

RSB – ROUNDTABLE ON SUSTAINABLE BIOMATERIALS
RSB EU RED Standard for Advanced Fuels (waste and residues)

Version 2.2

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Introduction

Waste and residues are secondary products derived from agricultural, forestry, food or industrial production and processing chains, among others. These products are not purposefully generated for their potential use as advanced fuel feedstock. *Waste and residues* also include the biogenic fraction of *Municipal Solid Waste*, *Wastewater* and *Used Cooking Oil (UCO)*.

The main benefit of using *waste and residues* as an advanced fuel feedstock is to reduce the pressure on lands and resources compared to feedstocks (e.g. agricultural crops) that are purposefully grown to produce biofuels. In addition, using *waste and residues* to produce advanced fuel increases the overall system efficiency (e.g. water, energy) by reducing processes and costs related to treatment and disposal. However, this standard does not intend to systematically divert end-of-life products, *waste and residues* towards advanced fuel production if other recycling, re-use or disposal options with a higher energy-efficiency or social/environmental benefits exist.

This standard describes how advanced fuels supply chains may use *waste and residues* as a feedstock, and how it impacts on RSB EU RED certification.

It is important to note that EU Member States may set additional requirements regarding the origin or categorisation of certain feedstock.

Main changes to RSB EU RED version 2.2

- a) Updates to Section G Eligibility on waste/residue eligibility determination, including qualification criteria, use of relevant national legislation, responsibility of the auditor
- b) Additional traceability requirements for First Collectors in Section H.1.2.3
- c) Additional specifications to further ensure that agricultural harvesting residues are not sourced at the expense of soil quality at H.2.6, including a non-exhaustive list

Please see the full history of changes in the Annex I of this Standard.

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A. Intent of this standard

The intent of this standard is to ensure that the use of *waste and residues* for biofuel production is appropriately addressed within the *RSB certification system*, by ensuring that negative environmental, social and economic impacts related to their use are minimized and that the requirements upon *participating operators* are appropriate. An additional intent is that waste and residues are verified back to their origin, as per EC Communication Ares(2014)3359578 from 10/10/2014.

B. Scope of this standard

This standard and the *RSB standards* and *RSB procedures* mentioned in this document apply to any Participating Operator using *waste and residues* from agriculture, forestry, livestock, fishery or industrial production and/or processing and/or any product generated from the processing, transformation or treatment of *waste and residues* for the purpose of producing biofuels.

C. Status and effective date

The Version 2.1 of this *RSB EU RED Standard for Advanced Fuels (waste and residues)* shall be effective on 15th March 2022.

Whenever any contradiction or inconsistency exists between this version and previous versions of this standard, the latest version shall prevail. Any new version of this document will be notified immediately via email to all Participating Operators, Certification Bodies and RSB Accreditation Body.

D. Note on use of this standard

All aspects of this standard are considered to be normative, including the intent, scope, effective date, note on the use of this standard, references, terms and definitions, and requirements, unless otherwise stated. Users implementing this standard shall ensure that the intent of this standard is met. To ensure that the intent of this standard is met, users shall implement all of the requirements specified in this standard, and all additional measures necessary to achieve the intent of this standard.

In the event of any inconsistency between this RSB Standard and the RSB Principles and Criteria [RSB-STD-01-001], this RSB Standard shall prevail.

E. RSB List of documents and corresponding references

See RSB List of documents and references [RSB-DOC-10-001].

F. Terms and definitions

For the purposes of this standard, the terms and definitions given in the RSB Glossary of Terms [RSB-STD-01-002] shall apply. The following definitions are particularly important and apply in addition:

- F. 1. **Bio-based carbon content**
Fraction of carbon derived from a biomass in a product (Source: EN 16575:2014 Bio-based products – Vocabulary)
- F. 2. **Biomass**
The biodegradable fraction of products, waste and residues from biological origin from agriculture, including vegetal and animal substances, from forestry and related industries, including fisheries and aquaculture, as well as the biodegradable fraction of waste, including industrial and municipal waste of biological origin
- F. 3. **First Collector of waste and residues**
Operator that receives waste or residual materials from points of origin
- F. 4. **Forest regeneration**
The re-establishment of a forest stand by natural or artificial means following the removal of the previous stand by felling or as a result of natural causes, including fire or storm.
(Source: Directive (EU) 2018/2001)
- F. 5. **Ligno-cellulosic material**
Material composed of lignin, cellulose and hemicellulose, such as biomass sourced from forests, woody energy crops and forest-based industries' residues and wastes.
(Source: Directive (EU) 2018/2001)
- F. 6. **Municipal Solid Waste**
Municipal waste, collected by or on behalf of municipalities, by public or private enterprises (Source: United Nations Organisation¹).
For the purpose of this standard, Municipal Solid Waste includes:

¹ <http://unstats.un.org/unsd/environment/wastetreatment.htm>

- Waste originating from households and waste that is similar in nature and composition, originating from commerce and trade, small businesses, office buildings and institutions. In general, the following components contribute to Municipal Solid Waste: Paper; food scraps; yard trimmings; plastics; metals; rubber, leather, and textiles; wood; and glass.
- Waste from selected municipal services, e.g., waste from park and garden maintenance, waste from street cleaning services (street sweepings, the content of litter containers, market cleansing waste), if managed as waste.
- Construction and demolition waste (concrete, wood (from buildings), asphalt (from roads and roofing shingles), gypsum (the main component of drywall), metals, bricks, glass, plastics, salvaged building components (doors, windows, and plumbing fixtures), and trees, stumps, earth, and rock from clearing sites.).

For the purpose of this standard, Municipal Solid Waste excludes:

- Waste from sewage network and treatment
- Industrial waste
- Special waste requiring separate disposal by law
- Hazardous waste requiring separate disposal by law

F. 7. Non-food cellulosic material

Feedstock mainly composed of cellulose and hemicellulose, and having a lower lignin content than ligno-cellulosic material, including food and feed crop residues, such as straw, stover, husks and shells; grassy energy crops with a low starch content, such as ryegrass, switchgrass, miscanthus, giant cane; cover crops before and after main crops; ley crops; industrial residues, including from food and feed crops after vegetal oils, sugars, starches and protein have been extracted; and material from biowaste. Where ley and cover crops are understood to be temporary, short-term sown pastures comprising grass-legume mixture with a low starch content to obtain fodder for livestock and improve soil fertility for obtaining higher yields of arable main crops.

(Source: Directive (EU) 2018/2001)

F. 8. Point of Origin

Companies or private households where waste or residues occur.

F. 9. Recyclable Material

Recyclable Material is constituted by every type of glass, paper, metal, plastics, textiles and electronics for which recycling chains exist in the country of operation. Materials derived from biomass, which can be composted, are not considered recyclable.

F. 10. Residues

F. 10. 1. Agricultural, aquaculture, fisheries and forestry residues

Residues that are directly generated by agriculture, aquaculture, fisheries and forestry; they do not include residues from related industries or processing.

(Source: Directive (EU) 2018/2001)

F. 10. 2. Residue (from processing)

A substance that is not the end 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.

(Source: Directive (EU) 2018/2001)

F. 10. 3. Agricultural Processing Residues

Residues that are directly generated by first processors of agricultural crops (e.g. husks, shells), and that do not include residues produced on-farm (defined instead as agricultural residues) or from further downstream processing (defined instead as industrial processing residues).

F. 11. Recycled Carbon fuel

Liquid and gaseous fuels that are produced from liquid or solid waste streams of non-renewable origin which are not suitable for material recovery in accordance with Article 4 of Directive 2008/98/EC, or from waste processing gas and exhaust gas of non-renewable origin which are produced as an unavoidable and unintentional consequence of the production process in industrial installations.

F. 12. Renewable Liquid and Gaseous Transport Fuels of Non-Biological Origin (RFONBO)

Liquid or gaseous fuels which are used in the transport sector other than biofuels or biogas whose energy content comes from renewable energy sources other than biomass (adapted from EU 2018/2001).

F. 13. Sourcing area

The geographically defined area from which biomass feedstock is sourced, from which reliable and independent information is available and where conditions are sufficiently homogeneous to evaluate the risk of the sustainability and legality characteristics of the biomass.

(Adapted from EU 2018/2001)

F. 14. Used Cooking Oil (UCO)

Any type of vegetable and animal oils and fats used for cooking purposes and collected from food processing activities, including but not limited to restaurants, food manufacturers, and industrial deep fryers, etc.

F. 15. Waste

Waste as defined in point (1) of Article 3 of Directive 2008/98/EC, excluding substances that have been intentionally modified or contaminated in order to meet this definition.

F. 16. Wastewater

Includes Domestic wastewater, industrial wastewater and sludge.

F. 17. 1. Domestic wastewater

Wastewater from residential settlements and services, which originates predominantly from the human metabolism and from household activities.
(Source: European Union (91/271/ECC)²)

F. 17. 2. Industrial wastewater

Wastewater which is discharged from premises used for carrying on any trade or industry, other than Domestic wastewater and run-off rain water, and which does not contain any co-product, by-product or residue with market value.
(Source: European Union (91/271/ECC))

F. 17. 3. Sludge

Residual sludge, whether treated or untreated, from *Wastewater* treatment plants.
(Source: European Union (91/271/ECC))

G. Eligibility

Please note: EU member states decide individually if a material is classified as a waste or residue material, and whether a material can double count in their member state. The decision to accept advanced fuels that were certified under this standard is made by the EU member state where the final product is marketed. RSB does not guarantee the acceptance of the waste or residue classification by the respective member state.

Determination of whether a material qualifies as a waste or residue shall be assessed by the auditor at the point in the supply chain that the material originates.

A waste or a residue qualifies under this RSB standard if:

- It can be evidenced that the material was not deliberately modified in order to be classified as a waste or residue; and
- The waste/residue material can be certified at the point of origin and registered into the Union database; and
- It is explicitly defined as such by the European Commission³, including substances listed in Annex I of this Standard (irrespective of country of origin).

² Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31991L0271:EN:HTML>

³ Raw materials listed in Annex IV of the IA shall be considered to be a waste or residue, except where they have been deliberately modified to be declared as a waste or residue. The list is not comprehensive and complements the above list of materials (from Annex IX to Directive (EU) 2018/2001).

For materials not listed in Annex I of this Standard (Annex IV of the IR), and in the case that the material is sourced in the EU, then relevant national legislation in the country of origin applies. Relevant national legislation can also be applied if the material is sourced in a third country whose legislation is aligned with the EU.

In all other cases, it can be defined as a waste or residue following the assessment steps of Figure 1 below, which shall be conducted by the operator and verified by the auditor. Operators shall keep and present to auditors the underlying evidence for their assessments (of determining whether a material is a waste or residue).

Please note: RSB maintains a list of materials that are explicitly defined as waste/residue by the European Commission and materials on 'positive lists' of EU Member States which might be accepted as waste/residue material (RSB List of W/R materials [RSB-PG-2021-03]).

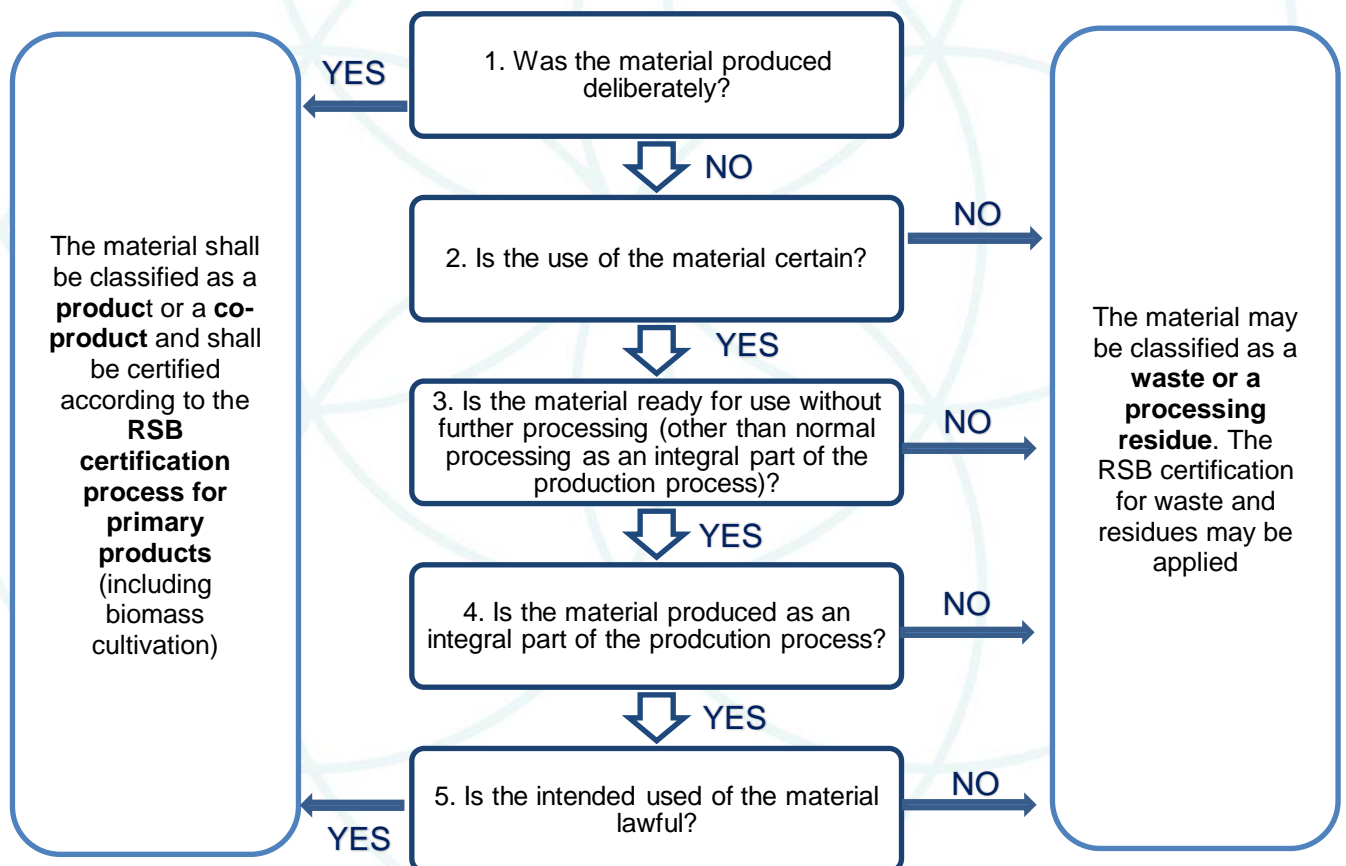


Figure 1: Assessment steps to determine feedstock qualification.

- a) Was the material produced deliberately?
The material shall be considered deliberately produced if the production process was modified in order to produce the material. For example, if the production process was modified to increase the amount of the material or to change the technical specifications, the material shall be regarded as deliberately produced. Materials that are produced deliberately shall be considered a product or co-product.
- b) Is the use of the material certain?
The use of the material may be considered as not certain:
- if there is no commonly known use for specific purposes (other than incineration); or
 - if the material is not useable and does not meet the technical specifications; or
 - if there are no existing contracts in place, and no established market and market conditions exist; or
 - if the economic benefit for the point of origin is insignificant (i.e. it has an economic value ratio of $\leq 5\%$ with respect to the primary product(s), co-products and other by-products generated from the same production process).
- c) Is the material ready for use without further processing (other than normal processing as an integral part of the production process)?
If an additional recovery process is required before further use, the material shall be considered as a waste. A material shall be considered as a co-product if the further use is certain without prior processing other than mechanical treatment such as filtration, washing or drying.
- d) Is the material produced as an integral part of the production process?
If the material is made ready for a further use as an integral part of the continuing process of a production, it shall be classified as a co-product.
- e) Is the intended used of the material lawful?
The material is considered to be lawful if it does meet the technical specifications that would be required for it to be useable (for example relevant product, environmental or health protection requirements).

H. Requirements

H. 1. General Requirements

H. 1. 1. Sustainability Requirements

- H. 1. 1. 1. With the exception of Principle 3, Principle 6 and Principle 8, the RSB Principles & Criteria [RSB-STD-01-001] and related documents (i.e. guidelines, glossary, guidance and indicators) shall apply to any operator involved in processing from *the First Collector* onwards, except for mechanical operators.

Note that *mechanical operators* are defined as a subgroup of industrial operators only conducting mechanical or physical processing, as defined in the RSB Procedure for Participating Operators [RSB-PRO-30-001].

- H. 1. 1. 2. Principle 3 (Greenhouse Gas calculation) applies to any operator starting with the collection at the *Point of Origin* onwards. GHG emissions from the transport of the *waste and residues* shall be included in the GHG calculation. The *advanced fuel producer* using *waste and residues*, as well as all operators downstream of this point, shall calculate the greenhouse gas (GHG) emissions generated by her/his operations.
- H. 1. 1. 3. Principles 6 and 8 do not apply.
- H. 1. 1. 4. Feedstock specific requirements apply (see section “feedstock specific requirements”).

H. 1. 2. Traceability Requirements

- H. 1. 2. 1. The RSB EU RED Standard for Traceability (Chain of Custody) [RSB-STD-11-001-20-001] applies to any operator in the supply chain from the *First Collector* onward.
- H. 1. 2. 2. RSB Participating Operators (POs) shall ensure that:
- (a) all of the collectors and aggregators in their supply chain maintain a mass balance system, for each individual material, including *First Collectors*
 - (b) all organisations in their supply chain are contractually obliged to provide the information as specified in clause H.1.2.4, for all waste and residues, which are part of the PO’s certification scope
- H. 1. 2. 3. *First collectors* shall have supporting evidence back to the origin of the material, which shall be available for auditors to verify. This shall include evidence or documents for all individual deliveries to the collection point, including waste disposal agreement, delivery slips and self-declarations. The name of the specific feedstock shall be on all documentation. First collectors shall ensure, for example by having a contractual agreement or written commitment in place, that:
- (a) points of origin comply with the applicable RSB requirements; and
 - (b) auditors of the RSB Certification Bodies and the RSB Accreditation Body can access the premises of the points of origin to evaluate compliance.

In addition, the First Collector shall:

- Set up a procedure to register new group members (PoO and Farms).
- Ensure that all group members understand the RSB requirements and processes.
- Maintain an up-to-date register of members
- Exclude members in the case of non-compliance.
- Inform the group members about relevant changes to requirements.

H. 1. 2. 4. Organisations in the supply chain aggregating and/or forwarding waste and residues, shall maintain both procurement management and mass balance systems, including the following:

- A list of all waste suppliers with whom the organisation is currently engaged. The list of suppliers shall be updated regularly and contain the following information:
 - Legal Name of Supplier;
 - Physical Address and Phone Number of Supplier;
 - Contact Name.
- Acquisition data, on a physical volume or weight basis, associated with each individual listed supplier, by quarter. This may include both purchased and otherwise collected/acquired waste material.
- A contractual requirement that all suppliers shall provide the necessary information on the type of material, the type of material that was used as a raw material, country of origin on a physical volume or weight basis for all consignments.
- Sales data on a physical volume or weight basis for the waste material for the previous 12-month period.
- A procedure for demonstrating that waste material acquired is in mass balance with waste material sold, or kept in stock, every quarter, over the course of the preceding year, for all categories of waste handled by the organisation.
- Where the organisation is involved in collecting waste from the source of its generation, nationally compliant documentation shall accompany each consignment, stating the type of waste, the country of origin and the name of the EC-approved Voluntary Scheme to which the material is certified.
- Where the organisation aggregates or forwards waste material the nationally compliant documentation, stating the type of waste and the country of origin shall be passed on with each consignment sold.
- Where material has been acquired from a supplier, whose mass balance system cannot be verified, then that supplier shall be certified to an EC-approved Voluntary Scheme which requires upstream verification of waste and residues origin. The certified material shall be accompanied by a Proof of Sustainability indicating the feedstock type and country of origin.

It is assumed that waste collectors, waste aggregators, and rendering companies may have competing waste material collection business activities. Therefore, all information provided with individual supplier or customer data shall be held in strict confidentiality.

- H. 1. 2. 5. If material that is consisting of or derived from waste or residues has been certified under a voluntary system other than the RSB, the operator shall only accept this material as “EU RED compliant” if the requirements and the assurance system of this voluntary system has been benchmarked as equivalent to the RSB and the voluntary system has been recognized by the RSB.

If waste material, Fatty Acid Methyl Ester (FAME), or material that has been chemically transformed in any other way (e.g. hydrogenated), is sourced from a trader who is not part of the PO’s supply chain, then that trader shall be certified by an EC-approved Voluntary Scheme with upstream verification. The certified material shall be and accompanied by a Proof of Sustainability indicating the feedstock type and country of origin of the waste or residue.

H. 1. 3. Auditing requirements

The requirements for auditing and certifying Participating Operators are set out in the RSB Procedure for Certification Bodies and Auditors [RSB-PRO-70-001].

H. 1. 4. Other Requirements

The following RSB EU RED Standards apply to any operator in the supply chain from the *First Collector* onward:

- H. 1. 4. 1. *RSB Procedure on communication and claims* [RSB-PRO-50-001]
- H. 1. 4. 2. *RSB Standard for participating operators* [RSB-STD-30-001]
- H. 1. 4. 3. *RSB Procedure for risk management* [RSB-STD-11-001-60-001]
- H. 1. 4. 4. *RSB Standard for EU market access* [RSB-STD-11-001]
- H. 1. 4. 5. *RSB EU RED Standard for Traceability* [RSB-STD-11-001-20-001]

H. 2. Feedstock specific requirements

H. 2. 1. Biodegradable Municipal Waste (BMW)

Electricity, heating and cooling produced from municipal solid waste shall not be subject to greenhouse gas emissions saving criteria.

Operators shall ensure that

- (a) only the biogenic fraction of *Municipal Solid Waste* is taken into account for the production of RSB EU RED Biofuel, based on random sampling done at least once every year

(b) MSW is sorted and pre-processed at a facility that has removed all but trace quantities of any *Recyclable Material*, hazardous material, infectious material or pollutants.

(c) biofuels or intermediates derived from the biogenic fraction of *Municipal Solid Waste (Biogenic Municipal Waste)* are tracked separately from biofuels that include a non-biogenic fraction of MSW.

(d) only biofuels derived from the biogenic fraction of *Municipal Solid Waste (Biogenic Municipal Waste)* are sold with a RSB EU RED or EU RED compliance claim.

Note:

Biofuels based on *Biodegradable Municipal Waste (BMW)* are recognized by the European Union under the Renewable Energy Directive (2009 /28/EC).

Biofuels based on *Municipal Solid Waste* are not recognized by the European Union under the Renewable Energy Directive (2009 /28/EC).

Guidance:

It is not necessary for households, commerce or any other operators generating Municipal Solid Waste to demonstrate compliance with the RSB Standard.

Compliance must be demonstrated from the *First Collector* onward.

Examples of *First Collectors* include, but are not limited to:

- A private or a municipal landfill
- A Mechanical Biological Treatment (MBT) plant where recyclable and organic elements (BMW), wastewater and refuses are separated from bulk MSW.
- A warehouse or equivalent site where MSW or BMW is aggregated, either formally by or on behalf of municipal authorities or informally by trash and refuse collectors, retailers or wholesalers.

Several techniques exist to measure the *Biogenic Carbon Content* of a product. One of the most widely used is the measurement of Carbon 14, which can be performed in public facilities or by some private laboratories, using the protocols described in norms ASTM 6866 or CEN 15440.

However, the operator may use other techniques to measure the *Biogenic Carbon Content* or use the information published by a third party on the composition of the bulk *Municipal Solid Waste* used. The *Biogenic Carbon Content* may be measured in the *Municipal Solid Waste* or later in the production process (e.g. in the *Biofuel* produced).

H. 2. 2. Used Cooking Oil

No feedstock specific requirements.

H. 2. 3. Wastewater

The RSB Standard and related documents as referred to in H.1. apply to *Wastewater* from the processing, transformation or treatment of *Wastewater* onward.

Guidance:

It is not necessary for households, commerce or for any other operators generating *Wastewater* to demonstrate compliance with the *RSB standards*. Compliance with the *RSB standards* must be demonstrated as soon as *Wastewater* and/or any product generated from the processing, transformation or treatment of *Wastewater* start being treated or processed for the purpose of producing biofuels.

Examples of *Wastewater* and product generated from the processing, transformation or treatment of *Wastewater* for the purpose of producing biofuels include, but are not limited to:

- Starchy *Wastewater*, e.g., from grain milling operations
- Effluents from industrial premises, which do not contain any co-product, waste or residue with market value
- Primary or secondary *Sludge* collected out of a *Wastewater* treatment plant
- Greases or fats collected out of a *Wastewater* treatment plant

H. 2. 4. Residues from industrial processing

Whenever *residues* are derived from palm oil, the palm plantations of origin shall be certified by RSB EU RED, RSPO⁴ (EU RED) or equivalent as approved by the RSB.

H. 2. 5. Animal Fats, Oils and other animal processing by-products

Operators shall demonstrate that animal fats, oils and other animal processing waste and residues used as a feedstock to produce biofuels are produced in slaughterhouses and/or rendering units for which a regulation exists and is locally enforced, with regards to:

- Environmental impacts, in particular waste management practices, and
- Animal welfare

Whenever animal fats, oils and other animal processing waste and residues used as a feedstock to produce biofuels are produced in slaughterhouses and/or rendering units, for which no regulation exists or the existing regulation is not locally enforced, Participating Operators shall demonstrate that environmental impacts, in particular waste management practices, are addressed through voluntary certification of their operations (e.g. ISO 14000, Eco-Management and Audit Scheme, etc.).

Guidance:

⁴ Roundtable on Sustainable Palm Oil (RSPO): www.rsपो.org

Important impacts may occur across the supply chain before *animal fats* are being processed into biofuels. This standard addresses the impacts related to the processing of *animal fats, oils and other animal processing waste* in biofuel production plants.

The impacts related to the production of *animal fats, oils and other animal processing waste* in slaughterhouses and rendering units shall primarily be covered by the existing regulation in the country/region. The *Participating Operator* using *animal fats, oils and other animal processing waste* as a feedstock to produce biofuels shall demonstrate that *animal fats, oils and other animal processing waste* come from a country/region where a regulation exists and is locally enforced on environmental impacts of slaughterhouses and rendering units and on animal welfare. Examples of regulations include:

- United States of America:
 - Federal Meat Inspection Act (1906)
 - Code of Federal Regulations on Animals and Animal Products (9 CFR 313)
 - Humane Methods of Livestock Slaughter Act (7 USC, 1901 - 1907)
 - Clean Water Act (1972, 1977) and Water Quality Act (1987)
 - EPA Factsheet (Final Rule) for wastewater discharge standard EPA 821-F-04-004

- European Union
 - Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control)
 - Directive 93/119/EC on the protection of animals at the time of slaughter or killing
 - Council Directive 98/58/EC on the protection of animals kept for farming purposes
 - Regulation (EC) No 178/2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety
 - Directive 2002/99/EC laying down the animal health rules governing the production, processing, distribution and introduction of products of animal origin for human consumption, 16 December 2002

- Canada
 - Meat Inspection Act (R.S.C., 1985, c. 25 (1st Supp.))
 - Meat and Poultry Products Plant Liquid Effluent Regulations (C.R.C., c. 818)

Auditors evaluate on a case-by-case basis if regional/national regulations on environmental impacts of slaughterhouses and rendering units and on animal welfare exist and are enforced in the region(s) from which the animal fats used by a *participating operator* originate, e.g. demonstrated implementation.

H. 2. 6. Agricultural residues

Participating Operators shall demonstrate that:

- I. agricultural harvesting residues comply with RSB Criteria 3a (GHG) and the RSB Market Access Standard [RSB-STD-11-001] Section G., or are certified by any EC-approved Voluntary Scheme
- II. in addition to the land use requirements for agricultural biomass laid down in the RSB Standard for EU Market Access [RSB-STD-11-001], the operator who supplies harvesting residues (the Point of Origin) complies with the criteria of RSB Principle 7 (Conservation), 8 (Soil), 9 (Water) and 10 (Air Quality) that are applicable to biomass producers.
- III. the use of agriculture or forestry waste or residues for biofuel production, including lignocellulosic material, does not occur at the expense of long-term soil quality and soil carbon stock. Operators shall provide evidence that Criterion 8a. of the RSB Principles & Criteria [RSB-STD-01-001] is met. Compliance with Criterion 8a shall include demonstration by the Participating Operator that a relevant set of essential soil management and monitoring practices is applied on the land to promote soil carbon sequestration and soil quality.

A non-exhaustive list of examples of essential management and monitoring practices to promote and monitor soil carbon sequestration and soil quality is given by the EU Commission under IR Article 21(5-6) and Annex VI, as follows:

Table 1: Examples of essential soil management practices to promote soil carbon sequestration (given the absence of residues) and promote soil quality.



| Requirement | Soil quality parameter |
|---|--|
| At least a 3-crop rotation, including legumes or green manure in the cropping system, taking into account the agronomic crop succession requirements specific to each crops grown and climatic conditions. A multi-species cover crop between cash crops counts as one. | Promoting soil fertility, soil carbon, limiting soil erosion, soil biodiversity and promoting pathogen control |
| Sowing of cover/catch/intermediary crops using a locally appropriate species mixture with at least one legume. Crop management practices should ensure minimum soil cover to avoid bare soil in periods that are most sensitive. | Promoting soil fertility, soil carbon retention, avoiding soil erosion, soil biodiversity |
| Prevent soil compaction (frequency and timing of field operations should be planned to avoid traffic on wet soil; tillage operation should be avoided or greatly reduced on wet soils; controlled traffic planning can be used). | Retention of soil structure, avoiding soil erosion, retaining soil biodiversity |
| No burning of arable stubble except where the authority has granted an exemption for plant health reasons. | Soil carbon retention, resource efficiency |
| On acidic soils where liming is applied, where soils are degraded and where acidification impacts crop productivity. | Improved soil structure, soil biodiversity, soil carbon |
| Reduce tillage/ no tillage - Erosion control – addition of organic amendments (biochar, compost, manure, crop residues) – use of cover crops, rewetting Revegetation: planting (species change, protection with straw mulch) - landscape features - agroforestry | Increase soil organic carbon |

Table 2: Examples of monitoring practices for soil quality and carbon mitigation impacts

| Monitoring approach | Method of verification/ demonstration |
|----------------------------------|---|
| Risk assessment | Identifying areas with high risk of soil quality decline helps prevent these risks and focus on areas with the greatest impact. |
| Soil organic matter analysis | Consistent sampling of soil organic matter improves monitoring so that this matter can be maintained or improved. |
| Soil organic carbon analysis | Soil organic carbon is seen as a good marker for wider soil quality. |
| Soil conditioning index sampling | A positive value indicates the system is expected to have increasing soil organic matter. |
| Soil erosion assessment | Ensures that erosion is below a tolerable level, i.e. USDA Agricultural Research Service 't' levels. |
| Nutrient management plan | A plan outlining nutrient strategy (focusing mostly on N, P, K) and fertiliser regimes can prevent nutrient imbalances. |
| Regular soil pH analysis | Monitoring pH helps identify imbalances in pH. |

Please note: This requirement only applies to residues that originate directly from a farm operation. It does not apply to agricultural processing residues.

For agricultural processing residues, the operator shall provide evidence about the processing of the residue in the baseline scenario, i.e. in the scenario before the material has been used for bioenergy purposes. If the residue had been generated directly at the agricultural operation, the residue shall be classified as residue that

originates directly from a farm operation so that the requirements described in the above have to be applied.

A national-level approach to demonstrate compliance with H.2.6 is not allowed. Reliance on the CAP/GAEC is not sufficient for demonstrating compliance with Article 29(2) of the Renewable Energy Directive recast (Directive EU 2018/2021).

H. 2. 7. Forestry harvesting residues

1. Residues from forest biomass shall meet the following criteria:

- a. the country in which forest biomass was harvested has national or sub-national laws applicable in the area of harvest as well as monitoring and enforcement systems in place ensuring:
 - the legality of harvesting operations;
 - forest regeneration of harvested areas;
 - that areas designated by international or national law or by the relevant competent authority for nature protection purposes, including in wetlands and peatlands, are protected;
 - that harvesting is carried out considering maintenance of soil quality and biodiversity with the aim of minimising negative impacts; and
 - that harvesting maintains or improves the long-term production capacity of the forest.
- b. when evidence referred to in point (a) of this paragraph is not available, the PO shall provide evidence that management systems are in place at forest sourcing area level which ensure:
 - the legality of harvesting operations;
 - forest regeneration of harvested areas;
 - that areas designated by international or national law or by the relevant competent authority for nature protection purposes, including in wetlands and peatlands, are protected unless evidence is provided that the harvesting of that raw material does not interfere with those nature protection purposes;
 - that harvesting is carried out considering the maintenance of soil quality and biodiversity with the aim of minimising negative impacts; and
 - that harvesting maintains or improves the long-term production capacity of the forest.

2. Residues from forestry shall meet the following land-use, land-use change and forestry (LULUCF) criteria:

- a. the country or regional economic integration organisation of origin of the forest biomass:
 - is a Party to the Paris Agreement; **and**
 - has submitted a nationally determined contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC), covering emissions and removals from agriculture, forestry and land use which ensures that changes in carbon stock

- associated with biomass harvest are accounted towards the country's commitment to reduce or limit greenhouse gas emissions as specified in the NDC; or
- has national or sub-national laws in place, in accordance with Article 5 of the Paris Agreement, applicable in the area of harvest, to conserve and enhance carbon stocks and sinks, and providing evidence that reported LULUCF-sector emissions do not exceed removals;
 - b. where evidence referred to in point (a) of this paragraph is not available, the PO shall provide evidence that management systems are in place at forest sourcing area level to ensure that carbon stocks and sinks levels in the forest are maintained, or strengthened over the long term.

Please note: By 31 January 2021 the Commission shall adopt an implementing act to establish operational guidance on the evidence for demonstrating compliance with criteria H.2.6.2 III and IV.

Whenever the European Commission publishes the implementing act, it will be applicable in the RSB EU RED Certification process with immediate effect.

Guidance:

The European Union has set specific rules for the sustainability characteristics of waste and residues. According to Article 29, paragraph 1 of Directive (EU) 2018/2001, biofuels, bioliquids and biomass produced from agricultural, aquaculture, fisheries and forestry residues must meet the EU land use and greenhouse gas criteria. This definition encompasses all residues that are directly generated out of such processes, but does not include residues and waste from feedstock processing and other downstream industrial activities. Residues and waste from feedstock processing and other downstream industrial activities must meet the EU greenhouse gas criteria only.

All materials within this category must also comply with the requirements set out in RSB Standard Amendment Requirements for woody materials [RSB-SA-01], including but not limited to evidence that forest harvesting residues derive from forests/wood that is certified by the RSB, Forest Stewardship Council (FSC⁵) or any verification/certification scheme with equivalent sustainability requirements as approved by the RSB.

⁵ <http://www.fsc.org>

H. 2. 8. Agricultural processing residues

Whenever agricultural processing residues are derived from palm (e.g. palm kernel shells), the material shall be certified back to plantation by RSB or RSPO⁶ (EU market), or equivalent, as approved by the RSB Board of Directors following a consultation with the RSB Membership.

H. 2. 9. Fish Residues

Fish residues refer to the residues that are generated in the processing plant or fish factory and not in the fishing vessel.

As the depletion of fish resources and the impacts of by-catches are serious environmental issues, only *fish residues*, which are not suitable for human and animal consumption (food and feed) shall be used for RSB Certification.

⁶ Roundtable on Sustainable Palm Oil (RSPO): www.rspo.org

ANNEX I: Non-exhaustive list of waste and residues currently covered by Annex IX to Directive (EU) 2018/2001

| Category in Annex IX to Directive (EU) 2018/2001 | Feedstock sub-category/examples |
|--|---|
| Annex IX Part A d) | Drink waste |
| Annex IX Part A d) | Fruit/vegetable residues and waste (Only tails, leaves, stalks and husks) |
| Annex IX Part A d) | Bean shells, silverskin, and dust: cocoa, coffee |
| Annex IX Part A p) | Shells/husks and derivatives:, soy hulls |
| Annex IX Part A d) | Residues and waste from production of hot beverages: spent coffee grounds, spent tea leaves |
| Annex IX Part A d) | Dairy waste scum |
| Annex IX Part A d) | Food waste oil: oil extracted from waste food from industry |
| Annex IX Part A d) | Non-edible cereal residues and waste from grain milling and processing: wheat, corn, barley, rice |
| Annex IX Part A d) | Olive oil extraction residues and waste: olive stones |
| Annex IX Part A p) | Agricultural harvesting residues |
| Annex IX Part A q) | Palm fronds, palm trunk |
| Annex IX Part A q) | Damaged trees |
| Annex IX Part A p) | Unused feed/fodder from ley |
| Annex IX Part B b) | Waste fish oil classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009. |
| Annex IX Part A d) | Other slaughterhouse waste (Animal residues (non-fat) Cat 1) |
| Annex IX Part A d) | Industrial wastewater and derivatives |
| Annex IX Part A g) | Palm sludge oil (PSO) |
| Annex IX Part A d) | Industrial storage settlings |
| Annex IX Part A d) | Biogenic fraction of end-of-life tyres |
| Annex IX Part A q) | Recycled/waste wood |
| Annex IX Part A d) | Humins |
| Annex IX Part A d) | Spent bleaching earth |

Raw materials listed in Annex IV of the IA shall be considered to be a waste or residue, except where they have been deliberately modified to be declared as a waste or residue. The substances listed in this annex shall be considered as falling under a category of raw material set out in Annex IX to Directive (EU) 2018/2001 without being explicitly mentioned. The list is not comprehensive and complements the existing list of materials in Annex IX to Directive (EU) 2018/2001.

ANNEX II: History of Changes

Main changes to RSB EU RED version 2.1

- a) Definition of agricultural processing residues was added at F.10.3.
- b) Sustainability requirements for palm-based agricultural processing residues were added at H.2.8.

Main changes to RSB EU RED version 2.0

- a. Further terms and definitions were added in-line with EU RED II requirements
- b. Section G. Eligibility was re-defined based on EU RED II requirements
- c. In-line with new eligibility requirements, Annex on the Positive List for Waste & Residues was removed.
- d. Feedstock specific requirements were amended for BMW and residues from agriculture and forestry, reflecting EU RED II requirements.

Main changes from the RSB EU RED version 1.2 to RSB EU RED version 2.0

- e. Further terms and definitions were added in-line with EU RED II requirements
- f. Section G. Eligibility was re-defined based on EU RED II requirements
- g. In-line with new eligibility requirements, Annex on the “Positive List of Waste & Residues” was removed.
- h. Feedstock specific requirements were amended for BMW and residues from agriculture and forestry, reflecting EU RED II requirements.

Main changes from the RSB EU RED version 1.1 to RSB EU RED version 1.2

- a. A case-by-case assessment method was added in chapter G to distinguish between co-products and by-products
- b. A clarification was added in H.1.2.3 that first collectors are required to ensure the compliance of points of origin with the RSB standard and access to their premises.

Main changes from the RSB EU RED version 1.0 RSB EU RED version 1.1

- a. This standard prevails in the event of any inconsistency with the RSB Principles & Criteria.

Main changes from the RSB EU RED version 0.7 to RSB EU RED version 1.0

- a. The sustainability requirements for residues derived from palm oil have been aligned with the requirements for PFAD in the global RSB Standard.
- b. Significant re-structuring of the whole document.
- c. Auditing requirements were amended: Requirement for physical audits for significant material streams were added.
- d. Annex I was updated.

Main changes from the RSB Global version 1.6 to RSB EU RED version 0.7

- a. This consolidated RSB EU RED version [RSB-STD-11-001-01-010] was developed at the request of the European Commission, as certain aspects of the “Global” version [RSB-STD-01-010] were deemed not compliant with the Renewable Energy Directive (2008/28/EC) and Fuel Quality Directive (2009/30/EC). The main changes from the Global version are: The terms “by-product” and “end-of-life product” were removed throughout the document, and replaced with “waste and residues”.
- b. Section D was amended to clarify that the latest version of this document prevails over older versions.

- c. Section C text was amended to read, “Rules on wastes and residues apply only for the purposes of RSB EU RED certification or other EC-approved Voluntary Schemes”
- d. Procedures for traceability and audits (incl. group audits) of waste and residues were included to ensure origin of the material (Section I), in line with recent communication from the European Commission.
- e. The positive list of waste and residues was updated: references to palm waste and residues were removed.
- f. The EVR method and all references to it were removed.
- g. Upstream GHG emissions for waste and residue are required, starting with the collection and storage onward.