documentation requirements for certification.

7.1 Certification Scope

7.1.1 Participants must indicate the desired scope of certification, including product group(s), activities (i.e. sorting, reprocessing, converting), facility scope (single or multi-site), and chain of custody control system(s) intended to be included in certification.

7.1.2 Certification may be granted for the entire desired scope or a portion.

7.1.3 The certified scope will be listed on the participant's RMS certificate and in the RMS participant database.

7.1.4 Single-Site Certification

7.1.4.1 Entities may apply for a single-site certification which covers an individual facility or location. Facilities with multiple buildings may be defined as single-site if they share a physical address.

7.1.4.2 Facilities covered under single-site certification are considered independent even if multiple certified facilities are owned or operated by the same entity.

7.1.5 Multi-Site Certification

7.1.5.1 Multi-site certification is available for an organization with legal ownership of multiple facilities that will be certified under one RMS certificate.

7.1.6 Group Certification

7.1.6.1 Group certification is offered so that small business entities are not prohibited from participation due to a lack of resources and may participate in RMS as a group, with certification and conformance managed under a single certificate and certification manager.

7.1.6.2 The threshold for defining a "small business entity" is defined within each material module.

7.1.6.3 The RMS Group certificate will be issued with the name of the group entity and list all group members.

7.2 Certification Audit

7.2.1 Participating organizations must work with an approved Certification Body (CB) and auditor for certification to the RMS.

7.2.2 Certification includes an annual audit to verify conformance with the RMS and to maintain a valid RMS Certificate. The annual audit may be onsite or document review only. Refer to the audit schedule below for the audit requirements based on certificate scope.

7.2.3 The participating organization must provide adequate access to documentation and facilities for auditors to verify conformance with the Standard.

7.2.4 Auditors will review the relevant operations, documentation, and management systems necessary to verify conformance with the standard. This may include but is not limited to processing or production equipment, sales transactions, shipping records, processes or procedures, or material testing results.

7.3 Audit Frequency

7.3.1 Facilities that manufacture or process certified materials must undergo an on-site visit upon initial certification and at least every three years thereafter.

7.3.2 Entities that simply pass on claims without any material transformation may conduct initial certification and subsequent audits remotely.

7.4 Group and Multi-Site Audits

7.4.1 For multi-site and group certificates, key elements of the central management system will be reviewed annually. The number of individual sites to be included will be determined by the certification body using the risk-based sampling methodology outlined below.

7.4.2 Every location within a group or multi-site certification must be audited at least once within a three-year audit cycle.

7.4.3 If the management system is in good standing with no outstanding major non-conformances, additional sites may be added to either multi-site or group certificates between audits. The certification manager will be responsible to contact GreenBlue to update the RMS certificate database prior to issuing any chain of custody claims from new sites.

7.4.4 **Risk-Based Sampling Methodology**

7.4.4.1 The audited operation's risk level is determined by the certification body based on the results of the previous audit cycle and any changes that occurred within the operation. Risk levels are assigned based on the guidelines in Table 7.1.

7.4.4.2 Initial audit cycles use the "medium risk" sampling approach.

Risk Level	Description
Low	- Average of 1 or fewer non-conformances during onsite audit - No changes to management or management systems
Medium	- Average of 1-3 non-conformances during onsite audit - Corrective actions have been delivered in a timely manner - No changes to management or management systems
High	- Average of more than 3 non-conformances during onsite audit - Repeat non-conformances - Significant changes to operations, management or management systems. Significant changes include: o Change in sample size (i.e. number of facilities or group members) by greater than **25%** from previous audit cycle o Occurrence of a trigger audit as determined by policies of the certification body conducting the audit

Table 7.1. Guidelines for determining audit risk level

7.4.4.3 Audit sample size is determined by the risk evaluation during the previous audit cycle. Sample size is based on a factor of N, where N equals the number of facilities (for multi-site certification) or group members (for group certification) within the audit scope.

- **Baseline/"Medium risk"** operations: $\sqrt{N} + 1$, rounded up to the nearest whole number
- **"Low risk"** operations: **0.7**$^*(\sqrt{N} + 1)$, rounded up to the nearest whole number
- **"High risk"** operations: **1.3**$^*(\sqrt{N} + 1)$, rounded up to the nearest whole number

7.5 Management System

7.5.1 Participating organizations must have a management system in place to maintain and demonstrate conformance with the RMS. This includes policies and procedures related to the production, transfer, or modification of RMS certified material, and the segregation of claimed material from non-certified material if applicable. Many elements of the RMS management system can be derived from day to day operating procedures, however some aspects are unique to conformance with the RMS.

7.5.2 RMS management system records shall include:

7.5.2.1 **Identification of the RMS certification manager**: The organization shall identify at least one company representative who has responsibility for conformity to the RMS standard.

7.5.2.2 **Identification of the party ultimately responsible for conformity**: The organization shall identify who reviews the performance with conformance with the RMS standard. This should be an individual or committee that is separate from the RMS manager.

7.5.2.3 **Defined scope of certificate:** The organization shall clearly identify the scope of the certificate including: identification and description of the operations and/or facilities covered by the certificate; the product groups included; and the control mechanism and conversion factors for each product group.

7.5.2.4 **Procedures and work instructions**: The operation is expected to have procedures for maintaining adequate chain of custody, including procedures for activities such as

receiving materials, issuing claims on sales documents, managing outsourcing activities, RMS label usage, and corrective actions. Written procedures are highly recommended, but not required in all cases.

7.5.2.5 **Defined support roles and responsibilities**: The organization shall define and identify key representatives responsible for procedures.

7.5.2.6 **Training records of responsible parties:** The organization shall be able to demonstrate adequate training of responsible parties. Such records may include training materials, attendance records, competency reviews, or similar documentation.

7.5.2.7 **Internal audit findings**: The organization shall conduct internal audits to monitor conformance with the RMS. Findings must be recorded and shared with the certification body during annual conformance audits.

7.5.2.8 **Records of complaints and corrective actions:** The organization must ensure that any complaints received related to conformity of the RMS are addressed in a timely manner. At a minimum the organization shall:

(i) Acknowledge receipt of complaint to the complaining party within two weeks of receipt

(ii) Investigate the complaint, develop a corrective action plan, and notify the complaining party of proposed actions within three months.

(iii) Report all complaints and corrective actions to the certification body during the annual conformance audit.

7.5.2.9 **Control of non-conforming products:** The organization must ensure that any non-conforming products are identified and controlled to prevent unintended sale or delivery with an RMS claim. Non-conforming products include products that are assigned an inaccurate claim or a claim that is not supported by the control system in place. In the event a non-conforming product has been sold and delivered, the organization must:

(i) Notify the affected customer and certification body within five business days of discovery; and

(ii) Investigate the non-conformance, develop a corrective action plan, and implement measures to avoid recurrence.

EXAMPLE 7.1: NON-CONFORMING PRODUCTS

The following are examples of non-conforming products that would require corrective actions:

- *A claim is made on a product that is not covered in the scope of the certificate.*
- *A sales document reflects the wrong percentage amount, control system or recycled status.*
- *A label is applied on a product that does not have adequate chain of custody.*

8 ATTRIBUTES OF RECYCLED CONTENT (ARC) CERTIFICATE SYSTEM

This section outlines the requirements for material certificate trading to support the use of recycled material where a physical supply chain may not exist. This trading system uses certificates based on Attributes of Recycled Content, known as ARC certificates or simply ARCs. ARC trading occurs separately from the chain of custody required for certified RMS materials.

8.1 Participant Eligibility

8.1.1 All organizations certified through the RMS chain of custody are eligible to participate in the ARC system.

8.1.2 Uncertified organizations may purchase and trade ARCs if they meet the eligibility requirements in this section. Uncertified organizations may not generate ARCs.

8.1.3 All organizations participating in the ARC system must submit a valid application to the GreenBlue RMS Program and comply with the GreenBlue Good Practice Principles.

8.1.4 All organizations must register with the designated registry(s) and maintain current and accurate information.

8.1.5 Operations wishing to generate ARCs must hold a valid and current RMS certificate covering the appropriate scope of activities. Operations may choose to both manage a chain of custody control system and generate ARCs for eligible materials.

8.2 Additionality Requirements

The RMS ARC system is designed to drive necessary investment into recycling infrastructure and generate positive movement towards increased recycling capacity, efficiency, and quality. ARCs are intended to be a mechanism to support critical stages of the recycling process (i.e. processors) in generating additional benefit through enhanced recycling technology and markets.

In order to ensure that ARC investments are being directed to driving this positive change, processors wishing to engage in ARC trading must demonstrate that the generation of ARCs from their facilities is “additional”, i.e. outside of business-as-usual. Additionality requirements for ARC generation are described in the Material Modules.

8.3 ARC Generation

8.3.1 ARCs may be generated only by processors recycling reclaimed inputs into usable materials. ARCs may be generated from chemical or mechanical recycling.

8.3.2 ARCs are generated based on an equivalent mass of physical RMS-certified recycled material, referred to as the "base material".

8.3.3 ARC certificates are based on a functional unit of one metric ton of base material. Partial ARCs (i.e. less than one metric ton of base material) may be generated.

8.3.4 Base Material

8.3.4.1 The base material must be sold or otherwise physically consumed (e.g. re-processed or modified without changing ownership) within the supply chain to serve as a basis for ARCs.

8.3.4.2 The quantity of ARCs shall represent only the certified recycled component(s). If the base material contains virgin material, fillers, or other ineligible material, these must be accounted for.

8.3.4.3 ARC certificates shall be generated only once for the same base material.

8.3.4.4 Material may not be double counted in support of an RMS claim. It is allowable to allocate a portion of sold goods to generate ARCs.

8.3.4.5 If the full volume of the base material is used to generate ARCs, the ARC generator shall notify customers that the material carries no RMS claims and cannot be publicly claimed as recycled material.

EXAMPLE 8.1: GENERATING ARCS

A certified reprocessor meets the ARC eligibility criteria. They produce 10,000 tons of 100% post-consumer polypropylene (PP) resin using a mass balance control system. They sell 10,000 metric tons of resin to customers with a 75% mass balance claim and register 2,500 metric tons of PP ARCs. The certified material volume was equal to the volume claimed and material was not double counted.

8.4 ARC Classification

8.4.1 ARCs must be classified at the time of generation according to recycled status, material group and ARC type in accordance with the relevant Material Module.

8.4.2 Where possible, the ARC Certificate should represent a homogeneous base material.

8.4.3 If the base material is comprised of mixed components that can be accurately distinguished and documented through mass-based accounting, separate ARCs may be generated to represent each component. The quantity of ARCs generated shall accurately reflect the mass of each component based on documented conversion factors.

8.4.4 If the base material is comprised of mixed components that are unknown and/or cannot be accurately documented through mass-based accounting, the appropriate "Other" ARC Type must be used.

8.4.5 ARC Recycled Status

8.4.5.1 ARCs shall be assigned a recycled status that accurately represents the nature of the base material. Eligible base material must at a minimum be assigned as Recycled ("R"). Where applicable, material may be further categorized as Post-Industrial ("PI") or Post-Consumer ("PC"). Post-Consumer is designated as the greatest (highest) recycled status claim, followed by Post-Industrial, and Recycled as the least claim.

8.4.5.2 Where the base material contains both post-consumer and post-industrial material, either:

(i) Separate PI- and PC- ARC Certificates may be generated based on the respective mass of each component in the base material, provided the mass is known and documented; or

(ii) The lesser 'Recycled' recycled status may be used.

EXAMPLE 8.2: ARC CLASSIFICATION

Recycled Status	Material Group	ARC Type	ARC ID Code
Recycled	Plastic	Acrylonitrile Butadiene Styrene (ABS)	R_P_ABS_ARC
Post-Industrial	Plastic	Acrylic (poly methyl methacrylate) (ACR)	PI_P_ACR_ARC
Post-Consumer	Plastic	Nylon (polyamide)	PC_P_PA_ARC

8.5 Loss of Eligibility

8.5.1 An ARC generator's eligibility is revoked upon expiration of their RMS Certificate. Previously generated unsold ARCs are considered saleable but no additional ARCs may be generated until the certification is renewed.

8.5.2 If eligibility is lost due to the additionality requirements, previously generated ARCs remain active but no additional ARCs may be generated.

8.5.3 Inactive ARC generators will be removed from the appropriate registry(s) at the end of one year. Upon removal from the registry generators will forfeit any ARCs generated prior to loss of eligibility.

8.6 Certificate Registration

8.6.1 ARC certificates are tracked by registering the ARCs on the appropriate registry.

8.6.2 ARC certificates must be registered with complete and accurate information. Any inaccuracies must be corrected by the certificate holder and reported to the certifying body.

8.6.3 ARC generators must register certificates on an annual basis, at minimum. ARCs must be registered no later than one year after the base material was processed into its saleable form.

8.6.4 ARC registration is only allowed after a valid RMS certificate is issued.

8.6.5 Participants must maintain accurate records of the sale or consumption of base materials that support ARC generation.

8.6.6 Once ARCs are retired, the user must register the retirement and maintain accurate records of ARC retirement date and reconciliation of claims made, if applicable.

8.7 Certificate Trading

8.7.1 All ARC transactions must take place and be documented through the appropriate registry.

8.7.2 The purchaser of the ARCs assumes legal ownership of the certificates and any associated claims. The purchaser may re-trade or retire the ARCs.

8.7.3 The owner of the ARC certificates must maintain eligibility in order for owned ARCs to remain active and eligible for trading or use. If the certificate owner's RMS eligibility expires, ARCs are rendered inactive until eligibility is renewed.

8.7.4 ARCs may be traded between entities until they are retired or until the use period expires, at which time they are removed from the system and may not be re-traded.

8.8 Retiring Certificates

8.8.1 **Certificates must be retired on the appropriate ARC registry(s)** in conjunction with label approval (if applicable) or prior to making any other public ARC claims.

8.8.2 Once certificates are retired, the retire date will be recorded in the ARC registry and must be reconciled with the claim date.

8.8.3 Once certificates are retired in the registry they may not be re-traded.

8.8.4 Use Period

8.8.4.1 ARCs must be retired within the generation year or subsequent calendar year. For example, if an ARC is generated in 2021 it must be retired by the end of calendar year 2022.

8.9 ARC Claims

8.9.1.1 Certificates must be retired in order for ARC purchasers to make any RMS claims. ARC claims must accurately reflect the ARCs being retired.

8.9.1.2 ARCs may be used to make product-level claims (e.g. on-product labeling) or general claims, such as those made on a website or marketing materials or to fulfill corporate commitments.

8.9.1.3 If ARC certificates are used for product-level claims, the ARC(s) retired must represent the same material type as contained in the product. When the product consists of mixed material types the user may retire multiple ARCs of different types, provided that the allocation can be justified based on the product composition. Refer to the Material Modules for additional requirements.

EXAMPLE 8.3: GENERAL ARC CLAIMS

A company manufactures liquid soap and used 25,000 metric tons of high density polyethylene (HDPE) bottles as their primary package in calendar year 2020. They purchase 6250 PC_PE ARCs, retire the certificates and in their 2020 sustainability report make a claim indicating, "We support investments in recycling technology. In 2020, we purchased ARCs equivalent to 25% of our primary packaging."

9 ON-PRODUCT LABELING

The requirements in this section apply on-product labeling associated with certified material.

9.1 General

9.1.1 On-product labeling is permitted in accordance with the RMS Labeling Guidelines. Labels must be approved by the appropriate oversight body according to those Guidelines.

9.1.2 Labels must be supported by product claims verified through the appropriate chain of custody control system and/or the retirement of ARC certificates.

9.1.3 The certified content must represent a minimum percentage of the claimed product component(s), by mass, for the product to be eligible for the RMS label. The minimum percentages by claim type are outlined in the Labeling Guidelines.

9.2 Label Components

9.2.1 The label shall contain the following elements:

(i) Material type of the certified content
(ii) The certified percent content (average content claims only)
(iii) Recycled status
(iv) Certified product component(s)
   a) The component(s) of the product comprised of or including claimed RMS content must be sufficiently described to clearly indicate the claimed component to the consumer and not misrepresent the product.
   b) If the product contains only one component OR the component is clearly identifiable by the material type OR all components contain 100% certified content, this component need not be described separately as long as the label can be clearly understood and is not misleading.
   c) If a label is applied to a package that contains a product made of similar materials, the label must clearly indicate whether the claim is associated with the product or the package.

9.3 ARC Label Requirements

9.3.1 Products or packaging using labeling supporting by retirement of ARCs are strongly encouraged to indicate the following on the consumer-facing product or packaging:

- Whether the labeled component(s) are recyclable; and
- Whether these can be recycled in programs commonly available to the target consumer.

EXAMPLE 9.1
Use of the How2Recycle label fulfills this requirement.

Recycled Material Standard

Plastics Module

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P.1 GENERAL

P1.1 Introduction

The Recycled Material Standard (RMS) Framework provides the core set of criteria for certification to the RMS for any materials industry. The Material Modules are intended to supplement the Framework with additional material-specific criteria, definitions, and examples.

The terms “shall” and “must” are used throughout this Module to indicate mandatory requirements for conformance to this Standard; the terms “should” and “may” are used to indicate preferred and allowable actions, respectively. “Can” is used for statements of possibility and capability, whether material, physical or causal.

P1.2 Scope

This Module applies to plastic-based material intended to be certified to the Recycled Material Standard. The requirements contained in this Module shall be considered binding and necessary for RMS certification of plastic-based materials.

Plastic-based material includes products wholly or partially consisting of synthetic materials made from organic polymers such as polyethylene, polystyrene, and polypropylene.

P.2 DEFINITIONS

For the purposes of this standard, the terms and definitions given in the RMS Framework Definitions and the following apply:

1. **Fair market value:** Value of the facility prior to the completion of a reinvestment. Fair market value is what the facility could be sold for if neither the buyer nor seller were under any financial compulsion to buy or sell. Fair market value is not the book value (depreciated asset value) of the upgraded facility and is not the price of the facility if it was purchased prior to the re-processing upgrade investments.
2. **New reprocessing equipment**: New or used primary reprocessing equipment and any other equipment purchased for the purpose of contributing to the recycling of post-consumer plastics at the facility. This does not include used or refurbished equipment relocated from another facility.
3. **Official reclaimed plastic material classification systems:** Official classification systems of reclaimed plastics are developed by (supra-)national organizations (e.g. industry associations) and are based upon defined, verifiable and transparent criteria. These criteria usually aim at the categorization of reclaimed plastic materials according to certain quality aspects, but their application in specific supply chains should allow the characterization of the relevant points of reclamation. Official classification and assortment systems are recognized and used in the market in such a way that the classifications and corresponding claims are basic elements in commercial transaction documents and incorrect claims may lead to legal actions against the one who made the claim.

   The predominant systems in the US are available from:

   - Institute of Scrap Recycling Industries (ISRI), Scrap Specifications Circular
   - Association for Plastic Recyclers (APR), APR Bale Specifications
4. **Point of Reclamation:** The location, process or site where material is diverted from the waste stream from industrial, residential or municipal sources and reclaimed thereby constituting the starting point within the supply chain for reclaimed material.
5. **Post-consumer plastic**: Plastic generated by households, or by institutional, commercial or industrial facilities as end-users of products, that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain such as obsolete inventory or damaged goods.
6. **Post-industrial plastic**: Plastic diverted from the waste stream during a manufacturing process that cannot be reclaimed within the same process that generated it, or that requires processing through which it undergoes a phase change (e.g. from a solid to a liquid state) in order to be reclaimed. Plastic which undergoes size reduction only (e.g. cutting, shredding or regrinding) is not considered recycled material. May also be referred to as pre-consumer plastic.

   NOTE: A manufacturing process is defined by a combination of equipment, operational settings, material specifications and formulation of materials. The same or similar equipment using different input materials is not considered the same process.

7. **Primary reprocessing equipment**: Recycling primary reprocessing equipment includes equipment used for: size reduction, sortation, metal detection, washing (wet or "dry" aka elutriation), drying (including crystallization or solid-stating) extrusion, filtration, pelletization, de-odorizing, conveyance and storage.
   - For chemical recycling facilities, equipment may also include pyrolysis or gasification units, or equipment used for depolymerization to chemical intermediates.
   - Reprocessing equipment does not include: packaging lines, power or energy generation to support the facility.
8. **Upgraded facility**: All of the new and/or existing primary reprocessing equipment and any associated process control equipment and structures at the facility. The land on which the facilty sits will not be considered as part of upgraded facility for the purposes of determining the financial threshold. Similarly, intangibles such as the value of a facility's contracts or its brand porfolios will not be considered part of the upgraded facility.

P.3 GROUP CERTIFICATION

P3.1 Eligibility

P3.1.1 Plastics processors and manufacturers that qualify as "small business entities" and meet the requirements in this section are eligible for pursuing RMS Certification as a group with certification managed by a group leader.

P3.1.2 Small business entities are defined as organizations with less than 50 employees and annual revenue from plastic materials less than USD$3M.

P3.1.3 Participants in groups must perform similar types of operations.

P3.1.4 Participants in groups must be located within the same national boundaries.

EXAMPLE P3.1: GROUP PARTICIPANTS

(1) A Material Recovery Facility has a staff of 40 employees and annual sales of recycled materials of $4.5 million. However, only 40% of the sales revenue (equivalent to $1.8 million) is derived from plastic. This facility would be eligible to participate in a group certificate.

(2) A group of independent MRFs all located in the U.S. is formed under a single certificate.

(3) A group of small retailers is formed so that materials recovered from their operations can be deemed as certified post-consumer plastics.

P3.2 Multi-Site Group Participants

P3.2.1 More than one site from the same company may participate in a group as long as their combined staffing and revenue does not exceed the eligibility requirements. Multiple locations that exceed eligibility for groups may wish to consider multi-site certification.

P.4 PLASTIC CLASSIFICATION

P4.1 Plastic Material Types

P4.1.1 For the purposes of certification and chain of custody in accordance with the RMS, all plastic-based materials shall be classified according to the categories presented in this Module.

P4.1.2 Plastic-based materials shall be assigned the appropriate classification and RMS ID code based on the relevant Level 3 category in Table P1.1. Participants may apply to GreenBlue to create additional material classifications and should refer to the RMS website for the most current classification list.

P4.1.3 When classifying materials participants are encouraged to follow guidelines for allowable contamination and prohibited materials as designated by industry standards.

Level 1		Level 2		Level 3	
P1	**Recovered Plastic**	**P1.1**	**Monomaterials**	P1.1.1	Acrylonitrile Butadiene Styrene (ABS)
				P1.1.2	Poly methyl methacrylate (acrylic)
				P1.1.3	Nylon
				P1.1.4	Polycarbonate
				P1.1.5	Ethylene polymers (LD, LLD, HD)
				P1.1.6	Polyethylene terephthalate (polyester) (PET)
				P1.1.7	Polyethylene terephthalate glycol (PETG)
				P1.1.8	Polylactic acid (PLA)
				P1.1.9	Polypropylene (PP)
				P1.1.10	Polystyrene (PS)
				P1.1.11	Polyurethane (PU)
				P1.1.12	Polyvinyl chloride (PVC)
				P1.1.13	Other monomaterials
		P1.2	**Mixed materials**	P1.2.1	Mixed Olefins
				P1.2.2	Other mixtures NEC

P2	**Polymer Intermediates**	**P2.1**	**Recycled Monomers**	P2.1.1	Terephthalic Acid (PTA)
				P2.1.2	Dimethyl Terephthalate (DMT)
				P2.1.3	Ethylene Glycol (EG)
				P2.1.4	Styrene
				P2.1.5	Lactic Acid
		P2.2	**Blended Intermediates**	P2.2.1	Gaseous blends
				P2.2.2	Liquid blends
				P2.3.1	Solid blends
P3	**Polymers (Resins)**	**P3.1**	**Individual Resin Types**	P3.1.1	Acrylonitrile Butadiene Styrene (ABS)
				P3.1.2	Poly methyl methacrylate (acrylic)
				P3.1.3	Nylon
				P3.1.4	Polycarbonate
				P3.1.5	Ethylene polymers (LD, LLD, HD)
				P3.1.6	Polyethylene terephthalate (polyester) (PET)
				P3.1.7	Polyethylene terephthalate glycol (PETG)
				P3.1.8	Polylactic acid (PLA)
				P1.1.9	Polypropylene (PP)
				P3.1.10	Polystyrene (PS)
				P3.1.11	Polyurethane (PU)
				P3.1.12	Polyvinyl chloride (PVC)
				P3.1.13	Other monomaterials
		P3.2	**Mixed Material Batches**	P3.2.1	Plastics Only
				P3.2.2	With fillers
P4	**Plastic Articles**	**P4.1**	**Flexible Materials**	P4.1.1	PET film or wrap
				P4.1.2	PE film or wrap

				P4.1.3	PVC film or wrap
				P4.1.4	PP film or wrap
				P4.1.5	PS film or wrap
				P4.1.6	Other spec. film or wrap
				P4.1.7	Multimaterial films
				P4.1.8	Multimaterial composites
		P4.2	**Pre-forms**	P4.2.1	Bottle forms
				P4.2.2	Sheets for molding
P5	**Plastic Products**	**P5.1**	**Packaging elements**	P5.1.1	Monomaterial flexible packages
				P5.1.2	Multimaterial flexible packages
				P5.1.3	Composite material flexible packages
				P5.1.4	Monomaterial bottles
				P5.1.5	Mixed material bottles
				P5.1.6	Monomaterial rigids
				P5.1.7	Mixed material rigids
				P5.1.8	Composite containers
				P5.1.9	Caps, closures, fitments
				P5.1.10	Plastic labels
				P5.1.11	Other packages NEC
				P5.1.12	Other parts NEC
		P5.2	**Automotive**	TBD	
		P5.3	**Consumer Goods**	TBD	
		P5.4	**Healthcare/Medical**	TBD	
		P5.5	**Construction & Infrastructure**	TBD	

		P5.6	**Agriculture**	TBD	
		P5.7	**Electrical and Electronics**	TBD	
		P5.8	**Textiles**	TBD	

Table P4.1 Plastic Material Classifications

P.5 CONVERSION FACTORS

Conversion factors are used to account for and document the flows of recycled material through recycling and manufacturing processes based on yield, as described in the RMS Framework Section 5. This section provides additional criteria and supplemental examples for plastics.

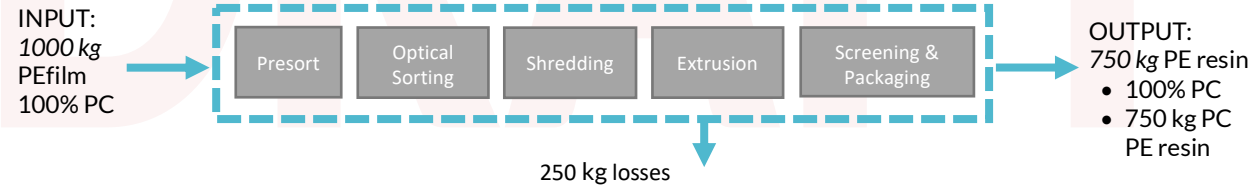
P5.1.1 Conversion factors for plastic processing shall be based on mass of inputs and outputs and must account for system losses.

P5.1.2 If it is not possible to characterize inputs based on mass, Lower Heating Value (LHV) may be used as the basis for conversion factors. LHV should be used only when there is no other means to determine a conversion factor, such as for thermochemical processes with mixed feedstocks. LHV values used in conversion factors must be measured and documented.

P5.1.3 Where processes include both post-consumer and post-industrial sourced plastics, conversion factors must account separately for differences in yield of PC and PI inputs.

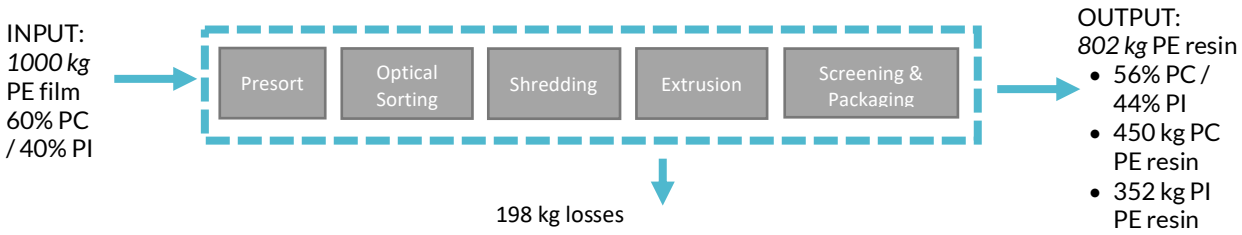
Example P5.1: Conversion Factor Example 1

A recycling process includes sorting, shredding, and extrusion of post-consumer polyethylene film. Based on known yield there is a 75% mass-basis conversion factor from input PE film to output PE resin.



Example P5.2: Conversion Factor Example 2

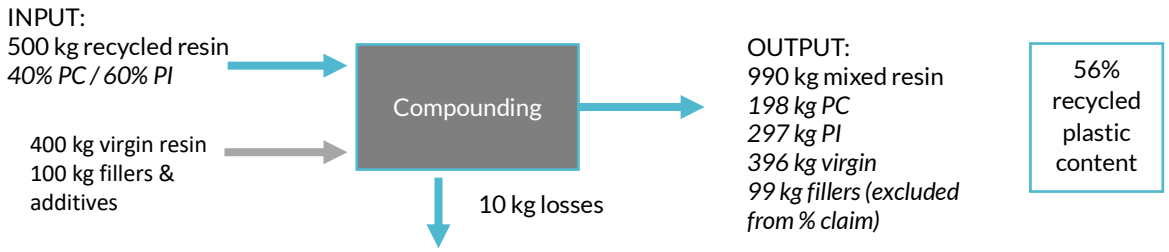
A recycling process includes sorting, shredding, and extrusion of a blend of post-consumer and post-industrial polyethylene film to produce PE resin. Based on known yield there is a 75% mass-basis conversion factor from input PC PE film, and an 88% conversion factor for PI PE film to the output resin.



Input	Quantity	Output	Quantity	Conversion Factor
PC PE Film (PC_P4.1.4)	600 kg	**PC PE Resin** (PC_P3.1.4)	450 kg	0.75
PI PE Film (PI_P4.1.4)	400 kg	**PI PE Resin** (PI_P3.1.4)	352 kg	0.88

Example P5.3: Conversion Factor Example 3

A compounder makes a master batch resin mix using virgin and post-consumer resins with added fillers and pigments. Throughout the process 1% losses occur evenly across all inputs. The recycled percentage claim is based only on the dry mass of plastic in the output and excludes fillers. With an output of 495 kg recycled plastic out of 891 kg total plastic, the recycled content portion is 56% (rounded).



Input	Quantity	Output	Quantity	Conversion Factor
PC Resin (PC_P3.1.4)	200 kg	**PC PE Resin** (PC_P3.1.4)	198 kg	0.99
PI Resin (PI_P3.1.4)	300 kg	**PI Resin** (PI_P3.1.4)	297 kg	0.99
Virgin Resin Non-RMS	400 kg	Virgin resin Non-RMS	396 kg	0.99
Fillers & Pigments Non-RMS	100 kg	Fillers & Pigments Non-RMS	99 kg	0.99

P.6 PLASTIC ARCS

Plastic Attributes of Recycled Content Certificates (ARCs) may be generated by certified reprocessors, from RMS-certified recycled plastic resins ("base material").

P6.1 Plastic ARC Classification

P6.1.1 At the time of generation ARCs must be assigned a type classification in accordance with Table P6.1, based on resin type, or for chemical recycling intermediates, polyethylene equivalents (PEQ).

RMS ID Code	ARC Type	ARC Code
P3.1.1	Acrylonitrile Butadiene Styrene (ABS)	ABS_ARC
P3.1.2	Acrylic (poly methyl methacrylate) (ACR)	ACR_ARC
P3.1.3	Nylon (polyamide)	PA_ARC
P3.1.4	Polycarbonate	PCAR_ARC
P3.1.5	Ethylene polymers (HD, LD, LLD)	PE_ARC
P3.1.6	Polyethylene terephthalate (polyester)	PET_ARC
P3.1.7	Polyethylene terephthalate glycol	PETG_ARC
P3.1.8	Polylactic acid	PLA_ARC
P3.1.9	Polypropylene	PP_ARC
P3.1.10	Polystyrene	PS_ARC
P3.1.11	Polyurethane	PU_ARC
P3.1.12	Polyvinyl chloride	PVC_ARC
All P2	Chemical recycling monomers and blended intermediates	PEQ_ARC
P3.1.13, All P3.2	Other monomaterials, mixed batches, materials not elsewhere classified	OTHER_ARC

Table 6.1 Plastic ARC Types

P6.1.2 ARCs are generally classified based on common plastic resins. ARC type must be consistent with the resin type of the base material and the corresponding RMS material code from group P3 in Table P4.1.

P6.1.3 Chemical recyclers may generate ARCs based on polyethylene equivalents (PEQ) for chemical recycling intermediates.

P6.1.3.1 PEQ ARCs are generated using the LHV ratio for the base material compared to polyethylene, with one PEQ defined as the heating value equivalent to 1000 kg of polyethylene.

P6.1.3.2 For the purposes of ARC generation, the reference LHV for PE is considered to be 44.6 MJ/kg.

P6.1.4 The 'Other' ARC category may be used for copolymers, blends or other materials that do not align with the other available ARC types. Eligible ARC generators may also submit a request for an additional ARC type.

P6.1.5 Recycled status of the ARC is specified in accordance with the RMS Framework and the definitions for post-consumer plastic and post-recycled plastic contained in this Module.

EXAMPLE P6.1: PEQ Generation

A chemical recycler generates an intermediate monomer to be used in further plastic manufacturing. The monomer has an LHV of 40.0 MJ/kg. 1000 kg of the intermediate is eligible to generate 0.897 PEQ.

$$1000\ kg\ intermediate * \frac{40.0 \frac{MJ}{kg}}{44.6 \frac{MJ}{kg} * 1000 \frac{kg}{PEQ}} = 0.897\ PEQ$$

P6.2 ARC Conversion Factors

P6.2.1 Reprocessors must document conversion factors used to determine the mass of plastic generated and the quantity of ARCs claimed.

P6.2.2 The mass claimed in the ARC certificate must be equivalent to the dry mass of the recycled plastic generated. No more than 2% of the mass of the claimed plastic may consist of non-plastic contaminants or fillers, such as ash or pigments.

EXAMPLE P6.2: Accounting for fillers

1) *100 lbs of a PE resin is 99% pure (containing only 1% pigments and ash). The material is eligible to generate 100 lb of PE ARCs.*
2) *100 lb of PE resin containing 5% ash exceeds the 2% contamination threshold so cannot be fully claimed for ARCs. For 100lbs of resin, 95 lb is eligible PE. Up to 96.9 lb of ARCs can be claimed for this material (95lbs/96.9lbs = 98%).*

P.7 ADDITIONALITY REQUIREMENTS FOR PLASTIC ARCS

In order to generate plastic ARCs generators must prove that ARCs are additional and driving increased investment in plastics recycling (i.e. beyond business as usual). This section outlines requirements for Plastic ARC generators to be eligible to generate ARC certificates.

P7.1 Additionality Tests

P7.1.1 Plastic ARC generators must meet all Class A additionality tests and at least one Class B test as outlined in Table P7.1. Additionality tests are further described in the sections below.

Class	Test Type
Class A (Required)	Regulatory/ Legal
	Newness
Class B (Choose One)	Common Practice
	Financial
	Activity, Practice or Technology Based
	Performance benchmarks

Table P7.1 Additionality Tests

P7.2 Class A Additionality Tests

P7.2.1 **Regulatory / Legal Test**

P7.2.1.1 The reprocessing project must generate recycled materials beyond a level required by official policy, regulations, legal mandate or industry standards.

P7.2.1.2 Recycled material from projects that are not credited toward or used for regulatory requirements are eligible under this standard if they meet all other requirements of the standard.

P7.2.1.3 Projects initiated to meet a regulatory target must demonstrate material generation capacity beyond that required by law.

EXAMPLE P7.1: REGULATORY/LEGAL TEST

A processor sells 40% of material into markets to meet California's reusable bag mandate for recycled materials. Those materials are not qualified for generating ARCs. The remaining 60% of output may generate ARCs if the facility meets the remaining additionality criteria.

P7.2.2 Newness Test

P7.2.2.1 Recycled material is eligible for ARC generation if it is from projects that are considered new operations and/or qualify as an eligible reinvestment after the relevant New Date, defined as January 1 three years prior to the certification year. The New Date is demonstrated in Table P7.2

Certification Year	New Date
2021	January 1, 2018
2022	January 1, 2019
2023	January 1, 2020
2024	January 1, 2021
…	…
2033	January 1, 2030

Table P7.2 Additionality New Date

P7.2.2.2 Projects meeting the Newness Test satisfy this additionality requirement for 15 years after the eligible new installation or reinvestment occurred. After this date the generator must renew their eligibility to the additionality requirements based on the New Date for the re-certification year.

EXAMPLE P7.2: NEWNESS TEST

A new recycling plant is installed in 2020 and is certified to RMS in 2023. As long as they maintain continuous certification the plant is eligible to generate ARCs until 2035.

P7.2.3 New Operations

P7.2.3.1 Newly constructed facilities are considered new operations that meet the Newness Test.

P7.2.3.2 Existing facilities are considered new operations if the facility ceases operation for at least six months, transfers ownership and is restarted.

P7.2.3.3 Operations that are shut down and restarted under the same ownership do not qualify as new operations.

EXAMPLE P7.3: NEWNESS TEST – NEW OPERATIONS

A recycling facility ceased operation in April of 2020 and was purchased by new owners in December of 2020. The facility passes the newness test and is eligible to be initially certified as an ARC generator until the end of 2023.

P7.2.4 Eligible Reinvestments

P7.2.4.1 Reinvestment in existing infrastructure may help a facility to satisfy the Newness Test to render some or all of a facility's production capacity eligible to generate ARCs.

P7.2.4.2 The scope of the investment may be defined by the entire facility or by a single processing line within the facility that operates multiple lines. If scope is based on a single line, only the output from the qualified line will be eligible to generate ARCs.

P7.2.4.3 The applicant must document that the capital investments were not made more than three years prior to the date that the facility is seeking certification. Expenses are only applicable on that portion of the facility that contributes directly to the re-processing of plastic materials.

P7.2.4.4 For a facility to meet the RMS Reinvestment Criteria the facility must meet at least one of the following criteria and provide sufficient documentation to verify conformance:

(i) Financial threshold;
(ii) Quality improvement; or
(iii) Increased capacity.

P7.2.4.5 **Financial Threshold**

(i) Investments that meet a minimum financial threshold of 25% of the pre-investment fair market value of the facility are considered eligible reinvestments.
(i) The fair market value of the facility must be determined prior to the completion of the reinvestment by submitting either tax records or an assessment of the value of the facility.
(ii) Only investments in primary reprocessing equipment at the facility shall be included in the reinvestment value. Non-equipment costs such as labor, engineering studies, rentals, or permits do not qualify.
(iii) A reinvestment meeting the 25% minimum threshold but less than 50% qualifies one-half of the production capacity of the facility to generate ARCs.
(iv) A reinvestment equal to or greater than 50% of the fair market value of the facility qualifies the entire production capacity to be eligible to generate ARCs.

Reinvestment Threshold	Output Qualified for ARCs
0-24 %	none
25-50%	Half of production capacity
51% or more	All of the production capacity

Table P7.4: Reinvestment Thresholds for ARC Generation

EXAMPLE P7.4: FINANCIAL THRESHOLD FOR REINVESTMENT

A facility producing 1000 tonnes of recycled plastic per year is determined to be worth $10 million and makes a $3 million investment in new processing equipment. The investment is equivalent to 30% and would qualify half of the production capacity, or 500 tonnes, to generate ARCs.

P7.2.4.6 Quality Improvement

(i) Investments that significantly improve the quality of materials generated at the facility are considered eligible reinvestments. Quality improvement must be demonstrated by comparing sales prices or through reclassification of product specifications (e.g. achieving food-grade status or introducing color separation).
(ii) If price is used as the indicator, there must be at least a 10% difference apart from average market indices.
(iii) The volume of eligible ARC generation is equivalent to the volume of the material meeting the new quality specifications is eligible to generate ARCs.

EXAMPLE P7.5: QUALITY IMPROVEMENT REINVESTMENT

(1) A PE film processing plant adds washing capacity and is able to increase the average selling price of resins by 15%. The same year the average price of resins rose by 3%. The difference between the processor's average and market average is 12% so the price threshold is met.
(2) A facility installs robotics on a pre-sort line and able to process 2 million lbs of PET that meets food grade standards. Prior to the installation the facility did not offer food grade resin. The 2 million lbs of PET would be eligible for ARC generation.

P7.2.4.7 Increased Capacity

(i) Investments that increased the quantity of recycled materials produced by at least 10% are considered eligible reinvestments.
(ii) Increases in capacity must be demonstrated through production records for at least one year prior to the investment.
(iii) The volume of eligible ARC generation is equivalent to the volume of increased capacity.
(iv) If the facility operates more than one production line, the ARCs may be generated only from the line that has been improved.

EXAMPLE P7.6: INCREASED CAPACITY REINVESTMENT

A facility produced 20 million lbs of PET resin in a twelve month period. By refurbishing the pelletizer at the plant, production throughput is increased and shown to 2 be million lbs/month or 24 million lb/yr (a 20% increase). The additional 4 million lbs would be eligible for ARC generation.

P7.2.5 **Newness Exemption for Existing Processors**

P7.2.5.1 Plastics reprocessors that do not meet the Newness Additionality Test are eligible to generate ARCs from existing production capacity for an initial phase-out period lasting until December 31, 2025. A maximum of 50% of the facility's production capacity on a mass basis is eligible to generate ARCs in the first year, with the eligible percentage decreasing in 10% increments each year of the phase-out period.

P7.2.5.2 During the phase-out period, ARCs may be generated only from post-consumer recycled plastic.

Time Period	Percent of production capacity (mass basis) eligible for ARCs
January 1, 2021 – December 31, 2021	50%
January 1, 2022 – December 31, 2022	40%
January 1, 2023 – December 31, 2023	30%
January 1, 2024 – December 31, 2024	20%
January 1, 2025 – December 31, 2025	10%

Table P7.5. ARC eligibility for existing processors

P7.3 Class B Additionality Tests

P7.3.1 Common Practice Test

P7.3.1.1 Projects must not be "common practice" in the sector or region, compared with activities that produce the same products and/or services that have received no ARC financing.

P7.3.1.2 If similar activities exist, the new project must identify essential distinctions between the proposed and existing projects.

EXAMPLE P7.7: COMMON PRACTICE TEST
A new HDPE facility is installed in a state where an existing recycler has a plant. The new facility is going to install technology that allows the materials to achieve food grade quality while the first producer does not have that capability. This demonstrates a distinct difference and the new applicant passes the test.

P7.3.2 Financial Test

P7.3.2.1 To be considered additional, the recycling project must be economically or financially infeasible or unattractive without ARC revenue, and/or the project faces capital investment return constraints which can be overcome with ARC revenue.

EXAMPLE P7.8: FINANCIAL TEST

In order to qualify for CapEx loan, the applicant indicates ARC revenues as part of the revenue stream. Without the ARCs, the lender would not approve the loan.

P7.3.3 Activity, Practice or Technology-Based Test

P7.3.3.1 Projects must implement a specific practice or technology which is rarely or never implemented in the absence of ARC revenue, as identified based on analyses of the market or sector.

EXAMPLE P7.9: ACTIVITY, PRACTICE, OR TECHNOLOGY-BASED TEST

To date, markets for multi-material flexible packaging are limited to compression molding solutions. A new technology is able to process co-mingled materials with different melting points and produce injection molded parts. A participant installing this new technology would pass this test.

P7.3.4 Performance Benchmarks Test

P7.3.4.1 Projects must exceed the average benchmark for the industry sector for recycled material quality or yield.

EXAMPLE P7.10: PERFORMANCE BENCHMARKS TEST

Post-consumer films are routinely contaminated with paper receipts and labels which result in yield loss and odor problems. A new line is installed with filtration, degassing and de-odorizing which delivers a food grade PE resin. This level of performance is not common and would pass the benchmark test.

ANNEX I: POST-CONSUMER PLASTIC GUIDELINES

Post-Consumer Plastics: Plastic generated by households, or by institutional, commercial or industrial facilities as end-users of products, that can no longer be used for its intended purpose. This includes returns of materials from the distribution chain such as obsolete inventory or damaged goods.

NOTE: Returns of materials from the distribution chain such as obsolete inventory or damaged goods must be at the point in the supply chain where it was intended for use by the end-user in order to qualify as post-consumer.

Eligible Post-Consumer Plastics:

1. Household packaging materials collected and sorted at a material recovery facility.
2. Plastic shipping materials that has been used to ship or protect goods (e.g. air pillows, foam for cushioning, garment hangers, mailers, pallets, polybags, retail bags, strapping)
3. Protective or functional plastic wrap or films that have been used (e.g. pallet wrap, boat wrap, agricultural film,)
4. Plastic items or plastic parts of other finished goods that have met their intended use (e.g. consumer products, food service items, building products, healthcare/medical devices, textiles, electronic devices, automobiles)

Interpretive Examples:

1. Plastic trays at a grocery store salad bar are found to be off-color or damaged. The trays are reclaimed for recycling and may be classified as post-consumer material. These materials qualify as returns from the distribution chain because the grocery store was the intended user.

2. A batch of plastic tubs being held in inventory by the manufacturing company (e.g. an injection molder) are rendered obsolete inventory and must be classified as post-industrial plastic as they never reached an intended end-user.

ANNEX II: POST-INDUSTRIAL PLASTIC GUIDELINES

Post-Industrial Plastics: Plastic diverted from the waste stream during a manufacturing process that cannot be reclaimed within the same process that generated it, or that requires processing through which it undergoes a phase change (e.g. from a solid to a liquid state) in order to be reclaimed. Plastic which undergoes size reduction only (e.g. cutting, shredding or regrinding) is not considered recycled material. May also be referred to as pre-consumer plastic.

NOTE: A manufacturing process is defined by a combination of equipment, operational settings, material specifications and formulation of materials. The same or similar equipment using different input materials is not considered the same process.

Eligible Post-Industrial Plastics

1) Plastic by-products or scrap generated during manufacturing (e.g. edge trimmings, die cuttings, melt purge from extrusion)
2) Plastic items, parts or packaging which is found to be off-specification, damanged or obsolete inventory

Examples for Eligible Post-Industrial Plastics:

1) A defective, household white garbage bag with an assembled, colored drawstring is reclaimed and converted into a black, contractor garbage bag.
2) Scrap from a blue flowerpot may be re-blended and formulated to make a black flowerpot on the same equipment.
3) Defective packaging, or scrap from converting a clear packaging film with a zip lock may be recycled as part of the formulation for a similar clear packaging film with different physical properties.
4) Scrap from a conversion process (including printing) that cannot be reworked directly back into the same extrusion line and product.
5) Edge trim from a film line is shredded into flake and fed back to the line in combination with pellets prior to the extrusion step. Because the flake is re-extruded and undergoes a phase change the material qualifies.

Examples for Non-Recycled Plastic (Not Eligible for Post-Industrial Status):

1) Taking scrap or defective product and recycling it at 100%, without modification other than size reduction, back into the same product. For example, an edge roll that is rewound and trimmed to a smaller size would not be considered recycled material.
2) Transition polymer material, which is off-spec but blended back into a prime grade in small amount and sold as prime material.