



## Better Biomass interpretation document N° 4

**Date** 2019-04-01

**Supersedes** Interpretation document N° 3

**Explanation** Amendment of NTA 8080-1:2015, Annex D due to NTA 8003:2017 superseding NTA 8003:2008

This document provides interpretations of requirements related to the following documents of the Better Biomass certification system:

- NTA 8080-1:2015, *Sustainably produced biomass for bioenergy and bio-based products – Part 1: Sustainability requirements*
- NTA 8080-2:2015, *Sustainably produced biomass for bioenergy and bio-based products – Part 2: Chain-of-custody requirements*
- NCS 8080:2018-08, *Better Biomass certification scheme*

The interpretations given in this document are normative and shall be followed by organizations that wish to become or remain Better Biomass certified (or NTA RED certified).

# NTA 8080-1:2015, Sustainably produced biomass for bioenergy and bio-based products – Part 1: Sustainability requirements

## **1 Scope**

[No interpretation]

## **2 Normative references**

NTA 8003:2017, *Classification of biomass for energy application*

NOTE This normative reference replaces NTA 8003:2008.

## **3 Terms and definitions**

The definition of 'protected species' (3.1) refers to national legislation. Within the framework of "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen"<sup>1</sup> the term 'endangered plant and animal species' is used, which is defined as plant and animal species that are classified at least as "threatened" in the global red list of the International Union for the Conservation of Nature (IUCN) and the guidelines of the IUCN for the regional application of the red list of the IUCN. If the organization produces biomass for energy applications that will be processed and traded to be supplied to an organization that use this processed biomass to produce energy within the framework of this regulation, the organization shall comply with this definition of 'protected species'.

NOTE 1 By using 'threatened' instead of 'endangered', it is clear that the classification include 'vulnerable', 'endangered' and 'critically endangered' species as applied in the red list of the IUCN.

NOTE 2 The transaction certificate includes information whether an organization is assessed within the framework of "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen" (see NTA 8080-1:2015, 5.2), which implies that also the definition of 'endangered plant and animal species' in this regulation is used in the case the organization is assessed within the framework of this regulation.

The definition of 'organization' (3.23) involves that it refers to a single legal entity.

In the case of forestry, the 'production location' (3.24) can also be read as 'forest management unit'.

In note 2 to the definition of 'residual flow' (3.25) it is stated that Directive 2009/28/EC refers to 'residual flows' as 'waste and residues'. Within the framework of Directive 2009/28/EC the following terms and definitions related to 'waste and residues' apply:

— "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]

— "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]

— "waste": any substance or object which the holder discards or intends or is required to discard

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<sup>1</sup> "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen" concerns the Dutch regulation dealing with conformity assessment of sustainable biomass for energy applications, which is linked to demonstrate compliance with the sustainable requirements for biomass for co-firing as agreed within the framework of the Dutch Energy Agreement.

Note 1 to entry: Definition adopted from Directive 2008/98/EC, Article 3(1).

Note 2 to entry: Substances that have been intentionally modified or contaminated to meet the definition of Directive 2008/98/EC are not covered by this definition.

[SOURCE: Directive (EU) 2015/1513]

An organization that operates within the framework of Directive 2009/28/EC shall ensure that biomass flows intended to be considered residual flows comply with these terms and definitions. In this context, 'primary residual flows' refer to 'agricultural, aquaculture, fisheries and forestry residues and wastes' and 'non-primary residual flows' refer to 'processing residues and wastes'.

In note 2 to the definition of 'smallholder' (3.26) it is stated that the cultivation area can be enlarged. Within the framework of "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen", a maximum of 500 hectares is applied for smallholders (referred to as forest management units).

## **4 Abbreviations**

[No interpretation]

## **5 General requirements and guidelines**

### **5.1 General**

[No interpretation]

### **5.2 Description of processes**

In the event of forestry, the processes shall be described in a forest management plan that also contains the long-term goal for the ecological functions of the production location to which the processes relate and which should be supportive to achieve this long-term goal. In addition, the forest management plan includes the budget for achieving this long-term goal, taking into account the costs related to the implementation and maintenance of the applicable sustainability requirements as defined in 5.2.1.

### **5.3 Time periods**

In the event of forestry, the selected time period(s) should take into account the crop rotation for each forest type in view of the annual average allowable cut or harvest to achieve the long-term goal for the ecological functions of the production location. The justification of the selected time periods shall be part of the forest management plan (see also 5.4).

### **5.4 Data and information**

In 5.4.5 it is stated that the organization is required to document data, sources of information and assumptions used. If an organization is also certified in accordance with another certification scheme, it shall also provide the documented information related to this certification including the audit report(s) when being assessed to the applicable requirements of NTA 8080-1:2015 and NTA 8080-2:2015.

NOTE Other certification schemes can include voluntary schemes as recognized by the European Commission in the framework of Directive 2009/28/EC.

### **5.5 Stakeholder consultation**

[No interpretation]

## **5.6 Laws and regulations**

In 5.6.1 it is stated that the organization shall demonstrably be acquainted with applicable laws and regulations, and in 5.6.2 it stated that organization shall have implemented a process of management of changes. These requirements imply that the organization shall not violate the applicable laws and regulations and can demonstrate compliance. This includes, but is not limited to, ensuring that the production location is protected against all forms of illegal exploitation of products that can be obtained from the production location (including hunting and fishing), illegal establishment of settlements, illegal land use, illegally initiated fires, and any other illegal activities.

In 5.6.3, it is stated that the organization shall keep record of occasions where the applicable laws and regulations prescribe requirements that conflict the requirements contained in NTA 8080-1:2015 and NTA 8080-2:2015. In the framework of sustainability criteria for biomass, applicable laws and regulations include Directive 2009/28/EC as implemented in national legislation by the European member states, and “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen” that always prevail.

NOTE This Interpretation document contains interpretations of requirements of NTA 8080-1:2015 and NTA 8080-2:2015 in view of these laws and interpretations to avoid conflicts.

## **5.7 Monitoring, measurement, analysis, evaluation and continual improvement**

In 5.7.1 reference is made to measures related to the sustainability aspects in accordance with Annex A. The measures to be taken by the organization shall include appropriate measures to prevent any illegal activity, whether or not covered by laws and regulations.

EXAMPLE Illegal hunting or fishing can be laid down by legislation, but is also a sustainability aspect related to the preservation of biodiversity. Appropriate measures to prevent illegal hunting or fishing can include fences, sensors, cameras or patrols, depending on country, surface area, topography, and so on.

In the case of forestry, the monitoring, measurement, analysis and evaluation is normally part of the forest management plan in order to achieve the long-term goal for the ecological functions of the production location. The documented information, as required in 5.7.2, shall include a forest management plan that at least contains:

- a description of the current condition of the production location;
- long-term goals for the ecological functions of the production location;
- the average annual allowable cut per forest type and, if applicable, the annual allowable harvest of non-timber forest products based on reliable and current data;
- budget planning for the implementation of the forest management plan.

The monitoring, measurement, analysis and evaluation shall also consider the long-term goals for the ecological functions, the average annual allowable cuts and, if applicable, the annual allowable harvest of non-timber forest products as described in the forest management plan in order to assess whether additional measures will be needed.

## **5.8 Complaints regulation**

[No interpretation]

## **6 Sustainability requirements**

### **6.1 General**

[No interpretation]

## **6.2 Greenhouse gas emissions**

### **6.2.1 Greenhouse gas emission saving**

The net emission saving of greenhouse gases is a chain performance. Table 1 makes a distinction between the minimum greenhouse gas emission savings for installations in which production started before 5 October 2015 or started on or after this date. This implies that the end-user shall obtain information that demonstrates if the biofuel or bioliquid installation in the chain started the production on or after 5 October 2015, resulting in a higher minimum greenhouse gas emission saving.

NOTE This can be additional information on the transaction certificate or other accompanied document.

Footnotes a to c in Table 1 states that values used can change in future. When such change occur, the new values will become effective on the date communicated by the European Commission.

### **6.2.2 High carbon stock**

In 6.2.2.1 reference is made to biomass production from certain land types. In the framework of Directive 2009/28/EC the wording of biofuels and bioliquids made from raw materials obtained from certain land types is used. Both have the same intent.

In 6.2.2.1 c) reference is made to 6.2.1.1.2. This reference should have read 6.2.1.1.1 that includes the greenhouse gas emission savings to be fulfilled.

In 6.2.2.1 d) reference is made to drainage of peatland. The organization shall not produce biomass from peatland that was partially drained in January 2008 and where a subsequent deeper drainage affects soil that was not fully drained.

In 6.2.2.3 reference is made to round timber. In the context of this NTA, round timber is defined as unprocessed wood from the trunk of a tree. In addition, reference is made to processing round timber into wood pellets for bioenergy. Round timber shall neither be processed into other woody materials for bioenergy.

NOTE During the transposition process of the sustainability requirements for solid biomass for energy applications into "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen", 'wood pellets for bioenergy' has changed to 'biomass for energy generation'.

In 6.2.2.4 reference is made to management of the production location in view of maintaining the carbon cycle of forest in the long-term. This implies that the organization shall maintain the production capacity of all forest types represented in the production location.

## **6.3 Competition with food and local applications of biomass**

### **6.3.1 Local prices**

[No interpretation]

### **6.3.2 Raw materials-efficient use of biomass (cascading)**

[No interpretation]

### **6.3.3 'ILUC low risk'**

It is stated that the organization can opt or may be required to market its biomass as 'ILUC low risk'. In the framework of "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen" demonstrating 'ILUC low risk' is required. If the organization produces biomass for energy applications that will be processed and traded to be supplied to an organization that use this processed biomass to produce energy within the framework of this regulation, the organization that produces this biomass shall comply with the requirements of 6.3.3.

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In NOTE 2 to 6.3.3.1, as reference date 1 January 2015 is mentioned in the example about the Dutch Energy Agreement. This reference date is changed to 1 January 2008 in the “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen” (i.e. '1 January 2015' shall read '1 January 2008').

### 6.4 Biodiversity

#### 6.4.1 Land with high biodiversity value

In 6.4.1.1 reference is made to biomass production from certain land types. In the framework of Directive 2009/28/EC the wording of biofuels and bioliquids made from raw materials obtained from certain land types is used. Both have the same intent.

In 6.4.1.1 reference is made to status of land in January 2008. This also means that that land may not have the status as listed in this subclause after January 2008 (i.e. 'in January 2008' shall read 'in or after January 2008'),

In 6.4.1.1 b) ii), reference is made to the procedure laid down in Directive 2009/28/EC. More specifically, this procedure is described in article 18(4) of this directive.

In 6.4.1.1 b) iii), reference is made to areas with high conservation value as defined in 3.18. As part of the documented information, the organization is required to show a map. This map shall clearly indicate the areas with high conservation value, if present.

NOTE 1 While this requirement is listed at the sustainability aspect addressing biodiversity, high conservation values contain also other elements as defined in 3.18.

In 6.4.1.3, reference is made to cultivation area. This relates to the area that is used for the production of all types of biomass for bioenergy and bio-based products. Moreover, reference is made to conversion to agriculture. As far as not already covered with 6.4.1.4, agriculture includes (agro)forestry in this context.

In 6.4.1.3 it is stated that the organization shall set aside at least 10 % of the cultivation area to be covered with native vegetation. In addition, in 6.4.1.4 it stated that in case of forest plantations preference should be given to native species. When referring to native vegetation and species, these include representative areas within the production location whether classified as high conservation value area or not. Areas with a high conservation and representative areas within the production location can include one or more of the following values: diversity of species, ecosystems and habitats, ecosystem services, ecosystems at landscape level and cultural values.

In 6.4.1.4 reference is made to natural forests and to forest plantations. In the context of this NTA, natural forests include semi-natural forests and forest plantations shall be read as production forests that include forest plantations.

NOTE 2 With adopting this terminology, the requirement is aligned with “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen”. In this regulation, ‘natural forest’ is defined as forest that was created by nature and has evolved naturally and contains many of the original characteristics and key elements of native ecosystems, and ‘forest plantation’ is defined as forest consisting of even-aged trees of one or a few species, exotic or native species, laid out in a uniform level by planting or seeding for the purpose of timber production.

#### 6.4.2 Restoration, preservation and strengthening of biodiversity

In 6.4.2.2 it is stated that the organization shall take measures for the restoration, preservation and strengthening of biodiversity. To demonstrate this, the organization shall comply with the requirements of 5.7. Measures related to 6.4.2.2 items c) and d) shall take into account the prevention and control of diseases and pests, which can have a negative impact on biodiversity. In the case of forestry, the organization shall take into account that the exploitation of non-timber forest products, including products from hunting and fishing, is part of the monitoring, measurement, analysis and evaluation process to safeguard the preservation and strengthening of biodiversity (see also 6.4.2.4). In addition, the organization shall prevent unnecessary damage to ecosystems by applying reduced impact

logging and the most suitable road construction methods and techniques for local conditions as part of best available and good practices for forestry.

NOTE Reduced impact logging involves harvesting techniques and methods that have been developed to prevent unnecessary damage to the forest, environment and harvested wood while promoting safe working conditions at the same time.

## **6.5 The environment**

### **6.5.1 Soil**

#### **6.5.1.1 Preservation and improvement of soil quality**

It is stated that the organization shall take measures for preservation and improvement of soil quality. To demonstrate this, the organization shall comply with the requirements of 5.7.

#### **6.5.1.2 Use of residual flows**

[No interpretation]

### **6.5.2 Ground and surface water**

#### **6.5.2.1 Preservation and improvement of water quality**

It is stated that the organization shall take measures for preservation and improvement of water quality. To demonstrate this, the organization shall comply with the requirements of 5.7.

#### **6.5.2.2 Renewable sources and the availability of water**

[No interpretation]

### **6.5.3 Air**

[No interpretation]

### **6.5.4 Waste**

[No interpretation]

## **6.6 Prosperity**

The organization is required to have selection criteria for all functions in the organization (6.6.2) and for suppliers (6.6.4). The intent of these requirements is that the organization also applies its selection criteria when recruiting new staff and purchasing products and outsourcing services, also to demonstrate that local population and local suppliers have been involved in these processes, respectively. The organization shall also be able to demonstrate that the selection criteria have been applied.

## **6.7 Wellbeing**

### **6.7.1 Labour conditions**

[No interpretation]

### **6.7.2 Responsible contact with (local) stakeholders**

[No interpretation]

**6.7.3 Responsible contact with employees**

[No interpretation]

**6.7.4 Property and usage rights**

[No interpretation]

**6.7.5 Contribution to the wellbeing of the local population**

[No interpretation]

**6.7.6 The integrity of the company**

In 6.7.6.3 it is stated that the organization shall take any measures that are necessary to effectively fight corruption within the organization. To demonstrate this, the organization shall comply with the requirements of 5.7.

**Annex A (normative) Applicability of requirements in this NTA to organizations**

Table A.1 lists the applicability of general requirements and sustainability requirements to organizations. The general requirement about the complaints regulations (5.8) is missing in this table. This general requirement applies to all organizations (i.e. 'producer', 'processor', 'trader' and 'end-user'). The reporting requirement on raw materials-efficient use of biomass (6.3.2) is not applicable to 'biomass producer'.

**Annex B (informative) Principles, criteria and indicators from *Testing framework sustainable biomass***

[No interpretation]

**Annex C (normative) Greenhouse gas calculations**

**C.1 General**

[No interpretation]

**C.2 Greenhouse gas calculations for biofuels and bioliquids**

In C.2.4 it stated the organization shall calculate the emission factors, as included in Formula (C.1), in accordance with to Directive 2009/28/EC, Annex V, including the amendment of Directive 2009/28/EC as included in Directive (EU) 2015/1513. In the note to this requirement, reference is made to Communication 2010/C 160/02 as guidance. This Communication shall be adhered when calculating the greenhouse gas emission savings in the framework of Directive 2009/28/EC.

**C.3 Greenhouse gas calculations for solid and gaseous biomass**

[No interpretation]

**C.4 Use of default values, actual values and aggregated values**

The title of this clause uses the term 'aggregated values' whereas Directive 2009/28/EC uses the term 'disaggregated default values'. Where 'aggregated values' is used, 'disaggregated default values' should be read.

Reference is made about the use of default values, actual values and disaggregated default values. The default values as included in Annex V of Directive 2009/28/EC may only be used if the process



technology and raw material used for the production of the biofuel or bioliquid match their description and scope. With respect to calculating  $e_i$  in accordance with C.2 or C.3, it applies that default values may only be used if the value is equal to or less than zero. The disaggregated default values as included in Annex V of Directive 2009/28/EC may be used for some emission factors in Formula (C.1) in accordance with C.2.4.

NOTE 1 Any change in the default values as included in Annex V of Directive 2009/28/EC will become effective on the date as communicated by the European Commission.

In C.4.2 it stated that the organization can be required or can decide to use actual values. When actual values are used, the organization shall be able to demonstrate that it is capable to conduct the greenhouse calculation according to the methodology described in C.2 or C.3, depending on its activities. Actual values can only be calculated when all relevant information is available and transmitted through the chain of custody, meaning that:

- a) actual values of emissions from cultivation can only be determined at the origin of the chain of custody;
- b) actual values of emissions from transport can only be determined if emissions of all transport steps are recorded and transmitted through the chain of custody;
- c) actual values of emissions from processing can only be determined if emissions of all processing steps are recorded and transmitted through the chain of custody.

The organization shall use the version of the BioGrace I tool as recognized by the European Commission, if actual values are used in the framework of Directive 2009/28/EC.

NOTE 2 Capability can be demonstrated by certification, in which the verification of the greenhouse gas calculation is part of the conformity assessment. If actual values are used, the certification body will take this aspect into account in the assessment.

NOTE 3 The BioGrace I tool is mentioned as possible tool for executing the calculations for greenhouse gas emissions in C.5.1. In the framework of Directive 2009/28/EC this tool is mandatory when using actual values. The BioGrace I tool is recognized by the European Commission as voluntary scheme in the framework of Directive 2009/28/EC, so that an organization that applies the BioGrace I tool can demonstrate that it has calculated its greenhouse gas emissions in accordance with Directive 2009/28/EC.

In C.4.3 reference is made to NUTS-2 levels. Member States or competent authorities of third countries may submit to the European Commission reports including data on typical emissions from cultivation of feedstock. As laid down in Communication 2010/C 160/02, the values from the "NUTS 2" reports can be used by certification schemes. An organization may apply these values as an alternative to actual values, provided these are available in the unit g CO<sub>2eq</sub>/dry-ton of raw material on the web site of the European Commission. The values included in the NUTS 2 reports do not represent disaggregated default values. Therefore, they can only be used as an input for the calculation of actual values, but cannot be used to report emissions from cultivation in the unit g CO<sub>2eq</sub>/MJ of bioenergy.

NOTE 4 The calculation of alternative averages for areas and crops which are covered by the NUTS 2 reports are not appropriate, as the appropriate averages have already been calculated by the national authorities.

In addition to the provision already given in C.4, the following provisions shall be taken into account related to adjusting greenhouse gas emissions estimates throughout the chain of custody. Whenever actual values are calculated at each step of the chain of custody, the additional emissions from transport and/or processing shall be added to  $e_p$  and/or  $e_{td}$ , respectively. Whenever a processing step yields co-products, emissions shall be allocated as set out in C.2 or C.3.

Formula (C.11) shall be applied to emissions from cultivation when processing intermediate products:

$$e_{ec \text{ intermediate product } a} \left[ \frac{\text{g CO}_{2eq}}{\text{kg}_{dry}} \right] = e_{ec \text{ raw material } a} \left[ \frac{\text{g CO}_{2eq}}{\text{kg}_{dry}} \right] \times \text{raw material factor } a \times \quad (C.11)$$

allocation factor intermediate product<sub>a</sub>

where

raw material factor<sub>a</sub> is the ratio of kg dry raw material required to make 1 kg dry intermediate product

$$\text{allocation factor intermediate product}_a = \frac{\text{energy in intermediate product}_a}{\text{energy in intermediate products and coproducts}}$$

At the last processing step, the emission estimate shall be converted into the unit g CO<sub>2eq</sub>/MJ of final bioenergy. For this transformation, Formula (C.12) shall be applied to emissions from cultivation:

$$e_{ec, \text{bioenergy}} \left[ \frac{\text{gCO}_{2eq}}{\text{MJ bioenergy}} \right]_{ec} = \frac{e_{ec, \text{raw material}} \left[ \frac{\text{gCO}_{2eq}}{\text{kg}_{dry}} \right]}{\text{LHV}_a \left[ \frac{\text{MJ raw material}}{\text{kg dry raw material}} \right]} \times \text{bioenergy raw material factor}_a \quad (\text{C.12})$$

allocation factor bioenergy<sub>a</sub>

where

bioenergy raw material factor<sub>a</sub> is the ratio of MJ raw material required to make 1 MJ bioenergy

$$\text{allocation factor bioenergy}_a = \frac{\text{energy in bioenergy}}{\text{energy in bioenergy} + \text{energy in coproducts}}$$

Similarly, also the values for e<sub>p</sub>, e<sub>id</sub>, e<sub>l</sub> and e<sub>ee</sub> shall be adjusted. As mentioned above in case of e<sub>p</sub> and e<sub>id</sub>, the emissions from the relevant processing step shall be added. For e<sub>ccr</sub> and e<sub>ccs</sub>, dedicated rules apply as described below. For the purpose of this calculation, raw material factors based on plant data shall be applied. LHV values per dry ton shall be applied for the calculation of the raw material factor, while LHV values for wet biomass shall be applied for the calculation of the allocation factor.

NOTE 5 Concerning wet biomass, the 'wet definition LHV' is used for the purpose of allocation. This subtracts the energy needed to evaporate the water in the wet material from the LHV of the dry matter. Products with a negative energy content are treated at this point as having zero energy, and no allocation is made (see also Directive 2009/28/EC, Annex V, part C, point 18).

The assumptions applied in the framework of the calculation of the default values in the case of biofuels are provided in Table C.1.

Table C.1 – Assumptions applied for calculations of default values in the case of biofuels

Pathway	Crop	LHV: MJ/kg dry raw material	MJ raw material / MJ biofuel	Kg dry raw material / MJ biofuel
Sugar beet ethanol	Sugar beet	16,3	1 840	0,112 9
Wheat ethanol	Wheat	17,0	1 882	0,110 7
Corn ethanol	Corn	18,5	1 958	0,105 9
Sugar cane ethanol	Sugar cane	19,6	2 772	0,141 4
FAME biodiesel from rapeseed <sup>a</sup>	Rapeseed	26,4	1 729	0,065 5
FAME biodiesel from sunflower <sup>a</sup>	Sunflower seed	26,4	1 610	0,061 0
FAME biodiesel from soybeans <sup>a</sup>	Soybeans	23,5	3 078	0,130 8
FAME from palm oil <sup>a</sup>	FFB	24,0	2 018	0,084 1
HVO from rapeseed	Rapeseed	26,4	1 705	0,064 6
HVO from sunflower	Sunflower seed	26,4	1 588	0,060 1
HVO from palm oil	FFB	24,0	1 992	0,083 0
Pure vegetable oil from rapeseed	Rapeseed	26,4	1 718	0,065 1

<sup>a</sup> Biodiesel derived by transesterification of fats with methanol (FAME) are regarded as being 100 % of renewable origin in Directive 2009/28/EC. Similar to other inputs, the carbon footprint of the methanol used in the esterification process should be taken into account in the calculation of the greenhouse gas emission intensity of the biofuel. This approach has been used in the calculation of the default values. In the case of conventional methanol in the original calculations of Directive 2009/28/EC, 0,058 5 MJ of methanol was used per MJ of FAME produced, with an emissions factor of 99,57 g CO<sub>2eq</sub> per MJ of methanol. This factor is included along with those for other inputs in the list of standard values. published on the European Commission's website.

Directive 2009/28/EC sets out that greenhouse gas emission savings from carbon capture and replacement,  $e_{ccr}$ , shall be limited to emissions avoided through the capture of CO<sub>2</sub> of which the carbon originates from biomass and which is used to replace fossil-derived CO<sub>2</sub> used in commercial products and services. Emission savings from carbon capture and geological storage,  $e_{ccs}$ , that have not already been accounted for in  $e_p$ , shall be limited to emissions avoided through the capture and sequestration of emitted CO<sub>2</sub> directly related to the extraction, transport, processing and distribution of fuel.

For both  $e_{ccr}$  and  $e_{ccs}$ , the emission saved shall relate directly to the production of the bioenergy to which they are attributed. It would, for instance, not be justified to allocate arbitrarily different amounts of savings to bioenergy obtained from the same process, i.e. all bioenergy originating from the same process would need to be treated equally in this regard. If the CO<sub>2</sub> is not captured continuously, it might be appropriate to deviate from this approach and to attribute different amounts of savings to bioenergy obtained from the same process. However, in no case a higher amount of savings shall be allocated to a given batch of bioenergy than the average amount of CO<sub>2</sub> captured per MJ of bioenergy in a hypothetical process where the entire CO<sub>2</sub> stemming from the production process is captured. Capturing and processing of CO<sub>2</sub> has its own greenhouse gas emission footprint. Those emissions shall be taken into account in the calculation applying the appropriate emission factors for the energy consumed and the inputs used for capturing and processing of CO<sub>2</sub>.

To verify that the capturing of CO<sub>2</sub> is used in commercial products and services to replace fossil-derived CO<sub>2</sub>, it would suffice to check that the CO<sub>2</sub> was sold to an organization that can be expected to have an economical meaningful use for the CO<sub>2</sub>. In order to ensure that  $e_{ccr}$  is limited to emissions avoided through the capture of CO<sub>2</sub> and to verify that fossil-derived CO<sub>2</sub> is replaced, it is necessary to gather this type of information. Therefore, the buyer should provide information how the CO<sub>2</sub> that is replaced was generated previously and declare, in writing, that due to the replacement emissions are avoided.

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NOTE 6 It would be for an auditor to decide case by case whether the requirements of the Directive 2009/28/EC are met including that emissions are actually avoided. Good examples for a replacement which can be expected to avoid CO<sub>2</sub> emissions are cases where the CO<sub>2</sub> that is replaced was previously produced in a dedicated process aiming at the production of CO<sub>2</sub> such as a CO<sub>2</sub> generator burning natural gas to produce CO<sub>2</sub> to stimulate the growth of vegetables in a greenhouse. It is not required to conduct audits on the premises of the buyer, as the buyer of the CO<sub>2</sub> is not part of the chain of custody related to the bioenergy production, unless there is reasonable suspicion that the written declaration contains false information.

Within the framework of Directive 2009/28/EC an organization should use the standard calculation values, which are published on the European Commission's website dedicated to the greenhouse gas emission savings methodology. This list is not exhaustive. Whenever an item is covered by the list, the use of alternative values shall be duly justified. In case alternative values are chosen, this shall be flagged up in the documentation of the calculations in order to facilitate the verification.

NOTE 7 The list of standard calculation values might be subject to changes resulting from technological progress, new scientific evidence or changes to the legal framework.

### C.5 Tools for greenhouse gas calculations

If actual values are used in the framework of Directive 2009/28/EC, the organization shall use the version of the BioGrace I tool as recognized by the European Commission.

NOTE See also C.4, note 3.

## Annex D (normative) List of residual flows

This annex includes tables that list biomass flows that are considered primary residual flows (Table D.1) and non-primary residual flows (Table D.2). The tables are classified according to NTA 8003:2008. This edition of NTA 8003 has been superseded by NTA 8003:2017. The changes that have been made in the new edition of NTA 8003, are also valid to the classification as applied in tables D.1 and D.2, as included in this interpretation document.

**Table D.1 — List of primary residual flows**

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
127	branches and tops hardwood	as far as it concerns branches and tops originating from (hardwood) forests and nature reserves managed with an eye to preserving their function for the long term
128	stumps hardwood	as far as it concerns stumps that are not originating from conversions on behalf of changes to functions for which permits have been granted
129	thinnings hardwood	as far as it concerns low-value spindle wood originating from (hardwood) forests and nature reserves managed with an eye to preserving their function for the long term  NOTE Examples of low-value spindle wood are wood with a limited value due to its limited diameter, wood with significant curvatures, wood with many and heavy knots, wood with rot/mould/discolouration, wood broken due to a storm, etc.

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
136	branches and tops softwood	as far as it concerns branches and tops originating from (softwood) forests and nature reserves managed with an eye to preserving their function for the long term
137	stumps softwood	as far as it concerns stumps that are not originating from conversions on behalf of changes to functions for which permits have been granted
138	thinnings softwood	as far as it concerns low-value spindle wood originating from (softwood) forests and nature reserves managed with an eye to preserving their function for the long term  NOTE Examples of low-value spindle wood are wood with a limited value due to its limited diameter, wood with significant curvatures, wood with many and heavy knots, wood with rot/mould/discolouration, wood broken due to a storm, etc.
220	straw  NOTE This concerns a mixture of straw [221], barley straw [222], wheat straw [223], rice stalk [224], hemp [225] and other straw [229].	
230	residual products (shells)  NOTE This concerns a mixture of shells [231], cocoa shells [232], peanut shells [233], nuts, including walnuts [234], almond shells [235], rice husks [236], palm kernel shells [237] and other shells [239].	
252	horticultural waste	
253	fruit farming	
254	peeling waste from flower bulbs	
255	arable farming waste	
258	mixture of other residual products	as far as it concerns other residual products from primary sector
259	other residual products	as far as it concerns other residual products from primary sector
<sup>a</sup> Category according to NTA 8003:2017. <sup>b</sup> This concerns a demarcation within the category mentioned.		

Table D.2 — List of non-primary residual flows

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
112	bark	
114	round timber (from nature and landscape management)	<p>as far as it concerns:</p> <ul style="list-style-type: none"> <li>— low-value spindle wood originating from gardens, parks and public gardens</li> <li>— low-value spindle wood originating from conversions on behalf of changes to functions for which permits have been granted</li> </ul> <p>NOTE Examples of low-value spindle wood are wood with a limited value due to its limited diameter, wood with significant curvatures, wood with many and heavy knots, wood with rot/mould/discolouration, wood broken due to a storm, etc.</p>
115	sawdust	
117	stumps (from nature and landscape management)	as far as it concerns stumps originating from conversions on behalf of changes to functions for which permits have been granted
118	branches and tops (from nature and landscape management)	<p>as far as it concerns:</p> <ul style="list-style-type: none"> <li>— branches and tops originating from gardens, parks and public gardens</li> <li>— branches and tops originating from conversions on behalf of changes to functions for which permits have been granted</li> </ul>
119	other fresh wood (left overs)	as far as it concerns residues that are produced when round timber is sawn and processed
160	<p>processed wood; untreated (A-wood)</p> <p>NOTE This concerns a mixture of untreated wood [161], cork [162] and other untreated wood [169].</p>	
170	<p>processed wood; painted/glued wood (B-wood)</p> <p>NOTE This concerns a mixture of painted/glued wood [171], panel materials/glued wood [172] and other painted/glued wood [179].</p>	

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
180	<p>processed wood; impregnated wood (C-wood)</p> <p>NOTE This concerns a mixture of impregnated wood [181], impregnated wood: heavy metals [182], impregnated wood: halogenated organic compounds [183], impregnated wood: non-halogenated organic compounds [184] and other impregnated wood [189].</p>	
191	mixture of wood from processing	
192	wood released from processing of kitchen and garden waste	
193	wood (compost overflow)	
199	other wood from processing	
213	roadside grass	
219	other grass	to the extent that grass and cuttings (including from waterways and reeds) are concerned that originate from maintenance activities; this does not include agricultural grass
251	auction waste	
256	champost	
258	mixture of other residual products	as far as it concerns other residual products from non-primary sector
259	other residual products	as far as it concerns other residual products from non-primary sector
300	<p>manure</p> <p>NOTE This concerns a mixture of manure [311], poultry manure [312], cow manure [313], pig manure [314], horse manure [315], other types of manure [319], processed manure from manure fermentation (digestate) [321], processed manure from co-fermentation with manure (digestate) [322] and processed manure from other processing [329].</p>	
400	<p>sludge</p> <p>NOTE This concerns mixture of sludge [401], other sludge [409], sludge from sewage/waste water treatment plants [410], sludge from sewers, cesspits and pumping stations [420], sludge from preparation of drinking water [430], mixture of industrial sludge [441], paper sludge from paper and cardboard industry [442], water treatment sludge (food and non-food processing industry) [443], production sludge [444], omega screens [445], fat drainage and flotation sludge [446] and other industrial sludge [449].</p>	

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Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
512	glycerine – glycol	as far as it concerns crude glycerine (glycerine that is not refined)
514	black liquor	
515	bleaching clay from biodiesel / ethanol industry	
517	biodiesel pitch	
522	potato peels	as far it does <b>not</b> concern concentrated potato juice and/or potato protein
523	rice husks	as far as it concerns rice chaff
525	palm kernel shells	
529	other shells / husks / kernels	As far as it concerns cocoa shells, peanut shells, nuts, including walnuts, and other shells  NOTE A similar approach has been adopted as with other residual products from agriculture and horticulture [230].
535	spent grain	as far as it concerns brewers' grains
536	coffee pulp	
542	bleaching clay from oleochemical industry	
543	distillation residues [from oleochemical industry]	
572	used cooking fats and oils	
581	mixture of residual products from food processing industry	NOTE This includes 'supermarket mix'.
582	soft drinks and light alcoholic spirits unsuitable for human consumption	
583	dairy products and food stuffs unsuitable for human consumption	
586	offal	
588	bleaching clay from food processing industry	
592	bleaching clay from other industries	
600	organic waste from households and companies  NOTE This concerns organic waste from households [610], swill [621], biodegradable mono products [622], other organic waste from companies [629] and organic wet fraction [630].	
<sup>a</sup> Category according to NTA 8003:2017. <sup>b</sup> This concerns a demarcation within the category mentioned.		



Tables D.1 and D.2 also include residual flows that are not listed as "residues and wastes" in the framework of Directive 2009/28/EC as the tables have a broader scope than this directive. In addition, these tables are not fully aligned with the descriptions as applied in "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen".

An organization that operates within the framework of Directive 2009/28/EC and intends to classify its biomass flow as residual flow shall ensure that its biomass flow is considered agricultural, aquaculture, fisheries and forestry residues, a processing residue or waste in accordance with Directive 2009/28/EC, Directive (EU) 2015/1513 and Communication 2010/C 160/02. Table D.3 provides a list of residual flows within the framework of Directive 2009/28/EC. Table D.3 also includes cross-references to the classification used in NTA 8080-1:2015, Tables D.1 and D.2. These cross-references are for information only; the description supplemented with the remark given in the first column of Table D.3 is leading in determining if a residual flow for operations falls within the framework of Directive 2009/28/EC. A biomass flow that is not listed in Table D.3 shall not be considered a residual flow for operations within the framework of Directive 2009/28/EC. This means that other residual flows are excluded, even if it can be demonstrated that they comply with the definition of residual flow as given in NTA 8080-1:2015.

**Table D.3 – List of residual flows within the framework of Directive 2009/28/EC including cross-references to classification according to NTA 8080-1:2015**

Description	Remark	Classification in NTA 8080-1:2015, Table D.1 <sup>a</sup>	Classification in NTA 8080-1:2015, Table D.2 <sup>a</sup>
Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009	Feedstocks acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part B, sub (b) <sup>c</sup>		[586] Offal
Animal manure and sewage sludge	Residue acc. to Communication 2010/C 160/02 as well as feedstocks and fuels according to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (f) <sup>c</sup>		[300] Manure [400] Sludge
Bagasse	Agricultural crop residues acc. to Directive 2009/28/EC, Annex V, Section C, point 18 as well as feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (j) <sup>b</sup>		
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	Feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (b) <sup>c</sup>		[600] Organic waste from households and companies

Description	Remark	Classification in NTA 8080-1:2015, Table D.1 <sup>a</sup>	Classification in NTA 8080-1:2015, Table D.2 <sup>a</sup>
<p>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 Annex IX, Part B.</p>	<p>Feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (d) <sup>c</sup></p>		<p>[522] Potato peels (excluding concentrated potato juice and/ or potato protein)</p> <p>[523] Rice husks</p> <p>[527] Palm kernel shells</p> <p>[529] Other shells / husks / kernels (as far as it concerns cocoa shells, peanut shells, nuts, including walnuts, and other shells)</p> <p>[535] Spent grain</p> <p>[536] Coffee pulp</p> <p>[581] Mixture of residual products from food processing industry</p> <p>[582] Soft drink and light alcoholic spirits unsuitable for human consumption</p> <p>[583] Dairy products and foodstuffs unsuitable for human consumption</p> <p>[588] Bleaching clay from food processing industry</p>
<p>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.</p>	<p>Feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (o) except black liquor, brown liquor, fibre sludge, lignin and tall oil</p>	<p>[112] Bark</p> <p>[127] / [136] Branches and tops hardwood / softwood limited to branches and tops originating from forests and nature reserves managed with an eye to preserving their function for the long term</p> <p>[128] / [137] Stumps hardwood / softwood, limited to stumps that are not originating from conversions on behalf of changes to functions for which permits have been granted</p> <p>[129] / [138] Thinnings hardwood / softwood limited to low-value spindle wood originating from forests and nature</p>	<p>[114] Round timber (from nature and landscape management) limited to low-value spindle wood originating from gardens, parks and public gardens or from conversions on behalf of changes to functions for which permits have been granted</p> <p>[115] Saw dust</p> <p>[117] Stumps (from nature and landscape management), limited to stumps originating from conversions on behalf of changes to functions for which permits have been granted</p> <p>[118] Branches and tops (from nature and landscape management)</p>

Description	Remark	Classification in NTA 8080-1:2015, Table D.1 <sup>a</sup>	Classification in NTA 8080-1:2015, Table D.2 <sup>a</sup>
		reserves managed with an eye to preserving their function for the long term	limited to branches and tops originating from gardens, parks and public gardens or from conversions on behalf of changes to functions for which permits have been granted;  [119] Other fresh wood (left overs), limited to residues that are produced when round timber is sawn and processed.
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	Feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (c) <sup>c</sup>		[610] Organic waste from households
Cobs cleaned of kernels of corn	Agricultural crop residues acc. to Directive 2009/28/EC, Annex V, Section C, point 18 as well as feedstocks and fuels according to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (n) <sup>b</sup>		
Crude glycerine, i.e. glycerine that is not refined	Processing residue acc. to Directive 2009/28/EC, Annex V, Section C, point 18 as well as feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (i) <sup>c</sup>		[512] Glycerine – glycol, limited to crude glycerine
Husks	Agricultural crop residues acc. to Directive 2009/28/EC, Annex V, Section C, point 18 as well as feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (m) <sup>b</sup>	[231] Mixture of shells [236] Rice husks [239] Other shells	
Grape marcs and wine lees	Feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub		

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Description	Remark	Classification in NTA 8080-1:2015, Table D.1 <sup>a</sup>	Classification in NTA 8080-1:2015, Table D.2 <sup>a</sup>
	(k) <sup>b</sup>		
Nut shells	Agricultural crop residues acc. to Directive 2009/28/EC, Annex V, Section C, point 18 as well as feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (l) <sup>b</sup>	[231] Mixture of shells [232] Cocoa shells [233] Peanut shells [234] Nuts including walnuts [235] Almond shells [237] Palm kernel shells [239] Other shells	
Palm oil mill effluent and empty palm fruit bunches	Feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (g)		
Straw	Agricultural crop residues acc. to Directive 2009/28/EC, Annex V, Section C, point 18 as well as feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (e) <sup>b</sup>	[220] Straw	
Tall oil pitch	Residue acc. to Communication 2010/C 160/02 as well as feedstocks and fuels acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part A, sub (h) <sup>c</sup>		
Used cooking oil	Feedstocks acc. to Directive (EU) 2015/1513, amending Directive 2009/28/EC by adding Annex IX, Part B, sub (a) <sup>c</sup>		[572] Used cooking fats and oils
<p>NOTE Annex IX, Part A of Directive (EU) 2015/1513, amending Directive 2009/28/EC also contains the following subcategories:</p> <ul style="list-style-type: none"> <li>— other ligno-cellulosic material <sup>d</sup> except saw logs and veneer logs;</li> <li>— other non-food cellulosic materials <sup>e</sup>.</li> </ul> <p>These subcategories cover a broad range of raw materials, which can be classified as products, (agricultural, forestry or processing) residues or waste [to use the terminology of Directive 2009/28/EC], so raw materials in this subcategory shall be further assessed whether they qualify as residue or waste.</p>			
<p><sup>a</sup> Cross-references included for information; the description supplemented with the remark given in the first column of this table is leading in determining if a residual flow for operations falls within the framework of Directive 2009/28/EC.</p> <p><sup>b</sup> In NTA 8080-1:2015 classified as primary residual flow.</p> <p><sup>c</sup> In NTA 8080-1:2015 classified as non-primary residual flow.</p> <p><sup>d</sup> "ligno-cellulosic material" means material composed of lignin, cellulose and hemicellulose such as biomass sourced from forests, woody energy crops and forest-based industries' residues and wastes ([SOURCE:</p>			

Description	Remark	Classification in NTA 8080-1:2015, Table D.1 <sup>a</sup>	Classification in NTA 8080-1:2015, Table D.2 <sup>a</sup>
Directive (EU) 2015/1513). <sup>e</sup> "non-food cellulosic materials" means feedstocks mainly composed of cellulose and hemicellulose, and having a lower lignin content than ligno-cellulosic material; it includes 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 and cover crops before and after main crops), industrial residues (including from food and feed crops after vegetal oils, sugars, starches and protein have been extracted), and material from biowaste ([SOURCE: Directive (EU) 2015/1513]).			

An organization that operates within the framework of “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen” and intends to classify its biomass flow as residual flow shall ensure that its biomass flow fits the definition for residues from nature and landscape management, agricultural residues, or biogenic residues and waste flows (i.e. can be categorized under biomass category 3, 4 or 5, respectively in this regulation). Table D.4 provides the classification of biomass flows listed in Annex D according to the biomass classification in “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen” including the applicable scope as described in NTA 8080-1:2015, Annex A.

NOTE 1 In some occasions, a biomass flow will no longer be classified as ‘residual flow’ that will have consequences for the requirements that have to be met to demonstrate to be in compliance with the requirements of NTA 8080-1:2015.

NOTE 2 See also interpretation to NTA 8080-2:2015, 5.2 item g) concerning product description on the transaction certificate.

**Table D.4 – Classification of biomass flows listed in Annex D according to biomass classification in “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen”**

Category <sup>a</sup>	Description including demarcation	Biomass category <sup>b</sup>	Scope <sup>c</sup>
112	bark as far as it concerns from forestry	1 / 2	A1 <sup>d</sup> / A2
	bark as far as it concerns from processing	5	A4
114	round timber (from nature and landscape management) as far as it concerns low-value spindle wood originating from gardens, parks and public gardens	3	A3 <sup>e</sup>
115	sawdust	5	A4
117	stumps (from nature and landscape management) originating from gardens, parks and public gardens	3	A3 <sup>e</sup>
118	branches and tops (from nature and landscape management) originating from gardens, parks and public gardens	3	A3 <sup>e</sup>
119	other fresh wood (left overs) as far as it concerns residues that are produced when round timber is sawn and processed.	5	A4
127	branches and tops hardwood originating from forests managed with an eye to preserving their function for the long term or from forest conversions on behalf of changes to functions for which permits have been granted	1 / 2	A1 <sup>d</sup> / A2
	branches and tops hardwood originating from conversions ‘agroforests’ on behalf of changes to functions for which permits have been granted <sup>f</sup>	4	A3

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<b>Category <sup>a</sup></b>	<b>Description including demarcation</b>	<b>Biomass category <sup>b</sup></b>	<b>Scope <sup>c</sup></b>
128	stumps hardwood originating from conversions in forests on behalf of changes to functions for which permits have been granted	1 / 2	A1 <sup>d</sup> / A2
	stumps hardwood originating from conversions from 'agroforests' on behalf of changes to functions for which permits have been granted <sup>f</sup>	4	A3
129	thinnings hardwood as far as it concerns low-value spindle wood originating from forests managed with an eye to preserving their function for the long term or from forest conversions on behalf of changes to functions for which permits have been granted	1 / 2	A1 <sup>d</sup> / A2
	thinnings hardwood as far as it concerns low-value spindle wood originating from conversions 'agroforests' on behalf of changes to functions for which permits have been granted <sup>f</sup>	4	A3
136	branches and tops softwood originating from forests managed with an eye to preserving their function for the long term or from forest conversions on behalf of changes to functions for which permits have been granted	1 / 2	A1 <sup>d</sup> / A2
	branches and tops softwood originating from conversions 'agroforests' on behalf of changes to functions for which permits have been granted <sup>f</sup>	4	A3
137	stumps softwood originating from conversions in forests on behalf of changes to functions for which permits have been granted	1 / 2	A1 <sup>d</sup> / A2
	stumps softwood originating from conversions from 'agroforests' on behalf of changes to functions for which permits have been granted <sup>f</sup>	4	A3
138	thinnings softwood as far as it concerns low-value spindle wood originating from forests managed with an eye to preserving their function for the long term or from forest conversions on behalf of changes to functions for which permits have been granted	1 / 2	A1 <sup>d</sup> / A2
	thinnings softwood as far as it concerns low-value spindle wood originating from conversions 'agroforests' on behalf of changes to functions for which permits have been granted <sup>f</sup>	4	A3
160	processed wood; untreated (A-wood)  NOTE This concerns a mixture of untreated wood [161], cork [162] and other untreated wood [169].	5	A4
170	processed wood; painted/glued wood (B-wood)  NOTE This concerns a mixture of painted/glued wood [171], panel materials/glued wood [172] and other painted/glued wood [179].	5	A4
180	processed wood; impregnated wood (C-wood)  NOTE This concerns a mixture of impregnated wood [181], impregnated wood: heavy metals [182], impregnated wood: halogenated organic compounds [183], impregnated wood: non-halogenated organic compounds [184] and other impregnated wood [189].	5	A4
191	mixture of wood from processing	5	A4

Category <sup>a</sup>	Description including demarcation	Biomass category <sup>b</sup>	Scope <sup>c</sup>
192	wood released from processing of kitchen and garden waste	5	A4
193	wood (compost overflow)	5	A4
199	other wood from processing	5	A4
213	roadside grass	3	A4
219	other grass to the extent that grass and cuttings (including from waterways and reeds) are concerned that originate from maintenance activities; this does not include agricultural grass	3	A4
220	straw  NOTE This concerns a mixture of straw [221], barley straw [222], wheat straw [223], rice stalk [224], hemp [225] and other straw [229].	4	A3
230	residual products (shells)  NOTE This concerns a mixture of shells [231], cocoa shells [232], peanut shells [233], nuts, including walnuts [234], almond shells [235], rice husks [236], palm kernel shells [237] and other shells [239].	4	A3
251	auction waste	3	A4
252	horticultural waste	4	A3
253	fruit farming	4	A3
254	peeling waste from flower bulbs	4	A3
255	arable farming waste	4	A3
256	champost	3	A4
258	mixture of other residual products as far as it concerns other residual products from primary sector	4	A3
	mixture of other residual products as far as it concerns other residual products from non-primary sector	3	A4
259	other residual products as far as it concerns other residual products from primary sector	4	A3
	other residual products as far as it concerns other residual products from non-primary sector	3	A4
300	manure  NOTE This concerns a mixture of manure [311], poultry manure [312], cow manure [313], pig manure [314], horse manure [315], other types of manure [319], processed manure from manure fermentation (digestate) [321], processed manure from co-fermentation with manure (digestate) [322] and processed manure from other processing [329].	5	A4

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Category <sup>a</sup>	Description including demarcation	Biomass category <sup>b</sup>	Scope <sup>c</sup>
400	sludge  NOTE This concerns a mixture of sludge [401], other sludge [409], sludge from sewage/waste water treatment plants [410], sludge from sewers, cesspits and pumping stations [420], sludge from preparation of drinking water [430], mixture of industrial sludge [441], paper sludge from paper and cardboard industry [4412], water treatment sludge (food and non-food processing industry) [443], production sludge [444], omega screens [445], fat drainage and flotation sludge [446] and other industrial sludge [449].	5	A4
512	glycerine – glycol as far as it concerns crude glycerine (glycerine that is not refined)	5	A4
514	black liquor	5	A4
515	bleaching clay from biodiesel / ethanol industry	5	A4
517	biodiesel pitch	5	A4
522	potato peels as far it does <b>not</b> concern concentrated potato juice and/or potato protein	5	A4
523	rice husks as far as it concerns rice chaff	5	A4
525	palm kernel shells	5	A4
529	other skins / husks / kernels as far as it concerns cocoa shells, peanut shells, nuts, including walnuts, and other shells	5	A4
535	spent grains as far as it concerns brewers' grains	5	A4
536	coffee pulp	5	A4
542	bleaching clay from oleochemical industry	5	A4
543	distillation residues [from oleochemical industry]	5	A4
572	used cooking fats and oils	5	A4
581	mixture of residual products from food processing industry	5	A4
582	soft drinks and light alcoholic spirits unsuitable for human consumption	5	A4
583	dairy products and foodstuffs unsuitable for human consumption	5	A4
586	offal	5	A4
588	bleaching clay from food processing industry	5	A4
592	bleaching clay from other industries	5	A4
600	organic waste from households and companies  NOTE This concerns organic waste from households [610], swill [621], biodegradable mono products [622], other organic waste from companies [629] and organic wet fraction [630].	5	A4



Category <sup>a</sup>	Description including demarcation	Biomass category <sup>b</sup>	Scope <sup>c</sup>
<sup>a</sup>	Category according to NTA 8003:2017.		
<sup>b</sup>	Category according to “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen”:		
	1 woody biomass from Forest Management Units (FMUs);		
	2 woody biomass from Forest Management Units (FMUs) smaller than 500 ha;		
	3 residues from nature and landscape management;		
	4 agricultural residues;		
	5 biogenic residues and waste flows.		
<sup>c</sup>	Scope according to NTA 8080-1:2015, Annex A. See Table A.1 for the applicable requirements:		
	A1 biomass producer;		
	A2 smallholder;		
	A3 collector of primary residual flows;		
	A4 collector of non-primary residual flows.		
<sup>d</sup>	Application of ‘ILUC low risk’ (NTA 8080-1:2015, 6.3.3) is mandatory.		
<sup>e</sup>	The land-used based requirements (NTA 8080-1:2015, 6.2.2 and 6.4.1) are not applicable.		
<sup>f</sup>	With reference to ‘continuously forested areas’ as described in 6.2.2.1 b), ‘agroforests’ refer to land under agricultural use including tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations and agroforestry systems when crops are grown under tree cover.		

## Annex E (informative) Explanation on smallholders

[No interpretation]

### Bibliography

*Note on the conducting and verifying actual calculations of GHG emission savings – Version 2.0*, European Commission DG Energy, reference: BK/abd/ener.c.1(2017)2122195

Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen

## NTA 8080-2:2015, Sustainably produced biomass for bioenergy and bio-based products – Part 2: Chain-of-custody requirements

### **1 Scope**

[No interpretation]

### **2 Normative references**

[No interpretation]

### **3 Terms and definitions**

The definition of consignment (3.4) refers to same characteristics. These characteristics shall at least include the sustainability characteristics.

### **4 Chain-of-custody models for traceability**

#### **4.1 Description of chain-of-custody models**

[No interpretation]

#### **4.2 Applicability of chain-of-custody models**

In 4.2.1 it is stated that in the application for bioenergy, the organization may use the chain-of-custody models of segregation and mass balance according to approaches a) and c) under 4.1.2. In the framework of Directive 2009/28/EC the sustainability characteristics may only be assigned for 100 % (or 0 %) to consignments. An organization that operates within the framework of Directive 2009/28/EC shall therefore apply either segregation or mass balance according to approach a) under 4.1.2.

In 4.2.1 it is stated that the combination of sustainability requirements of the input material shall equal those of the output material. This means that sum of all consignments withdrawn (output material) shall have the same sustainability characteristics, in the same quantities, as the sum of all consignments added (input material).

### **5 Chain-of-custody requirements**

#### **5.1 General**

In 5.1.2 reference is made to voluntary schemes that are recognized by the European Commission. In the framework of Directive 2009/28/EC, national schemes are also recognized to demonstrate compliance with the sustainable requirements in this directive (see also Better Biomass certification scheme, Annex C).

NOTE This means that for demonstrating compliance with NTA 8080, an independent assessment is still required for the sustainability aspects that are not covered in Directive 2009/28/EC.

#### **5.2 Transaction certificate**

In c) and d) reference is made to certificates that are equivalent for demonstrating compliance with NTA 8080. The information about the use of such certifications in the supply chain shall be provided in the transaction certificate, also if the organization that issued the transaction certificates is certified to NTA 8080.

NOTE 1 With providing this information, the transparency will be further increased, also in view of tracing the nature and origin of the raw materials if more than one certifications is being used in the supply chain.

In e) it is stated that the organization shall provide information about the amount of carbon equivalents [as g CO<sub>2eq</sub>/MJ] (either applicable default values or actual values) for every individual consignment. As the unit of g CO<sub>2eq</sub>/MJ only relates to the final product, the amount of carbon equivalents should read the greenhouse gas emission intensity. Information on greenhouse gas emissions can actually only be provided in the case actual values are used. In those cases, the organization shall provide information about each greenhouse gas emission factor as included in the formula to calculate the greenhouse gas emissions (see NTA 8080-1:2015, Annex C). In order to ensure that the 'end user' can properly calculate the greenhouse gas emission savings, the organization shall further verify if the greenhouse gas emission intensity needs to be adjusted by taking into account that:

- additional emissions from transport and/or processing shall be added to e<sub>p</sub> and or e<sub>td</sub> respectively;
- energy losses occurred during processing or if relevant transportation or storage shall be taken into account using a 'feedstock factor';
- whenever a processing step yields co-products, emissions shall be allocated using an 'allocation factor' following NTA 8080-1:2015, C.2 or C.3;
- at the last processing step the emission estimate shall be converted into the unit g CO<sub>2eq</sub>/MJ of final product.

In the case greenhouse gas emissions have occurred in the chain of custody that are not recorded, the organization shall clearly indicate this on the transaction certificate associated to this consignment to communicate to the subsequent ('downstream') organizations in the chain of custody that the calculation of actual values is no longer possible.

Additional provisions concerning transmission of information relevant for greenhouse gas emissions through the chain of custody is included in (new) Annex B.

In g) it is stated that the organization shall provide a product description. This description shall also include the production process(es), the produced products, and if applicable, that 'ILUC low risk' has been applied. In the case of residual flows, the organization shall also declare that the production process(es) has or have not been deliberately modified. The origin of the raw material relates to the country of origin.

NOTE 2 The description of the nature of the raw material, production process(es) and produced product(s) are also available in the publicly available summary of the audit report. This information is also needed in case default values are used for calculating the greenhouse gas emission savings.

In the case of biofuels and bioliquids, the organization shall also provide the date when production in installation started.

NOTE 3 This date is of importance because the minimum greenhouse gas emission saving depends on the date when installations in which production started (see NTA 8080-1:2015, Table 1).

Within the framework of the "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen", the product description shall also include the biomass category used within this regulation.

NOTE 4 The "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen" distinguishes five categories, namely:

- 1) woody biomass from Forest Management Units (FMUs);
- 2) woody biomass from Forest Management Units (FMUs) smaller than 500 ha;
- 3) residues from nature and landscape management;
- 4) agricultural residues;
- 5) biogenic residues and waste flows.

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Reference is made to this regulation for the definitions of these five categories, for which in some cases another definition applies than the one used in NTA 8080-1:2015.

In h) it is stated that the organization is required to state its physical biogenic content and the assigned share of biogenic content in its products on the transactions certificates. Possible determination methods are given in the notes. Biogenic content refers to bio-based content, in which 'bio-based content' is defined as fraction of a product that is derived from biomass and that is normally expressed as a percentage of the total mass of the product [source: EN 16575:2014, 2.4]. When stating the biogenic content, the organization shall apply the definition for bio-based content and shall document according to which method the bio-based content has been determined.

In k) it is stated that the organization shall declare whether the production processes have been assessed for the purpose of, and comply with, Directive 2009/28/EC. To be more specific, in case the production processes have been assessed in the framework of Directive 2009/28/EC, it shall be stated which legal sustainability requirements have been assessed to clearly indicate the sourcing of primary biomass and primary residual flows or the sourcing of non-primary residual flows.

NOTE 5 The legal land-used based requirements for primary biomass and primary residual flows are laid down in Article 17(3), Article 17(4) and 17(5) of Directive 2009/28/EC. The legal requirements for providing accurate greenhouse gas emission data are laid down in Article 17(2) of Directive 2009/28/EC. The legal requirements related to the mass balance system are laid down in Article 18(1) of Directive 2009/28/EC.

In k) it is stated that the organization shall declare whether the production processes have been assessed for the purpose of, and comply with, Directive 2009/28/EC. In view of the "Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen", the organization shall make a similar declaration in the case the production processes have been assessed in accordance with and comply with this regulation including the biomass category [see also g)] and the explicit declaration that the definition of 'endangered plant and animal species' as laid down in this regulation has been applied in this assessment.

### 5.3 Records

In 5.3.1 a list of information is given that the organization is required to provide when requested. As stated in NTA 8080-1:2015, 5.4.5, the organization shall retain documented information for at least five years. This also applies to the documented information needed to meet the chain-of-custody requirements. Moreover, if an organization is also certified in accordance with another certification scheme, it shall also provide the documented information related to this certification including the audit report(s) when being assessed to the applicable requirements of NTA 8080-1:2015 and NTA 8080-2:2015.

NOTE Other certification schemes can include voluntary schemes as recognized by the European Commission in the framework of Directive 2009/28/EC.

In 5.3.3 it is stated that any temporary shortages of biomass according to NTA 8080 or equivalent on the balance are not allowed. This approach is also referred to as having a balance on continuous basis.

### 5.4 Production location

[No interpretation]

## 6 Declarations

### 6.1 Declarations in the case of application in bioenergy

[No interpretation]

## 6.2 Declarations in the case of application in bio-based products

The organization is required to state its physical biogenic content and the assigned share of biogenic content in its products on the declarations. Possible determination methods are given in the notes. Biogenic content refers to bio-based content, in which 'bio-based content' is defined as fraction of a product that is derived from biomass and that is normally expressed as a percentage of the total mass of the product [source: EN 16575:2014, 2.4]. When stating the biogenic content, the organization shall apply the definition for bio-based content and shall document according to which method the bio-based content has been determined.

### Annex A (informative) Examples of mass balance systems

[No interpretation]

### Annex B (normative) Transmission of information relevant for greenhouse gas emissions through the chain of custody

All information that is relevant for establishing compliance with the sustainability criteria shall be transmitted through the chain of custody (see also 5.2 and interpretation of NTA 8080-1:2015, C.4.2). This includes information on greenhouse gas emissions. The following describes what kind of information shall be submitted and which units shall be used.

In order to establish whether the minimum greenhouse gas emissions savings have been achieved, greenhouse gas emissions from bioenergy production are compared to the relevant fossil fuel comparator. Greenhouse gas emissions are measured in this context in the unit gCO<sub>2eq</sub>/MJ of bioenergy. Final bioenergy greenhouse gas emissions shall always be reported in this unit.

The situation is different for raw materials and intermediate products. In case actual values are calculated for raw materials and intermediate products, primary biomass producers (e.g. farmers) cannot report cultivation greenhouse gas emissions in the unit gCO<sub>2eq</sub>/MJ of bioenergy, because this would require knowing how efficiently these are converted into final bioenergy. Instead, for raw materials and intermediate products, information on greenhouse gas emissions shall be provided in the unit gCO<sub>2eq</sub>/dry-ton raw material or gCO<sub>2eq</sub>/dry-ton intermediate product, respectively.

To receive information on emissions per dry-ton raw material, Formula (B.1) shall be applied:

$$e_{ec,raw\ material}_a \left[ \frac{g\ CO_{2eq}}{kg_{dry}} \right] = \frac{e_{ec,raw\ material}_a \left[ \frac{g\ CO_{2eq}}{kg_{moist}} \right]}{(1 - \text{moisture content})} \quad (B.1)$$

The moisture content should be the value measured after delivery, or, if this is not known, the maximum value allowed by the delivery contract.

Information on greenhouse gas emissions shall include accurate data on all relevant elements of the emission calculation formula. When default values are used, information on greenhouse gas emissions should be only reported for final bioenergy and can be reported as an aggregate value. When actual values are calculated, it is necessary to split the total amount of emissions into all elements of the greenhouse gas emission calculation formula that are relevant. This applies also to the elements of the formula, which are not included in the default values such as  $e_l$ ,  $e_{sca}$ ,  $e_{ccr}$ ,  $e_{ccs}$  and  $e_{ee}$ .

NOTE 1 This measure is required to ensure transparency and robustness of the calculation of actual greenhouse gas emissions. If only aggregated values were used, it would not be sufficiently transparent which elements of the greenhouse gas emission calculation formula are comprised in the transmitted value. This would be in particular problematic at later stages of the chain of custody when it still could be decided to use disaggregated default values of individual elements of greenhouse gas emissions calculation formula.

In case actual values are not used, information on the amount of greenhouse gas emissions should not be transmitted through the chain of custody (before the last processing step), as it would be

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difficult to know at later stages of the chain of custody whether these emissions represent actual values or are derived from (disaggregated) default values. Furthermore, it would unnecessarily increase the administrative burden. Therefore, it is the responsibility of downstream organizations to include information concerning the (disaggregated) default greenhouse gas emission values for the final bioenergy when reporting to the Member States.

NOTE 2 In principle, only organizations operating within the framework of Directive 2009/28/EC have this reporting requirement to the Member States.

### **Bibliography**

*Note on the conducting and verifying actual calculations of GHG emission savings – Version 2.0*, European Commission DG Energy, reference: BK/abd/ener.c.1(2017)2122195

Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen

## NCS 8080:2018-08, Better Biomass certification scheme

### **1 Scope**

[No interpretation]

### **2 Normative references**

[No interpretation]

### **3 Terms and definitions**

[No interpretation]

### **4 General provisions**

#### **4.1 Ownership arrangement**

[No interpretation]

#### **4.2 Changes**

[No interpretation]

### **5 Organization of the certifying body**

#### **5.1 General requirements**

[No interpretation]

#### **5.2 Requirements for the audit team**

[No interpretation]

### **6 Method of inquiry**

#### **6.1 General**

[No interpretation]

#### **6.2 Assessment frequency**

[No interpretation]

#### **6.3 Group certification**

[No interpretation]

#### **6.4 Verification method**

In 6.4 the verification method is described. One of the aspect is the determination of the scope of the certificate. In the case the scope of certificate includes 'Producer' being collector of primary residual flows and/or 'Producer' being collector of non-primary residual flows, the certification body shall determine that the production process(es) has (have) not been modified to produce more residual flows. The certification body shall include the following aspects in the assessment, as far as not yet covered with the risk analysis:

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- checking whether the raw material is listed in one the tables of NTA 8080-1:2015, Annex D;
- if raw material is not listed in one the tables of NTA 8080-1:2015, Annex D, and the assessment is not in the framework of Directive 2009/28/EC, verifying that raw material meets the criterion of maximum of 10 % of economic value of main product;
- checking the origin and nature of the raw material and the production process(es) at the disposer to determine whether it is likely that the raw material can be classified as residual flow (i.e. non deliberate modification in production process(es) to produce more of raw material concerned) by desk research or on-site visit at the disposer if needed;
- checking the relationship between disposer and collector (i.e. new or existing business relation), taking into accounting previous findings where applicable;
- visual inspection of the quality of the raw material at the production location of the collector to determine if this quality corresponds with the quality that can be expected from the raw material to be classified as residual flow;
- verifying the economic value and market prices;
- verifying whether the volumes are plausible, also by comparing with previous periods.

If it appears from this assessment that the raw material cannot be classified as residual flow, the organization shall be assessed for the scope of 'Producer' being biomass producer or 'Producer' being smallholder.

### **6.5 Audit duration table**

[No interpretation]

### **6.6 Sample size in case of more production locations or group certification**

#### **6.6.1 Organization of sampling**

[No interpretation]

#### **6.6.2 Sample size in case of more production locations**

[No interpretation]

#### **6.6.3 Sample size in case of group certification**

[No interpretation]

### **6.7 Stakeholders consultation by certification body**

[No interpretation]

## **7 Assessment**

### **7.1 Assessment criteria**

[No interpretation]

### **7.2 Certification criteria**

[No interpretation]



### **7.3 Certification decision**

[No interpretation]

## **8 Reporting by the certification body**

### **8.1 General**

[No interpretation]

### **8.2 Requirements for the certificate**

#### **8.2.1 Certificate record**

In 8.2.1 c) the details of the certified subject are provided that shall be included to the certificate. As part of the regulatory framework, the certificate shall also include the following matters:

- declaration that production process(es) has (have) not been modified to produce more residual flows, in the case the scope of certificate includes ‘Producer’ being collector of primary residual flows and/or ‘Producer’ being collector of non-primary residual flows;
- whether the production process(es) has (have) been assessed within the scope of “Regeling conformiteitsbeoordeling vaste biomassa voor energietoepassingen”.

#### **8.2.2 Audit report**

[No interpretation]

### **8.3 Complaints, objection and appeal**

## **9 Reporting by the scheme manager**

### **9.1 General**

[No interpretation]

### **9.2 Requirements for scheme manager**

[No interpretation]

### **9.3 Requirements for certificate holders**

[No interpretation]

## **10 Use of logo**

### **10.1 Conditions for use of logo**

[No interpretation]

### **10.2 Assessment correct use of logo by certification body**

[No interpretation]

### **10.3 Monitoring improper use of logo by scheme owner**

[No interpretation]

## **11 Internal monitoring**

[No interpretation]

### **Annex A (normative) Group certification**

[No interpretation]

### **Annex B (normative) Residual flows**

[No interpretation]

### **Annex C (normative) NTA RED**

[No interpretation]

### **Annex D (informative) Guidelines for executing a stakeholder consultation**

[No interpretation]

### **Annex E (normative) Description of production processes**

[No interpretation]

### **Annex F (normative) 'Better Biomass' logo – visual representation**

[No interpretation]