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Consolidated RSB EU RED Standard for certification of biofuels based on waste and residues

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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 biofuel 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 biofuel 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 biofuels 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 biomaterial production if other recycling, re-use or disposal options with a higher energy-efficiency or social/environmental benefits exist.

This standard describes how biofuels 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 *Biofuels* that include non-biogenic material are not recognized by the European Union under the Renewable Energy Directive (2009/28/EC) and Fuel Quality Directive (2009/30/EC). In addition, EU Member States may set additional requirements regarding the origin or categorization of certain feedstock.

Main changes from the RSB Global version 1.6

- 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.

Main changes from the RSB EU version 0.7

- 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

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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 1.0 of this *Consolidated RSB EU RED Standard for certification of biofuels based on waste and residues* shall be effective on 1 September 2016.

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.

E. RSB List of documents and corresponding references

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

F. Terms and definitions

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

F. 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) 2015/1513)

F. 2. Bio-based carbon content

Fraction of carbon derived from a biomass in a product (Source: EN 16575:2014 Bio-based products – Vocabulary)

F. 3. Biodegradable Municipal Waste (BMW)

i.e. *biogenic fraction of Municipal Solid Waste*. Materials derived from renewable biomass resources, including but not limited to crop residues, food residues, wood residues, grasses, and aquatic plants. The *biogenic Fraction* of MSW does not include materials derived from petrochemical resources (e.g. plastics)

F. 4. First Collector of waste and residues

Operator that receives waste or residual materials from points of origin

F. 5. Municipal Solid Waste

Municipal waste, collected by or on behalf of municipalities, by public or private enterprises (Source: United Nations Organization¹).

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

- 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

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

F. 6. Point of Origin

Companies or private households where waste or residues occur

F. 7. Processing residue

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) 2015/1513)

F. 8. 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. 9. 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. 10. Waste

Any substance or object which the holder discards or intends or is required to discard (Source: Directive 2008/98/EC); substances that have been intentionally modified or contaminated to meet that definition are not covered by this definition (Source: Directive (EU) 2015/1513)

F. 11. Wastewater

Includes Domestic wastewater, industrial wastewater and sludge

F. 11. 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. 11. 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. 11. 3. Sludge

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

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>

G. Eligibility

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

- It is explicitly defined as such by the European Commission or an EU Member State; and/or
- It is listed in the positive list in Annex I;

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 *Consolidated RSB EU RED Principles & Criteria* (RSB-STD-11-001-01-001) and related documents (i.e. guidelines, glossary, guidance and indicators) shall apply to any operator involved in processing from *the First Collector* onwards.
- 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 *Biofuel 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 Consolidated RSB EU RED Standard for Traceability of RSB EU RED Certified Material (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 organizations 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 could include, for example, evidence of collection from specific restaurants or renders. The name of the specific feedstock shall be on all documentation.

H. 1. 2. 4. Organizations 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 organization 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 type of 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 organization.
- Where the organization 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 organization 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 waste and residues are sourced from a supplier or trader which has been certified to an EC-approved Voluntary Scheme, then in order for the scheme to be used within the RSB scheme, that scheme shall require upstream verification of wastes and residues. The certified material itself must be

accompanied by a Proof of Sustainability indicating the feedstock type and country of origin

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. *Consolidated RSB EU RED Procedure on communication and claims* (RSB-PRO-11-001-50-001)
- H. 1. 4. 2. *Consolidated RSB EU RED Standard for participating operators* (RSB-STD-11-001-30-001)
- H. 1. 4. 3. *Consolidated RSB EU RED Standard for risk management* (RSB-STD-11-001-60-001)
- H. 1. 4. 4. *RSB Standard for EU market access* (RSB-STD-11-001)

H. 2. Feedstock specific requirements

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

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 material shall be certified by SAN (only non EU market)³, RSB or RSPO⁴ (EU market and non EU market).

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.).

³ Sustainable Agriculture Network (SAN): <http://sanstandards.org>

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

Guidance

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. Residues from agriculture aquaculture, fisheries and forestry

Participating Operators shall demonstrate that

- (a) the use of *waste or residues* for biofuel production, including lignocellulosic material, does not occur at the expense of long-term soil stability and organic matter content (i.e. operators shall provide evidence that Criterion 8a. of the RSB Principles & Criteria is met⁵).
- (b) harvesting residues comply with RSB Criteria 3a (GHG) and 7a, minimum requirements #5 and #6 (no-go areas and no-conversion areas) or are certified by any EC-approved Voluntary Scheme

Providing that a material is eligible under this standard (see section G.), the following forestry residues may be certified:

- Forestry harvesting residues: tops, limbs (branches) and saplings (trees with a diameter at a breast height below 5 inches/12.7 cm)
- Forestry processing residues: Sawdust, shavings, bark, tall oil, tall oil pitch, and brown liquor (from pulp, cellulose & paper industry).

Operators shall provide evidence that the residues derive from forests/wood that is certified by the Forest Stewardship Council (FSC⁶) or any verification/certification scheme with equivalent sustainability requirements as approved by the RSB.

Guidance

The European Union has set specific rules for the sustainability characteristics of waste and residues. According to Article 17, paragraph 1 of the EU Renewable Energy Directive (2009/28/EC), biofuels and bioliquids 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.

H. 2. 6. 7. 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

⁵ Third minimum requirement of Criterion 8.a.1 of the Consolidated RSB EU RED Principles & Criteria: "The use of agrarian and forestry residual products for feedstock production, including lignocellulosic material, shall not be at the expense of long-term soil stability and organic matter content."

⁶ <http://www.fsc.org>

ANNEX I: Positive list of waste and residues

- a. Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC
- b. Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive
- c. Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in o. (used cooking oil) and p. (cat. 1. and 2. animal fats)
- d. Straw
- e. Animal manure and sewage sludge
- f. Palm oil mill effluent and empty palm fruit bunches
- g. Tall oil pitch
- h. Crude glycerine
- i. Bagasse
- j. Grape marcs and wine lees
- k. Nut shells
- l. Husks
- m. Cobs cleaned of kernels of corn
- n. Biomass fraction of wastes and residues from forestry, i.e. bark, branches, leaves, needles, tree tops, saw dust, cutter shavings
- o. Used cooking oil
- p. Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council