



# ISCC CORSIA 201-1

## WASTE, RESIDUES, BY-PRODUCTS

Version 1.1



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Document Title: ISCC CORSIA 201-1 Waste, Residues, By-Products

Version: 1.1

This version becomes valid after approval by ICAO

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## Summary of Changes

The following is a summary of all content changes to the previous version of the document. Minor amendments which do not affect the content, e.g. corrections of phrasings, marginal notes, amendments of graphics, etc. are not listed.

Summary of changes made in version 1.1	Chapter
Amendment: Differentiations between ISCC CORSIA and ISCC CORSIA PLUS requirements were added where necessary.	1, 4.1
<i>Addition: „Requirements with regard to the certification of waste, residues and by-products are largely the same for ISCC CORSIA and ISCC CORSIA PLUS. Therefore, as a basic principle, all references made to ISCC CORSIA in this document apply to ISCC CORSIA PLUS as well. Whenever requirements differ between the two systems, this is explicitly stated.”</i>	2

## 1 Introduction

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) was developed by the International Civil Aviation Organization (ICAO) and requires the aviation industry to offset growth-related Greenhouse Gas (GHG) emissions. Emissions are offset by aeroplane operators through the purchase of carbon credits that are generated by climate protection projects. However, an aeroplane operator can reduce its CORSIA offsetting requirements in a given year by claiming emissions reductions from the use of sustainable aviation fuels (SAF). In order to become eligible, such fuels shall come from fuel producers that are certified by an ICAO approved Sustainability Certification Scheme. CORSIA eligible fuels can be produced from crop feedstocks in order to avoid the use of fossil sources. However, they can also be produced from wastes, residues and by-products, thereby reducing not only greenhouse gas emissions, but also land demand or conflicts with food security and contributing to the development of a circular economy.

CORSIA

This document provides the principles for the certification of raw materials and feedstocks qualifying as “waste”, “residue” or “by-product” under ISCC CORSIA and ISCC CORSIA PLUS as their supply chains and specific certification requirements may differ from those of the conventional crop-based biomass.

*Different certification requirements*

The sustainability risks for final aviation fuels that are produced from agricultural crops are different from the ones produced out of waste, residues or by-products. At the origin of agricultural crops (farm or plantation) it must be verified that the criteria for sustainable production of biomass are complied with, such as the protection of land with high carbon stock. At the origin of waste, residues or by-products, it is essential to verify the type of raw material used and its status as a genuine waste, residue or by-product. For this purpose, it is necessary to ensure traceability of a waste, residue or by-products back to its origin, along the entire chain of custody.

*Different risks*

The requirements described in this document apply for specific elements of the supply chain, namely points of origin and collecting points, in addition to the other ISCC CORSIA system documents.

*Application to points of origin and collecting points*

## 2 Scope and Normative References

The requirements described in this document specify the identification of waste, residues and by-products and their certification process. This document is valid in addition to the other ISCC CORSIA system documents. The principles specified in this document have to be considered for all supply chain elements which are involved in the production, collection or processing of waste, residues or by-products.

*Applicable to the certification of waste, residues and by-products*

Requirements with regard to the certification of waste, residues and by-products are largely the same for ISCC CORSIA and ISCC CORSIA PLUS.

*References*

Therefore, as a basic principle, all references made to ISCC CORSIA in this document apply to ISCC CORSIA PLUS as well. Whenever requirements differ between the two systems, this is explicitly stated.

### 3 Definitions and Regulatory Framework

#### 3.1 Primary Products and Co-Products

Primary and co-products are the main products of a production process. These products have significant economic value and elastic supply, (i.e., there is evidence that there is a causal link between feedstock prices and the quantity of feedstock being produced).

*Definition primary and co-products*

#### 3.2 By-products

By-products are secondary products with inelastic supply and economic value.

*Definition by-products*

#### 3.3 Waste

Wastes are materials with inelastic supply and no economic value. A waste is any substance or object which the holder discards or intends or is required to discard. Raw materials or substances that have been intentionally modified or contaminated to meet this definition are not covered by this definition.

*Definition waste*

#### 3.4 Residues

Residues are secondary materials with inelastic supply and little economic value. Residues include:

*Definition residues*

- > Agricultural, aquaculture, fisheries and forestry residues: Residues directly deriving from or generated by agriculture, aquaculture, fisheries and forestry.
- > Processing residues: 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.

#### 3.5 Positive list

The ICAO Council agreed on a positive list of feedstocks that have been classified as by-product, wastes and residues (see Table 1). It has been arrived at considering a broad range of publicly-available regulatory and voluntary approaches. This list is non-exhaustive. It includes materials currently in use or in discussion to be used for sustainable aviation fuel. The classification of specific feedstocks as by-products is subject to later revisions as part of the regular CORSIA review process in case there is strong scientific evidence showing that significant indirect effects could be associated to these feedstocks. Please note that the table in this document represents a version of the list from April 2020. It is not kept up-to-date. Auditors and economic operators are required to make sure they use the latest version of ICAO's

*List of waste, residue and by-product materials*

positive list on waste, residues and by-products available. Please check the ICAO website on CORSIA eligible fuels.

Table 1: Positive list of materials classified as waste, residue or by-product.

Residues		
Agricultural residues	Forestry residues	Processing residues
Bagasse	Bark	Crude glycerine
Cobs	Branches	Forestry processing residues
Stover	Cutter shavings	Empty palm fruit bunches
Husks	Leaves	Palm oil mill effluent
Manure	Needles	Sewage sludge
Nut shells	Pre-commercial thinnings	Crude tall oil
Stalks	Slash	Tall oil pitch
Straw	Tree tops	
Wastes		
Municipal solid waste		
Used cooking oil		
By-products		
Palm fatty acid distillate		
Tallow		
Technical corn oil		

## 4 Certification Process

### 4.1 Sustainability Requirements

Waste and processing residues other than those directly derived from agriculture, aquaculture, fisheries and forestry do not need to comply with the sustainability requirements for sustainable cultivation of biomass. This means that the further use of genuine waste and processing residues can be considered as sustainable if they comply with the applicable ISCC CORSIA requirements.

*Not applicable to genuine waste*

Residues, which are directly derived from agriculture, aquaculture, fisheries and forestry, must comply with the applicable CORSIA sustainability criteria (under ISCC CORSIA) or with the ISCC CORSIA PLUS Principles 1-6 for sustainable cultivation of biomass (under ISCC CORSIA PLUS) as laid down in the ISCC CORSIA Document 202 “Sustainability Requirements”. Therefore, the certification process for such residues starts at the level of cultivation and is identical to the process for agricultural crops grown and harvested on farms or plantations. The only difference to the standard certification process is that their emissions at the production step are considered to be zero (see below).

*Applicable to agricultural residues*

**4.2 Life Cycle Greenhouse Gas (GHG) Emissions**

Waste, residues and by-products are considered to have zero life-cycle greenhouse gas emissions at the production step of those materials. Emissions generated during the harvesting, collection, recovery, extraction, transportation and processing of these wastes, residues, and by-products, however, shall be included.

*Zero GHG emissions*

The production of SAF from wastes and residues may generate emissions credits that can be subtracted from the core life cycle assessment value to calculate the total life cycle emissions value  $LS_r$ . For more information please see ISCC CORSIA Document 205 “Life Cycle Emissions”.

*Emissions Credits*

CORSIA eligible fuels produced from waste, residues and by-products must achieve net GHG emissions reductions of at least 10% compared to fossil jet fuel on a life cycle basis.

*GHG reduction target*

The requirements for GHG calculation and verification are specified in ISCC CORSIA Document 205 “Life Cycle Emissions”.

*Document 205 on calculating life cycle emissions*

**4.3 Traceability and Chain of Custody**

Traceability of waste, residues and by-products starts at the point where the waste or residue occurs or is generated (point of origin) and covers the entire supply chain.

*Traceability starts at point of origin*

Traceability is achieved by using systems for traceability (e.g. mass balance or segregation) as well as identification numbers and delivery documents (Sustainability Declarations), assuring that the country of origin (i.e. the country where the waste, residue or by-product was generated), the type of (raw) material, the amount and the respective GHG emissions of a material can be clearly identified on each level of the supply chain.

*Systems for traceability, identification and documentation*

In the case of waste, residues or by-products, the ISCC Sustainability Declaration must include the name of the waste, residue or by-product raw material. In the case of intermediate or final products derived or produced from waste, residues or by-products, the waste, residue or by-product material used as raw material must be specified on the Sustainability Declaration for the product (e.g. bioethanol from straw). For waste, by-products and processing residues, other than agricultural crop residues, aquaculture, fisheries and forestry residues, the Sustainability Declaration must include a

*Information on Sustainability Declaration*



clear statement that the land-related sustainability criteria according to ISCC CORSIA Document 202 are not taken into account. If a Sustainability Declaration includes the respective statement this means that the respective criteria for sustainable production of biomass have not been verified as a part of the certification process.

The entire chain of custody of sustainable material must be covered by certification. The first element of the supply chain requiring individual certification is the collecting point for processing waste, residues or by-products or the first gathering point for agricultural, forestry or fishery waste, residues or by-products. Figure 1 provides an overview of a supply chain indicating which supply chain elements are subject to audits.

*Certification starts at the collecting point*

The general definitions of supply chain elements are specified in ISCC CORSIA Document 201 “System Basics”. The general requirements for traceability and chain of custody are specified in ISCC CORSIA Document 203 “Traceability and Chain of Custody”. The audit requirements for individual supply chain elements are specified in ISCC CORSIA Document 204 “Audit Requirements and Risk Management”. The requirements for group certification and sampling are specified in ISCC CORSIA Document 206 “Group Certification”.

*Relevant reference documents*

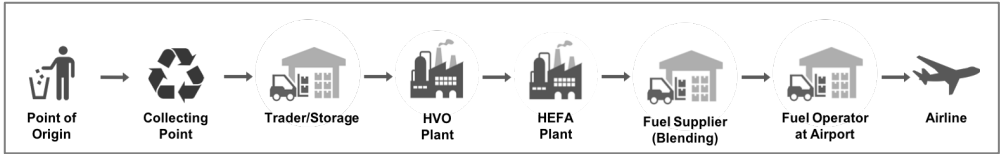


Figure 1: Example of a (simplified) supply chain. Collecting point, trader/storage, HVO plant, HEFA plant and fuel supplier/blender must be certified individually. Points of origin can be certified as a group or individually.

**4.3.1 Point of Origin: Agricultural, Aquaculture, Fisheries and Forestry Residues**

In the case of residues directly deriving from or generated by agriculture (e.g. straw, bagasse, husks), aquaculture, fisheries and forestry, the point of origin is a farm, plantation or forest management unit where sustainable biomass is cultivated and harvested. In the case of residues from aquaculture, fisheries and forestry the point of origin is the equivalent to the farm or plantation for agriculture. Farms, plantations and forest management units do not need to be certified individually. Farms, plantations and forest management units which are not certified individually have to conduct a self-assessment and complete and sign a self-declaration which must be provided to the certified first gathering point. Farms, plantations and forest management units are usually audited based on a sample. Farms, plantations and forest management units can also become certified individually on a voluntary basis.

*Agricultural crop residues*

**4.3.2 Point of Origin: Waste and Processing Residues**

For waste and processing residues, different set-ups can be distinguished with respect to the type of the point of origin and the collection setup of the material.

*Different types of points of origin*

Similar to farms and plantations, points of origin for waste, residues and by-products do not need to be certified individually. Instead of becoming certified individually, such points of origin must issue a self-declaration to the certified collecting point. If traceability of waste and residues from the point of origin to the collecting point is ensured by existing systems operated by governmental authorities (delegated or authorised otherwise), e.g. on a local, regional or national level, ISCC can recognise the equivalence of such systems with the issuing of a self-declaration. Equivalence of such systems must be assessed and approved by ISCC. Depending on the type and size of the point of origin the principles of group auditing (auditing based on a sample) can be applied. However, individual certification of such points of origin is possible on a voluntary basis.

*Self-declaration  
or equivalent*

ISCC takes into account the different risk levels to ensure integrity of ISCC CORSIA, of claims made under ISCC CORSIA, and to avoid unnecessary obstacles or administrative burdens related to the certification of waste, residues or by-products. By this, ISCC facilitates the diversification of sustainable raw materials. As different categories of points of origin for waste and processing residues exist, these categories must be considered separately with respect to the certification process and audit requirements.

*Risk levels*

In the following, different categories of points of origin, their relationship to the collecting point, their risk exposure and the particular requirements for the certification and audit process are specified:

## **1 Businesses and Companies:**

This is the most common category of points of origin. It includes for example restaurants or industrial operations using virgin oils to fry or cook food, operations processing biomass or vegetable oils and other commercial processors generating waste or residues. In case of animal fat or tallow, the point of origin is usually a rendering plant producing animal fat/tallow out of animal by-products.

*Restaurants or  
industrial  
operations*

Irrespective of the amount of material generated, businesses and companies must allow auditors on-site access to verify compliance with the ISCC CORSIA requirements if necessary. However, businesses and companies generating less than 10 metric tons of a specific waste or residue per month (or less than 120 metric tons per year based on a rolling average) are considered to have a low risk of fraud due to the marginal amount of material generated. Thus, it is (usually) not obligatory to verify compliance during an on-site audit, unless there is indication or evidence for non-conformity with the ISCC CORSIA requirements. Businesses and companies generating more than 10 tons of a waste or residue material per month (or more than 120 tons per year) are considered to have a higher risk of fraud due to the higher amount of material generated. Therefore, it is obligatory to audit such points of origin on a sample basis. Points of origin may also become certified individually on a voluntary basis. Points of origin

*Risk-based audit  
approach*

which are not certified individually must fill in and sign a self-declaration to the certified collecting point, declaring compliance with the ISCC CORSIA requirements and confirming access to their premises. Points of origin which are not certified individually and producing amounts above the respective threshold form the basis for the sample calculation during the certification of the collecting point (at least the square root multiplied by the risk factor). Sampling can only be applied if the contractual basis, on which the point of origin is operating, avoids incentives to make false claims about the nature of the raw material, and if the risk of fraudulent behavior is low. Points of origin, for which sampling cannot be applied, must be audited individually.

In the case several points of origin are organised under a franchise system (e.g. fast food restaurants) two different set-ups are possible regarding the self-declaration to be issued and signed. If the point of origin is managed by a legally independent owner (franchisee), the point of origin must sign the self-declaration for the individual entity in order to deliver waste or residues as sustainable. In case several points of origin are operated locally by on-site employees but are fully owned and managed by a local or regional entity (franchisor) and not acting independently, the self-declaration can be signed by the competent local or regional manager responsible for the points of origin. In this case it is possible to issue and sign one self-declaration for all points of origin covered by the self-declaration. It must be ensured that a list is attached to the self-declaration which clearly identifies all individual points of origin (including their specific addresses).

*Franchise system*

The CB is obliged to verify compliance with the ISCC CORSIA requirements, especially if there is an indication or evidence for non-conformity of such points of origin which are not certified individually. This rule applies irrespective of the size of the point of origin or the amounts generated.

*Verification of compliance*

## **2 Private Households:**

The amounts of waste or residue material (e.g. UCO) generated by individual private households are marginal. Furthermore, private households usually do not sell waste or residues to a collecting point. Thus, they have no economic benefit from providing waste or residues to a collecting point and there is little risk of fraud. It would be disproportionate to require signed documents or on-site audit of private households. Therefore, private households do not need to issue self-declarations to a collecting point, and they are not subject to on-site verification. However, the certified collecting point responsible for the collection of waste and residues from private households must be able to demonstrate to the CB the type of material collected and the

*No audit of private households*

plausibility of the amounts collected (e.g. by showing collection routes, frequency of collection and historic data of collected amounts).

### 3 Community (Municipal) Collection / Landfill Sites:

Such sites are usually operated by local (governmental) authorities and provide the option (e.g. to private households) to discard waste or residues at their premises. If such sites are operated by local (governmental) authorities, the risk of fraud is comparably low. They must fill in and sign a self-declaration to the certified collecting point. Due to the fact that such sites might accumulate high amounts of material, they are subject to on-site audits based on a sample according to the principles specified under point 1 (Businesses and Companies).

*Operated by authorities*

The community collection site must be able to demonstrate to the CB the type of material and the plausibility of the volumes received.

*Plausibility of amounts*

### 4 Public Containers:

In some countries, the collection of UCO has been implemented via systems using public containers in which private households can discard UCO. This is usually done using small containers or bottles, which are then inserted into the public container. The container is then collected or emptied by a collecting point. In order to ensure plausibility of the amounts collected from such containers and to reduce the risk of fraud, the collecting point must meet specific requirements. The collecting point in charge for picking up the container is responsible for implementing an appropriate level of control and determination of the incoming material. The collecting point has to indicate employees responsible for internal quality control and inspection of the material (e.g. truck drivers and/or employees handling the material). Indicators for internal control of UCO can include (but are not limited to) for example: colour, smell, consistency or viscosity. The collecting point must have sufficient documentation in place which ensures that a CB can assess and verify the plausibility of the amounts collected. The required information includes:

*UCO collection via public containers*

- > Permit or license for collection by the competent authority
- > Total number of containers including size (volume) of the containers
- > Information where each container is located and the respective permit/license from the authorities
- > Information about the residential area or the neighbourhood of the container including the population density of the area
- > Dates when specific containers have been emptied/collected and information on how often containers are emptied/collected (e.g. based on signed receipts from truck drivers)

*Specific requirements*

- > Weighbridge reports or collection reports of the incoming material
- > Information about the average number of collections per day
- > Reports on the amounts and management of solid waste and waste water (e.g. from cleaning UCO)

The collecting point is responsible for setting up appropriate measures to prevent contamination of the environment (e.g. by spillage or leakage) and to set up a process on how to handle contaminations. Each container should show instructions, which at least indicate the type of material to be inserted into the container and how to act in the event of a spillage or leakage.

*Prevention of contamination*

### 4.3.3 Collecting Point and First Gathering Point

Collecting points are system users that receive or collect waste, (processing) residues or by-products, not grown and harvested on farms or plantations (e.g. UCO, crude glycerine, tall oil pitch).

*Definition collecting point*

First gathering points are system users that receive biomass from companies that grow and harvest this biomass (farms or plantations). The definition of a first gathering point also applies in case the material is an agricultural residue (e.g. straw, husk, bagasse, nut shells), or the equivalent in case of aquaculture, fisheries and forestry residues.

*Definition first gathering point*

The collecting point and the first gathering point are responsible for the correct determination of the amounts collected, for the application of the correct certification process for the material and for the correct declaration of the material. Due to their role and responsibility, the collecting point or first gathering point is the first supply chain element which requires individual certification. Collecting points and first gathering points collecting sustainable waste and residues from points of origin which are not certified individually must receive a self-declaration from these points of origin. Only when a self-declaration has been signed by the point of origin the collected material can be considered as sustainable. Material which has been collected from points of origin neither certified individually nor having signed a self-declaration must be considered as non-sustainable. The self-declaration must be issued to the certified collecting point or first gathering point and must be available during the audit.

*Correct declaration of material*

Collecting points and first gathering points must keep a list of all suppliers of sustainable material. This includes points of origin supplying waste, residues or by-products with a self-declaration as well as individually certified suppliers supplying material without self-declaration. During the audit of a collecting point or first gathering point a sample of points of origin is usually audited depending on the type of point of origin. Suppliers, including points of origin, which are certified individually do not fall into the sample as they have already been audited individually. Furthermore, collecting points shall submit the list of all points of origin that have signed the respective self-declaration to the

*List of suppliers*

auditor prior to the audit and the auditor shall verify the existence of a sample of the points of origin on the list.

Collecting points may use the services of dependent collectors or other service providers (e.g. storage facilities) acting on behalf (in the name) of the certified collecting point or first gathering point. Dependent collectors or other service providers storing sustainable material must be covered during the audit based on a sample. It is the responsibility of the collecting point or first gathering point to ensure that CBs and ISCC are entitled and enabled to assess and evaluate compliance with the relevant requirements also at relevant service providers. This can e.g. be included in the respective contractual agreements between the collecting point and the service provider.

*Dependent collectors*

#### 4.4 Inclusion of Additional Materials

Any material that is specified in the positive list (Table 1) can be certified according to the ISCC CORSIA waste, residue and by-product process. This means that the respective sustainability requirements do not need to be verified. The positive list is an open list. The ICAO Council can add materials to it, according to the definitions described in chapter 3 and using the process shown in Figure 2 as a guide.

*Inclusion of material to the positive list*

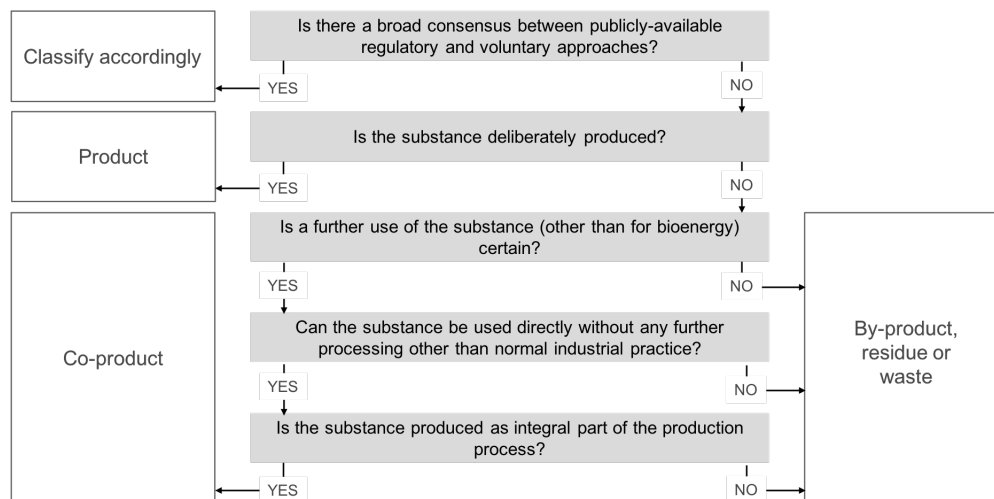


Figure 2: Guidance for inclusion of additional materials in positive list