



Status on RFNBOs / RCFs and Advanced Materials (Annex IX)

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RED II introduces new fuel categories – ISCC is prepared to cover these new categories

Advanced biofuels

- Annex IX of RED II (Part A)
- Sub-quota of 3.5% (Part A)
- 1.7% (Part B) but exemptions possible

Renewable fuels of non-biological origin (RFNBO)

- Fuels other than biofuels or biogas, the energy content of which is derived from renewable sources other than biomass
- E.g. hydrogen
- Directly 70% GHG savings required

Recycled carbon fuels (RCFs)

- Fuels produced from e.g. waste plastics, waste processing gases, exhaust gases
- Counted only for 14% transport target, not for overall renewable energy target

Annex IX defines advanced feedstocks and fuels, several of which are already covered by ISCC certification

Annex IX

Part A (“Advanced”) targets: at least 0.2% in 2022, 1% in 2025 and 3.5% in 2030

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| <ul style="list-style-type: none"> • Algae if cultivated on land in ponds or photobioreactors • Biomass fraction of mixed municipal waste but not separated household waste subject to recycling targets • Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection • Biomass fraction of industrial waste not fit for use in the food/feed chain, including material from retail/ wholesale and the agro-food and fish and aquaculture industry, excluding feedstocks listed in part B • Straw • Animal manure and sewage sludge • Palm oil mill effluent and empty palm fruit bunches • Tall oil pitch | <ul style="list-style-type: none"> • Crude glycerine • Bagasse • Grape marcs and wine lees • Nut shells • Husks • Cobs cleaned of kernels of corn • Biomass fraction of wastes and residues from forestry and forest-based industries, i.e. bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil • Other non-food cellulosic material • Other ligno-cellulosic material except saw logs and veneer logs |
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Part B (Not considered as “advanced”) capped to 1.7% but exemption possible

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| <ul style="list-style-type: none"> • Used Cooking Oil (UCO) | <ul style="list-style-type: none"> • Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 |
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Source: RED II (Directive 2018/2001)



Advanced feedstock: POME – Palm Oil Mill Effluent

- Unavoidable **waste water/sludge** arising from palm oil production
- Usually released to a system of ponds to **remove solids, oil and grease** before discharging the water into waterways
- POME contains around **1% oil or fat**
- **Oil settles on top of the pond** and can be extracted (skimmed off) and used as feedstock for biodiesel or HVO production
- The **oil extracted from the POME pond** (POME oil) is often referred to as „Palm Sludge Oil“ or „Sludge Palm Oil“ or simply „POME“
- Approximately **100.000 tons of POME oil** were certified as a sustainable waste-based raw material under ISCC in 2017*

* Figures as reported by ISCC system users



ISCC certified companies producing biofuels out of POME (oil)





Renewable liquid and gaseous transport fuels of non-biological origin (RFNBO)

- „Liquid or gaseous fuels which are used in the transport sector other than biofuels or biogas, the **energy content of which is derived from renewable sources** other than biomass“
 - Example: Hydrogen made from renewable electricity
- Goal: “**Increase the share of renewable energy** in sectors that are expected to rely on liquid fuels in the long term”
- The **electricity used** for the fuel production **should be of renewable origin** to ensure that RFNBO contribute to the reduction of GHG emissions
- **GHG emissions savings** from the use of RFNBO shall be at least **70 % from 1 January 2021**
- GHG methodology and certification aspects are to be specified in a **delegated act due by 31 December 2021**
- Certification already possible under ISCC PLUS



Requirements for the certification of RFNBO. What is a general rule...

- **General rule if electricity from the grid is used for the production of RFNBO :**
 - **The average share of electricity from renewable sources in the country of production, as measured two years before the year in question, shall be used to determine the share of renewable energy**
- **EC to develop a framework on additionality** to ensure that an expected increase in demand for electricity in the transport sector is met with additional renewable energy generation capacity

... without exceptions to the rule (which remain to be clarified in a delegated act)?

▪ **Exceptions:**

- **Electricity obtained from direct connection to an installation generating renewable electricity** may be fully counted as renewable electricity where it is used for the production of RFNBO, provided that the installation:
 - comes into operation after, or at the same time as, the installation producing the RFNBO; and
 - is not connected to the grid or is connected to the grid but evidence can be provided that the electricity concerned has been supplied without taking electricity from the grid
- **Electricity that has been taken from the grid** may be counted as fully renewable provided that it is produced exclusively from renewable sources and the renewable properties and other appropriate criteria have been demonstrated, ensuring that the renewable properties of that electricity are claimed only once and only in one end-use sector (no „double-accounting“ of renewable properties)
- The detailed rules by which operators are to comply with these exceptions need to be clarified in the **delegated act**

The UK already developed own regulations for RFNBOs and introduced the new category “development fuels”

- The UK is the first “Member State” including RFNBOs in existing national legislation in April 2018 already (and also jet fuels)
- **“Development fuels”** are categorised as follows:
 - At fuel level: A development fuel must be either...
 - renewable hydrogen,
 - renewable aviation fuel,
 - bio substitute natural gas or
 - a petrol or diesel that can be blended at 25% or more.
 - At feedstock level: A development fuel must be made from...
 - waste and residues eligible for double counting (not including segregated oils & fats like UCO or tallow) or
 - a RFNBO (wind, solar, hydro, etc.).
- ISCC is currently developing an ISCC PLUS guidance document for the certification of RFNBOs to be recognized by the UK



Source: <https://www.gov.uk/government/publications/renewable-transport-fuel-obligation-rtfo-guidance-2019>



Recycled carbon fuels (RCFs)

- „Liquid or gaseous fuels that are produced from **liquid or solid waste streams of non-renewable origin** which are not suitable for material recovery (...), 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“
 - Example: industrial flue gases, waste plastics (not suitable for material recovery), etc.
- Minimum **thresholds for GHG emissions savings** of recycled carbon fuels to be determined in a delegated act due by 1 January 2021
- **GHG methodology and certification requirements** are to be specified in a delegated act (due by 31 December 2021)
- Certification already possible under ISCC PLUS



Many thanks for your attention!

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