ISCC PLUS 202-5
WASTE AND RESIDUES

Version 1.0

ISCC
International Sustainability & Carbon Certification
PLUS

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Content

1 Introduction

ISCC PLUS certification is applicable for the bioeconomy and circular economy for food, feed, chemicals, industrial applications (e.g. plastics or packaging) and energy from renewable sources (fuels, electricity, heating and cooling). It covers supply chains for all kinds of biomass (including agricultural and forest biomass), bio-circular and circular waste and residues, non-biological renewable materials and recycled carbon-based materials.

The use of waste and residues as raw materials has numerous advantages. Using these raw materials supports the transition to a renewable and more sustainable economy by replacing finite resources. It can reduce greenhouse gas emissions and environmental pollution and diminish demand for landfills. Furthermore, it can help reduce the demand for first-generation feedstocks derived directly from agricultural crops or non-renewable resources.

Definitions, legal framework and verification process

This document provides the definitions, legal framework and verification process to determine whether materials meet the criteria for being classified as waste or residues under ISCC PLUS. The verification and assessment of a material and its waste or residue status is important to set a basic level of understanding on how waste and residues can be defined under ISCC PLUS. Only a consistent verification can avoid a deliberate increase in the production of waste or residues or a deliberate misclassification of materials. For this purpose, it is crucial to determine whether a material meets the applicable definitions for waste and residues under ISCC PLUS.

Different risks

The sustainability risks associated with final products derived from agricultural and forest biomass differ from those related to waste and residues. In the case of agricultural and forest biomass, the main task at the origin of the feedstock (farm/plantation or forest sourcing area) is to ensure compliance with the sustainable biomass production criteria. While, in case of waste and residues, the main task at the origin is to verify the type of raw material and that it meets the applicable definitions of waste or residue. Materials which may be eligible for extra incentives in specific geographical regions (e.g. double counting) or which are cultivated in high-risk areas may pose a particular high risk. For further information please refer to the System Document *ISCC PLUS 204 – Risk Management*.

Focus on Points of Origin

The auditing and certification principles under ISCC are equally applicable to agricultural and forest biomass, as well as waste and residues. However, there is a special focus on the Point of Origin for waste as residues, as this is the supply chain element where it is determined if the raw material meets the criteria for classification. Furthermore, for Points of Origin of waste or residues, a different risk approach is applied, leading to differences in the frequency and intensity of audits compared to the process for agricultural and forest biomass.

Regulatory framework and requirements

This System Document describes the framework for waste and residues under ISCC PLUS, as well as the requirements to determine whether a material meets the definition for waste or residues at the Point of Origin.

ISCC list of materials

ISCC PLUS certification can cover all types of biomasses (including agricultural and forest biomass), bio-circular and circular waste and residues, non-biological renewable materials and recycled carbon-based materials. As a formal requirement and for the purpose of a harmonised description of certified materials, ISCC maintains a list of all raw materials, intermediate and final products which are eligible for a certification.

On this list, ISCC indicates the raw materials, which may qualify as waste or residue. If a material is not published on this list, the material cannot be covered by an ISCC certification. However, ISCC can update the list and add further materials upon written requests from Certification Bodies. If a waste or residue material shall be added to this list, ISCC will require a detailed description of the material and its origin process, along with sufficient evidence demonstrating that the material is recognised/accepted as a waste or residue according to official or local waste codes (e.g. European Waste Code). ISCC can also remove certain materials from the list, based on re-classifications or latest analysis regarding the status as a waste or residue and the required certification approach. During any audit, the relevant raw material and the respective output material must be determined and classified according to the ISCC list of materials.

Responsibility of auditors

ISCC is not a public authority or agency, and therefore ISCC is not in the position to officially classify material as waste, neither by certification nor by inclusion on the ISCC list of materials. It is the responsibility of the auditor to determine whether a material meets the definition for waste and residues at the Point of Origin in the supply chain.

2 Definitions and Terminologies

For ISCC PLUS, the criteria for classifying materials as waste or residues are guided by definitions and principles outlined in the Waste Framework Directive 2008/98/EC and the Renewable Energy Directive 2023/2413[1]. These directives serve as foundational frameworks, providing clarity and guidance on what constitutes waste and residues within the context of our certification. In addition to that, the ISO 14021 and ISO 15270 have been used as references for certain terminologies used under ISCC PLUS.

By aligning with the principles established in these directives, ISCC PLUS ensures consistency and compliance with regulations while promoting sustainable practices.

Subsequently, a variety of terminologies that are utilised within the context of ISCC PLUS are described in this chapter in detail.

[1] *The most recently published Renewable Energy Directive will come into effect if it is implemented*.

2.1 Waste

Definition of waste

"Waste'" shall be defined as stated in Article 3 (1) of the *Waste Framework Directive 2008/98/EC*[2]*:* "Waste means any substance or object which the holder discards or intends or is required to discard". The Renewable Energy Directive III (RED III) provides further specification by stating that this excludes "substances that have been intentionally modified or contaminated in order to meet this definition".[3]

2.2 Residues

Definition of residue

According to the RED III, "residue" is defined as a substance that is not the product(s) that a production process directly seeks to produce; it is not a primary aim of the production process, and the process has not been deliberately modified to produce it".[4] The RED III distinguishes between two categories of residues:

1 Agricultural, aquaculture, fisheries and forestry residues: Residues that are directly generated by agriculture, aquaculture, fisheries and forestry and that do not include residues from related industries or processing.[5] Examples for agricultural residues are straw, husks or shells (if directly generated by agriculture). Examples for forestry residues are bark, tree tops, branches, leaves and needles.

2 Processing residue: A substance that is not the end product that a production process directly seeks to produce; the production of the residue or substance is not the primary aim of the production process, and the process has not been deliberately modified to produce it. Examples for processing residues are crude glycerin (glycerin that is not refined), bagasse and tall oil pitch.

Origin of the residue

The classification into one of the two residue categories depends on where the material was generated, either on a farm or forest or at a different element of the supply chain, such as a processing unit. This verification is the responsibility of the auditor as it determines the requirements the material must comply with. For example, corn cobs (i.e., cobs cleaned from the corn kernels) directly removed from a field would be classified as agricultural residue. Conversely, if the corn cobs are generated in a processing unit (i.e., corn kernels are separated from the cob in a processing unit), they would be classified as processing residue. This distinction is important as processing residues do not have to comply with the sustainability requirements according to System Documents *ISCC EU 202-1 – Agricultural Biomass: ISCC Principle 1, ISCC EU 202-2 – Agricultural Biomass: ISCC Principles 2-6* in case of

[2] *In the following referred to as WFD.*
[3] *Article 2 (23) of the RED III*
[4] *Art 2 (43) of the RED III*
[5] *Article 2 (44) of the RED III*

agricultural residues, and *ISCC EU 202-3 – Forest Biomass: ISCC Principle 1* and *ISCC EU 202-4 – Forest Biomass: ISCC Principles 2-6* in case of forestry residues (more information in Chapter 2.3).

Other materials resulting from a process

A production process may result in other materials not being the (single) primary aim of the process, but which are still of significant value to the producer. These "co-products" (See Chapter 8.1) do not qualify as processing residues. It is therefore important to distinguish between processing residues and co-products.

2.3 Co-Products

Co-products are no residues

The RED III specifies that co-products "are different from residues and agricultural residues, as they are the primary aim of the production process".[6]

Significant value

The specification of co-products and the definition for (processing) residues may suggest that a production process generally yields only one product ("the" primary aim of the process), leading to the assumption that all further materials from this process should be classified as processing residues. However, in many cases, a production process generates additional materials that are not the primary aim of the process but are still of significant value to the producer. A major use for such "co-products" in the food sector (e.g. sugar production, oilseed crushing, starch production, etc.) is animal feed, either used directly by farmers or by the feed industry. These "co-products" do not meet the criteria for processing residues.

Upstream certification required

Co-products in the context of ISCC are treated similarly to main products with regards to the certification process. This means that co-products require upstream certification to ensure that their sustainability characteristics can be traced back to its origin (type of raw material, waste status, Add-on information etc.)

Examples for co-products include rapeseed meal (a co-product from the rapeseed oil production), dried distillers' grains with soluble (a co-product from the ethanol distillation process) and carbon black produced from the pyrolysis of end-of-life tires.

2.4 Post-consumer and Pre-consumer Material

The ISCC approach covers post-consumer and pre-consumer waste. This can also include inorganic waste materials entering the circular economy.

Post-consumer material is defined as material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain (see also ISO 14021:2021).

Pre-consumer material that falls under the definition of "waste or processing residues" according to the "Process to determine if a material is a waste or

[6] *Preface (117) of the RED III*

residue" (See *Figure 2*) can also be named as "circular material/ products" under ISCC. Pre-consumer material covers, e.g. material derived from waste streams during the system user's manufacturing processes (See also ISO 14021:2021).

Treatment of pre-consumer material must undergo an additional processing step in order to be claimed as "circular" under ISCC PLUS. Examples of processes involved in an additional processing step include:

- Melting
- Extrusion
- Regranulation
- Compounding

For the internal processing of waste streams originating from non-sustainable feedstocks, the requirements are:

- The processed material is not used in the same production process which it originates from[7].
- Existence of an official waste code for the material.
- Additional processing step(s).
- The proportion of the reused circular pre-consumer material originating from the same site should be significantly lower (relevant data must be provided, which can be based on the product or on the production process) than the proportion of "virgin" raw material used. If a processing unit generates a higher share of waste and thus circular over time, evidence must be provided justifying that waste was not intentionally generated.
- If there are materials that can be assigned to the categories of rework, regrind or scrap generated, they cannot be claimed as "circular".

Handling of scrap from ISCC certified materials

If scrap originates from ISCC certified materials, then it is handled as follows:

- If it can be processed internally, the sustainable credits remain in the mass balance and can be further allocated to the outputs (taking into consideration the rules for certified attribution, e.g. process feasibility).
- If it is sold to an external facility for re- or further processing, they are to be classified as co-product with the option to attribute sustainable shares to any output of the production process (keeping in mind the general requirements for certified attribution such as technical feasibility).

7 *Same production process means same manufacturing operation for the same type of product. (EN 45557:2019)*

> If it is discarded without any re- or further processing, it must be considered as a production loss.

Concerning supply chains based on reuse and recycling of material, all ISCC requirements regarding traceability, chain of custody and all other relevant ISCC requirements are fully applicable.

PIR and PCR

Once recycled, materials made from pre-consumer waste and post-consumer waste are referred to Post-Industrial Recycled (PIR) and Post-Consumer Recycled (PCR) materials respectively.

Post-Industrial Recycled (PIR) materials originate from pre-consumer waste generated during manufacturing processes. These include offcuts, trimmings, or defective products that cannot be reused within the same production cycle and therefore require an additional external processing step (e.g. extrusion, regranulation, or compounding) to be considered as certified (circular or bio-circular) materials under ISCC PLUS.

In contrast, Post-Consumer Recycled (PCR) materials are derived from products that have fulfilled their intended purpose and have been disposed of by end-users, including households or businesses, for example. These post-consumer waste typically originate from municipal waste management systems. Examples include used plastic bottles, food packaging, and end-of-life consumer goods.

2.5 Further Definitions

The inclusion of clear definitions of terms related to the topic of waste and residues is important within the framework of ISCC PLUS. These definitions provide a standardized language essential for ensuring consistency and accuracy in the certification process. By establishing precise terminology, ISCC PLUS enables system users to accurately identify, categorize, and manage waste streams in line with sustainable practices throughout the supply chain.

Municipal solid waste

"Municipal solid waste" means:

- mixed waste and separately collected waste from households (e.g. paper and cardboard, plastics, bio-waste, wood, textiles, packaging, waste electrical and electronic equipment and bulky waste, including mattresses and furniture).
- mixed waste and separately collected waste from other sources, where such waste is similar in nature and composition to waste from households.
- municipal solid waste does not include waste from production, agriculture, forestry, fishing, septic tanks and sewage network and treatment, including sewage sludge, end-of-life vehicles or construction and demolition waste.[8]

[8] *Art. 3 No. 2b of the WFD*

Biowaste

"Biowaste" means biodegradable garden and park waste, food and kitchen waste from households, offices, restaurants, wholesale, canteens, caterers and retail premises and comparable waste from food processing plants.[9]

Food

"Food" (or 'foodstuff') means any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans. Food shall not include feed (defined as any substance or product, including additives, whether processed, partially processed or unprocessed, intended to be used for oral feeding to animals).[10]

Food waste

"Food waste" means all food as defined in Article 2 of Regulation (EC) No 178/2002 of the European Parliament and of the Council that has become waste.[11]

Plastic waste

"Plastic waste" is an eligible feedstock under ISCC PLUS and can be covered under the following streams based on their nature and origin.

- **Mixed plastic waste:** Different types of plastic material that is collected from households by e.g. municipalities and further sorted by waste management plants.
- **Mixed waste plastic:** Depending on the legal context, the terminology "Mixed waste plastic" may be used to emphasize the more uniform nature of the material as a plastic rather than a waste.
- **Dedicated streams of plastic waste** can be covered separately by additionally providing information on the **type of polymer** (e.g. Plastic waste (PE)).

Ocean-bound plastic

Ocean-bound plastic (OBP) refers to all forms of plastic waste found within 50 kilometres of ocean coastlines, which have a high likelihood of entering marine environments due to factors such as inadequate waste management, tidal movements, river transport and extreme weather conditions.[12] To qualify as OBP, plastic waste must be found in at least one of the following situations:

- Along shorelines within 200 meters from the highest tide limit and 100 meters from the lowest tide limit.
- Within 50 kilometres of an ocean coastline and within 200 meters of a river on both banks.[13]

3 Raw Material Category

According to ISCC PLUS, there are four raw material categories (as listed below) with which a material can be certified. These categories are identified at the beginning of the supply chain.

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[9] *Art. (3) No. 4 of the WFD*

[10] *Art. 2 Regulation (EC) No 178/2002 of the European Parliament and of the Council*

[11] *Art. 3 No. 4a of the WFD*

[12] *Definition is aligned with the definitions of OBP cert, Oceancycle, Zeroplastic Ocean/Prevented Ocean Plastic.*

[13] *Valid only for locations where regular municipal waste collection and disposal services are unavailable or ineffective. Contact ISCC for further assessment.*

- Bio
- Bio-circular
- Circular
- Renewable-energy-derived

The raw material categories are defined in the System Document *ISCC PLUS 201 – System Basics.* Bio-circular and circular feedstocks are second-generation feedstocks which are the source for waste and residues under ISCC PLUS. They are the materials at the beginning of the supply chain considered as waste or residue that are not landfilled or energetically used, but instead re-used, re-distributed, re-furbished, re-manufactured or recycled in a loop without dropping out of the economy.

4 Specific Waste Streams

Under ISCC PLUS, there are certain waste streams that are regarded to be of a higher concern due to the source and categorization of waste (on how they originate). In the following sections specific requirements pertaining to the type of raw material are listed. This is an overview of specific streams.

In case of plastic wastes, it is possible to recover them from a specific source and maintain their characteristics based on their source (for e.g. recovered from automotive, OBP etc.)

Sources of plastic waste

When plastics recovered from a specific source are sold to certified System Users, the information about the material being recovered from the specific source must be indicated in the Declarations and necessary documents to ensure that their sustainability characteristics remain traceable and are available for verification. Also, the bookkeeping for that respective material must be kept accordingly to ensure that the material's sustainability characteristics are upheld.

Ocean-bound plastic waste

Furthermore, OBP may be claimed as post-consumer material if it is verifiable during audits. In addition to that, collectors must meet the set of social requirements for the OBP waste to be covered under ISCC PLUS. These additional requirements and guidance with regard to OBP can be found in the *ISCC PLUS Guidance document: Ocean-bound Plastic.*

End-of-life tires under ISCC PLUS

Under ISCC PLUS it is possible to certify both the biogenic and the fossil section of end-of-life tires. Tires are usually sorted into reusable/recycled tires and waste tires not fit for recycling. Only tires that are not fit for reuse/recycling can be considered as waste under ISCC (reference to principles of waste hierarchy). The Point of Origin in case of the end-of-life tires, would be the

economic operator sorting the tires and determining between End-of-life tires and tires that are fit for reuse/recycling.

Waste and residues from Food and related sectors

For materials like UCO, Brown grease or POME, ISCC provides further guidance and additional information through Guidance Documents that are available in the ISCC website. Some of the guidance documents include, *ISCC Guidance document: Waste and Residues from Food and Food Processing, ISCC Guidance Document: Waste and Residues from Palm Oil Mills.*

Categorisation of animal fats

The correct categorisation of animal fats according to the categories 1, 2 and 3 must be done by veterinarians or inspectors of competent authorities.[14] Points of Origin for animal fat (e.g. rendering plants) require an adequate permit demonstrating which materials can be handled at the specific site. ISCC auditors must verify the respective evidence demonstrating the category of the material before issuing a certificate and before stating a specific category on the annex to an ISCC certificate.

Other waste streams

Furthermore, there are specifications that must be met for certain types of waste or residues (for e.g. silicon waste, ceramic waste etc.). In addition to the existing requirements for materials to be eligible as a waste or residue under ISCC, these specifications are essential for ensuring the proper handling of these materials. The relevant specifications for the respective waste or residues can be found in the list of eligible materials for ISCC.

5 Waste Hierarchy

The principles of the waste hierarchy as specified in Art. 4 of the WFD lay down a priority order of five options to deal with waste (*Figure 1*).

Figure 1: Waste hierarchy according to Article 4 of the WFD

[14] *This must be done in accordance with the EU animal by-product legislation (Regulation (EC) 1069/2009 and Commission Regulation (EU) 142/2011). In case, the categorisation cannot be applied (especially outside of the EU) the raw material can be classified under 'uncategorised' group.*

In the context of the five options, the initial priority is to prevent the generation of waste at the source. Subsequently, when waste is generated, the reuse of products or components that are not waste for the same purpose for which they were originally conceived is given the second-highest priority.

The third option in the Waste hierarchy is recycling. Recycling activities are operations by which waste materials are reprocessed into products, materials and substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations. The following chapter will detail the various plastic recycling activities covered under ISCC PLUS.

If recycling is not a viable option, recovery activities represent the next potential option for the management of waste. Recovery means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

Disposal of waste refers to the collection, sorting, transport and treatment of waste as well as its storage and tipping above or underground, the transformation operations necessary for its re-use, recovery or recycling. Disposal is the least prioritized option under the Waste hierarchy

6 Plastic Recycling

With regard to plastics, recycling is defined as processing of plastics waste materials for the original purpose or for other purposes, excluding energy recovery[15]. Under ISCC PLUS, recycling plastic waste is a process intended to save resources (e.g. virgin raw materials and energy) and minimize harmful environmental emissions. Thus, the collection and sorting of plastic waste should be properly designed to deliver recyclable plastic waste fractions fitting reasonably well with the available recycling technologies and with the needs of the identified market outlets. It is preferable that these processes incur minimal environmental and societal costs.

Article 4 of the WFD sets out a general order of priorities for waste management. According to this document, recycling of plastic material is more advantageous than energy recovery. Under ISCC PLUS recycling of plastics is covered under three categories:

- Mechanical recycling
- Chemical recycling
- Other recycling activities

[15] *ISO 15270:2008(E)*

Regardless of the category, supply chains of recycled plastics involve entities that generate, collect, or physically process waste. The appropriate assignment of each entity in the ISCC PLUS certification scopes depends on whether waste materials are used solely as input or appears as both input and output in the entity's operation.

6.1 Mechanical Recycling

Mechanical recycling involves the processing of plastic waste into intermediates or final products without changing its chemical structure of the material.[16] Activities of a mechanical recycling plant can be:

- Sorting (e.g. dry/wet sorting, float/sink separation, etc.)
- Washing
- Shredding/grinding/crushing
- Compressing
- Melting/pelletizing

6.2 Chemical Recycling

Chemical recycling refers to the conversion of polymers into their monomers, chemical building blocks or basic chemicals, e.g. via depolymerization by means of thermochemical or other chemical processes.[17]

Considering the total energy consumption, the minimization of harmful process emissions, the social and health protection of workers, and the avoidance of disproportionate costs, mechanical recycling should be preferred to chemical recycling of plastic waste. Sorting companies must have sufficient measures and processes in place to consider these issues and to determine how plastic waste will be recycled. The use of chemical recycling should be complementary to mechanical treatment methods. Chemical recycling should be applied where:

- Mechanical recycling is not technically feasible,
- Mechanical recycling is not economically viable,
- Mechanical recycling leads to low-quality products, or
- Mechanical recycling has a higher negative environmental impact.

6.3 Other Recycling Activities

The third category, **Other recycling activities** refers to the type of recycling operations that cannot be categorized under Mechanical recycling or

[16] *ISO 15270:2008(E)*
[17] *ISO 15270:2008(E)*

Chemical recycling. Some examples for other recycling activities include dissolution techniques for plastics, organic recycling etc.

Dissolution recycling is a process in which plastics are selectively dissolved in a specific solvent to separate its polymers from contaminations, impurities, and other non-target materials.

On the other hand, **Organic recycling** refers to controlled microbiological treatment of biodegradable plastics waste under aerobic or anaerobic conditions.[18]

Due to the preference for mechanically recycled quantities in cascade utilisation and its described advantages, batches of materials recycled with different recycling operations and their outgoing product quantities should be documented separately in mass balance documentation.

7 Sustainability and Traceability Requirements

7.1 Sustainable Land Use Requirements

Residues from agriculture, aquaculture, fisheries, and forestry must adhere to the sustainability requirements outlined in System Documents *ISCC EU 202-1 – Agricultural Biomass: ISCC Principle 1* and *ISCC EU 202-3 – Forest Biomass: ISCC Principle 1*. Therefore, the certification procedure for these residues starts at the cultivation level, similar to the process for agricultural and forest biomass.

Waste and residues, excluding those from agriculture, aquaculture, fisheries, and forestry (i.e., processing residues), are not obliged to meet the sustainability criteria for the sustainable production of agricultural and forest biomass. Consequently, the use of waste and processing residues is feasible if they align with the respective definitions and comply with the applicable ISCC requirements.

Not applicable for Processing residues

7.2 Traceability and Chain of Custody

Traceability of waste and residues starts at the economic operator, where the waste or residue occurs or is generated (i.e. the Point of Origin) and is forwarded along the downstream supply chain. Traceability is achieved by applying an appropriate chain of custody method (e.g. mass balance or segregation) as well as relevant documentation. This includes self-declarations and Sustainability Declarations, assuring that all relevant information, such as the type of (raw) material, the scope of certification of the raw material, etc of a material can be clearly identified on each level of the supply chain.

Traceability starts at Point of Origin

The entire supply chain of the material that is to be covered under ISCC must be covered by a valid certification. The first element of the supply chain

Certification starts at the Collecting Point

[18] *ISO 15270:2008(E)*

requiring individual certification is the economic operator collecting the waste or residue from the Point of Origin and becoming the owner of the material. For waste and processing residues, this economic operator is called “collecting point”. For residues from agriculture or forestry, this economic operator is called “first gathering point”.

Relevant reference documents

The general definitions of supply chain elements are specified in the System Document *ISCC PLUS 201 – System Basics* The requirements for traceability and chain of custody as well as general and specific audit requirements for the chain of custody elements are specified in the System Document *ISCC PLUS 203 – Traceability and Chain of Custody.*

8 Verification Process

8.1 Overview

Responsibility of the auditor

It is the responsibility of the auditor to determine whether a material qualifies as waste or residue at the Point of Origin, which is the element in the supply chain where the material originates. Raw materials shall not be classified as a waste or residue if they or their production process have been deliberately modified to declare them as such.

Responsibility of the Point of Origin

It is the responsibility of the Point of Origin to facilitate the auditor´s verification process appropriately and to provide adequate evidence demonstrating that the material generated by the Point of Origin qualifies as a waste or residue. Economic operators shall keep and present the underlying evidence to the auditors to support their assessments.

Definitions of the RED III and WFD apply

Economic operators and auditors shall adhere to the following process to determine whether a material meets the definitions for waste or residues. This process is based on the definitions for waste, residues and co-products as stated in the RED III and WFD (See Chapters 2.1 – 2.3).

The WFD also sets requirements that we use for our classification of co-products (referred to as “by-product” within the WFD)

A material is considered to be a co-product (by-product) if all the following conditions are met:

- A further use of the substance or object is certain;
- the substance or object can be used directly without any further processing other than normal industrial practice;
- the substance or object is produced as an integral part of a production process; and
- further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

The below flow chart (*Figure 2*) provides the process to determine if a material meets the definition for waste, residue, product or a co-product.

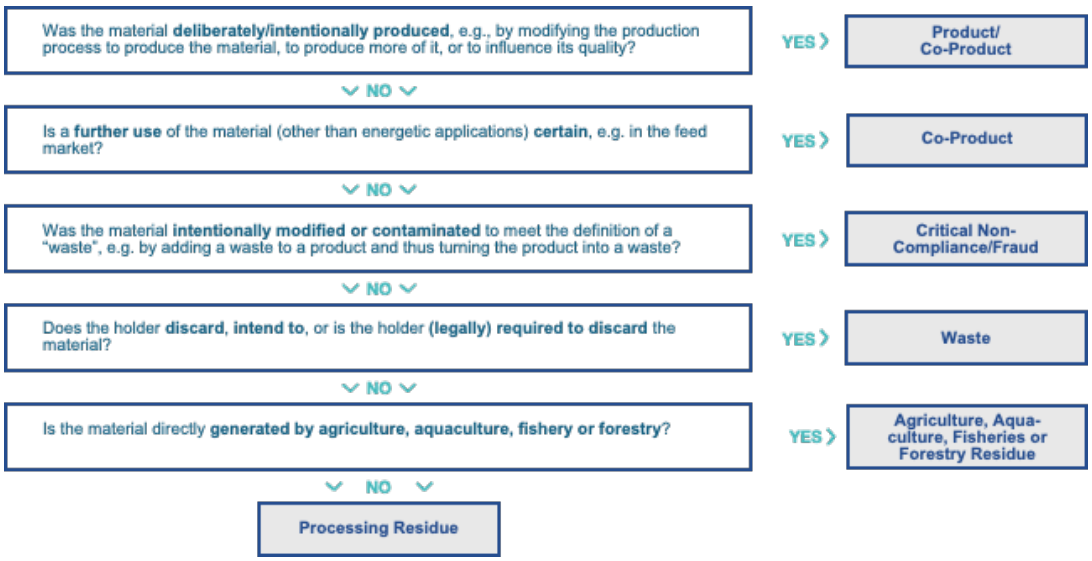

Figure 2: Process to determine if a material is a waste or residue

8.2 Determination if a Material is a (Co-)Product

No deliberate production

A deliberate (intentional) production process aims to produce specific main/ primary product or co-products. A production is considered deliberate (intentional) if the production process was modified to influence the amount, the quality and/or the technical characteristics of the outcoming material. If the production of a specific material is the result of a technical choice, the material is considered a (co-)product. If the producer could have produced the primary product without producing the material concerned or with producing less of the material concerned but chose not to do so, this can be regarded as evidence that the material concerned is a (co-)product. If the material is of significant economic value for the Point of Origin (i.e. a significant fee is being paid to the Point of Origin), this may indicate that the respective material might classify as a (co-)product. Deliberately produced (co-)products do not qualify as waste or residue. The deliberate or intentional production of waste or residues violates the principle of waste prevention and is a critical non-conformity under ISCC.

It is the responsibility of the auditor to verify that no deliberate production of a material has taken place. The Point of Origin must explain the process from which the material originates to the auditor to ensure that the auditor has an adequate understanding of the individual process.

If the material is an end product that the production process directly seeks to produce or a primary aim of the production process, it cannot be classified and certified as a waste or as a residue under ISCC. If it is determined that the material is not a (co-)product, it may either qualify as a residue or as a waste.

Economic value

As the existence of a market or an alternative application for a waste or residue material may be difficult to assess during an audit, the economic value of a material is a feasible criterion which can be assessed. If the economic benefit for the Point of Origin is insignificant, it can be assumed that the main goal of the Point of Origin is to reduce the amount of waste or residue in favour of the main or primary product(s). Therefore, the risk for deliberate production or intentional contamination can be considered to be low. The economic benefit of a material generated at a Point of Origin can be regarded as insignificant if the economic value of the material is 15% or lower than the economic value of the main or primary product(s). This only applies if the material in question is used for non-bioenergy purposes. This means, if only bioenergy applications are relevant to be considered as "further use of the material", the economic value in this case is not relevant to determine if a material meets the definition of a processing residue. In the case of two or more main or primary products, the average economic value of those products shall be used.

Calculation formula

Figure 3 shows the formula to calculate the ratio of the economic value of the material in question and the economic value of the main/primary products.

$$Ratio\ of\ economic\ value = \frac{Price\ per\ ton\ of\ material}{Price\ per\ ton\ of\ primary\ product}$$

Figure 3: Formula to calculate the ratio of the economic values

8.3 Intentional Contamination or Modification

No intentional contamination or modification

It is not allowed to intentionally contaminate or modify a material so that it could be declared as waste. An example of intentional contamination is adding waste to a material that is not a waste, such as mixing used cooking oil to unused vegetable oil, and thus turning the unused vegetable oil into a waste. The auditor must verify if such intentional contamination has taken place. One indicator could be if there are any incentives (e.g. a "business case") for the Point of Origin to generate waste by intentional contamination or modification. The verification should also include a plausibility check of the amounts of the respective material generated by the Point of Origin, e.g. the ratio between raw material (input), (co-) products and waste, historical data such as production reports, the disposal rate, etc. Another indicator for an intentional contamination could be a sudden increase in the amount of the respective material generated by the Point of Origin. The intentional contamination or modification of a material to classify it as waste or residue is regarded as fraudulent activity and is categorized as a critical non-conformity under ISCC.

If it is determined that the material is not a product and that it was not intentionally contaminated or modified, it can be classified either as a waste or as residue.

8.4 Determination if a Material is a Waste

Alternatives to discard material

The key term of the waste definition in the WFD[19] is "discard". This term is used in three alternatives: (1) the holder discards or (2) intends or (3) is required to discard. In the following, the "holder" will be referred to as the Point of Origin. The concept of discarding a material requires a consideration of the circumstances at the Point of Origin where the material is generated.

Material is being discarded

The first alternative ("the holder discards") describes an actual action or activity of the Point of Origin. For instance, this refers to a material which was thrown away or which was disposed at a landfill by its original owner. Some examples are municipal solid waste or UCO discarded by a private household into a public container. The fact that a material is (or was) disposed at a landfill or in a public container indicates that the material was discarded by the Point of Origin, and thus that the waste definition is met.

Intention to discard material

The second alternative ("the holder intends to discard") describes an intention of the Point of Origin. An example is food waste, such as leftover food, or UCO, both being generated at a restaurant. Considering the purpose of a restaurant, it can generally be assumed that a restaurant has the intention to discard food waste as well as UCO because the purpose of the restaurant is to sell food to its customers and not sell food waste or UCO. Another example is a palm oil mill generating palm oil mill effluent (POME). POME is a wastewater from the palm oil mill consisting of mainly water and a small amount of solid matter and oil (POME oil). Considering the purpose of the palm oil mill, it can generally be assumed that the palm oil mill has the intention to discard the POME because the purpose of the palm oil mill is to produce palm oil as efficiently as possible and losing oil to the wastewater reduces the yield of the palm oil mill.

Legal requirement to discard material

The third alternative ("the holder is required to discard") describes an obligation for the Point of Origin. An obligation to discard a material is usually based on legislation or regulations. This alternative especially applies in case of hazardous wastes. The fact that a Point of Origin is obligated to discard the material indicates that the waste definition is met.

Fee paid by collector

If there is evidence that the Point of Origin pays a fee to dispose the material, this generally indicates an intention to discard the material and thus that the waste definition is met. However, it is also possible for the collector to pay a fee to the Point of Origin to collect the waste. For instance, it is common for a collector to pay a fee to a restaurant for the UCO collected. Such a fee does not necessarily change the intention of the Point of Origin to discard the material as a waste. However, if the collector pays a fee to the Point of Origin, this could increase the risk of deliberate production of waste or the risk of intentionally modifying or contaminating a material, or modifying the process to produce more of the material. This risk may especially increase if the fee that is paid by the collector to the holder is higher than the price that the Point

[19] *Art. 3 (1) of the WFD: 'waste' means any substance or object which the holder discards or intends or is required to discard*

of Origin pays for the material in its original state, i.e. before it became a waste, or if the fee paid by the collector of the waste is higher than the price being paid for the main product the Point of Origin produces. An example would be a collector of UCO paying a higher price for the UCO to the restaurant than the restaurant initially paid for the unused (fresh) oil. Another example would be a collector paying a higher price for the POME oil than the palm oil mill receives for its main product, the palm oil. If a collector pays a fee to the Point of Origin to collect the waste, the auditor has to compare the respective prices and fees. The auditor must verify that such a fee does not lead to a deliberate production of the material or to an intentional contamination or modification to produce the material or to produce more of the material.

If it is determined that the material is not a product, and that it was not intentionally contaminated or modified so that it could be declared as waste, and that it does not meet the criteria for waste, it can be classified as a residue.

8.5 Determination of the Origin of the Material

If a material is not a product and if it does not qualify as a waste, it may still qualify as a residue. It is possible for a material to be classified between several categories under ISCC (e.g. product, co-product, waste or residues etc.). For residues there are two potential sources: those resulting from a processing step and those which are directly generated by agriculture, aquaculture, fisheries and forestry.

It is the responsibility of the auditor to verify the origin of the material in order to determine the correct classification. If a material is directly generated by agriculture, aquaculture, fisheries and forestry and it is neither deliberately produced nor does it qualify as a waste, it meets the definition of an agricultural, aquaculture, fisheries or forestry residue. On the other hand, it must be ensured that for a processing residue all the necessary requirements are met according to Chapter 8.1.

Differentiating between types of residues

It must also be ensured that the appropriate raw material category has been assigned to the waste or residue-based materials based on their origin.

8.6 Correct Declaration of Material

No false declaration of material

The correct declaration of waste/residues materials is a crucial element and thus an important point for the auditor to verify during the audit. The waste or residue material has to be declared according to the factual circumstances. This means, for example, it is not allowed to declare food waste as UCO or to declare plastic waste recovered from automotive as OBP waste. If there are reasonable doubts about the nature of the declared waste and residues, the auditor shall be authorised to take samples and to have them analysed by an independent laboratory.

Responsibility of the auditor

It is the responsibility of the auditor to check that at the Point of Origin no false declaration of a material has taken place. This check also includes if there are any incentives (e.g. price premiums) for the economic operator to not correctly declare waste/residues materials as described above.

Critical non-conformity

The false declaration of waste and residues is classified as a critical non-conformity under ISCC. The intentional false declaration of waste and residues is regarded as fraudulent activity under ISCC. Please see System Document *ISCC PLUS 102 – Governance* for further information on non-conformities and sanctions