Requirements for the mechanical processing of products of the chemical industry

Version: RC² 1.0

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1 Introduction

The REDcert² scheme for the certification of sustainable material flows in the chemical industry (REDcert²chemistry standard) gives companies an opportunity to have their savings in fossil-based resources and thus their contribution to sustainable development confirmed independently. The intention of the standard is to transparently reflect the entire value chain from feedstock to finished product. Often, however, that value chain does not end at the factory gates of a company considered part of the chemical industry but extends to companies in the processing industries. Companies in the processing industries engage not in chemical but in mechanical conversion, without altering the chemical properties of the product. The resultant products often enjoy greater visibility among end users, while their manufacturers are not part of the chemical industry and so not included in the scope of the REDcert²chemistry standard.

The present extension module is intended to extend the scope of the scheme to include the downstream companies and facilitate the practice-focused certification of sustainable products and components.

2 Scope of application

The present document is focused on the mechanical processing of chemical products and intermediates certified as sustainable and manufactured from biogenic raw materials or recyclates. Unless otherwise provided for, all the requirements and definitions in the REDcert² scheme document "Scheme principles for the certification of sustainable material flows in the chemical industry" apply.

Mechanical conversion is defined here as the non-chemical alteration of a product which leaves the basic properties of the bulk material unchanged. It does not include chemical reactions or any recycling processes subject without restriction to the certification requirements under the scheme documents "Scheme principles for the certification of sustainable material flows in the chemical industry" and "Specific requirements for recycling processes in the chemical industry".

Examples of mechanical conversion processes:

- cutting to shape of upholstery cushions
- weaving of textile fibres
- assembly of car parts
- injection moulding of finished plastic granulate

- mixing of substances without creating chemical bonds
- forming, cutting, gluing, welding, varnishing, polishing, etc.

The present document extends the scope of application of the REDcert²chemistry standard to include the downstream mechanical processing of the certified products in other sectors. Figure 1 provides a schematic representation of that extension.

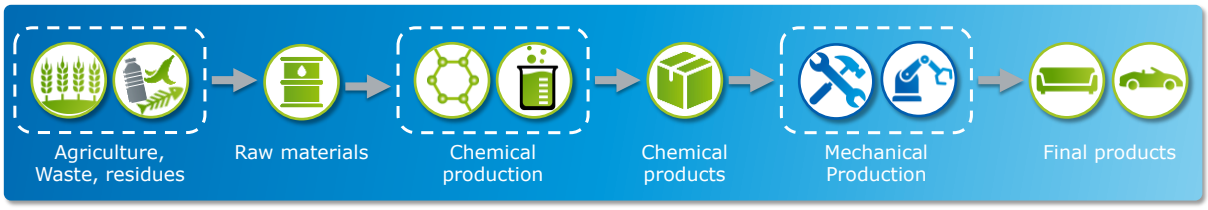

Figure 1: Extension of the scope of the REDcert² certification standard for the chemical industry to include mechanical processing subsequent to the chemical production process.

3 Requirements for inputs and certified products

At the heart of the certification system is the use of certified sustainable inputs to save fossil-based resources. Those inputs must have valid proof of sustainability in accordance with either the REDcert²chemistry standard or another REDcert standard. Also permissible is the use of sustainable materials with valid proof of sustainability from one of the certification schemes recognised under the REDcert²chemistry standard (see section 5.10 and Annex 2c of the scheme document "Scheme principles for the certification of sustainable material flows in the chemical industry"). It is not permissible to count biogenic or recycled materials for which no corresponding proof of sustainability exists.

Degree of substitution

The degree of substitution (or sustainable share) is calculated on the basis of the quantity of conventional materials saved by using certified sustainable inputs, taking in account conversion factors and conversion losses. The decisive value here is the mass of conventional materials saved in the production process, not the total quantity of sustainable materials used. The following provisions are predicated on the assumption that certified sustainable materials are always substituted for conventional materials with equivalent properties and the same degree of efficiency.

The degree of substitution relates either to "organic" or to "inorganic" (mineral) substances. When "organic" materials are referred to, it is founded on the hydrocarbon-based portion of the product, such as oil- or gas-based plastics and solvents. In its "inorganic" iteration, only mineral substances are taken into consideration, such as metals,

metal oxides or carbonates, glasses, and elements like phosphorus and sulphur. Water, nitrogen and oxygen, in contrast, are not considered. The calculation also takes no account of biogenic material already present in the conventional product: if the production process already made use of substances like plant fibres or paper, for example, their continued use is not counted in the degree of substitution. Degree of substitution is therefore not to be confused with the biogenic portion or with physical recycled content.

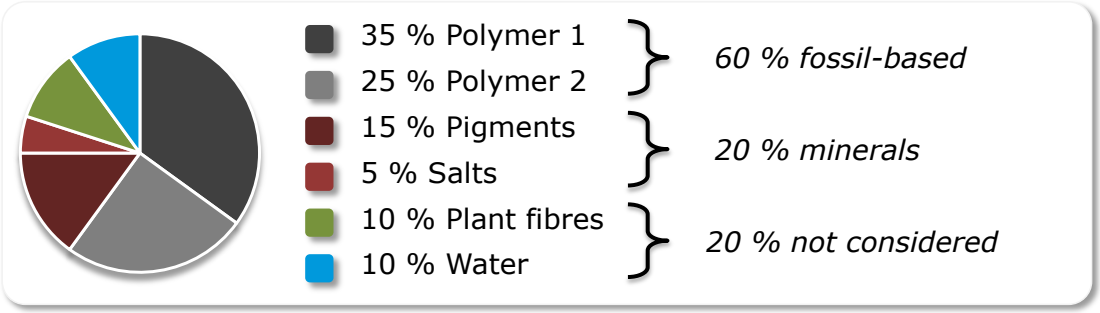

Figure 2: Example of the composition of a conventional product. When fossil-based materials are being substituted, only the components represented in grey are considered; when mineral substances are being substituted, only those in red. Water and non-fossil-based materials already used in the established product, such as paper, are not included in the calculation.

The minimum amount of fossil-based or mineral inputs to be substituted in the mechanical production process is identical to that required under the REDcert²chemistry standard, namely 20%. The degree of substitution must be proved using one of the balancing methods described in sections 4.1 to 4.3.

4 Balance system

Scheme participants must use a suitable balance system to ensure that the certified sustainable inputs used for one product are not counted in respect of any other process and thereby rule out double counting (see also section 8.6 of the scheme document "Scheme principles for the certification of sustainable material flows in the chemical industry").

The balance systems described in the following sections are founded on the definitions set out in ISO 22095:2020 and represent possible means of fulfilling the requirements. Process-specific mass balancing constitutes the minimum requirement.

4.1 Segregation

In the identity-preservation or segregation approach, scheme participants guarantee that the manufacture of certified sustainable products takes place within the framework of a

dedicated production process. This means material flows need to be physically separated to guarantee that the product consists entirely of the inputs certified as sustainable, i.e. that these are physically incorporated into the product. It is therefore not permissible to mix inputs certified as sustainable with uncertified sustainable inputs during storage, production or transport.

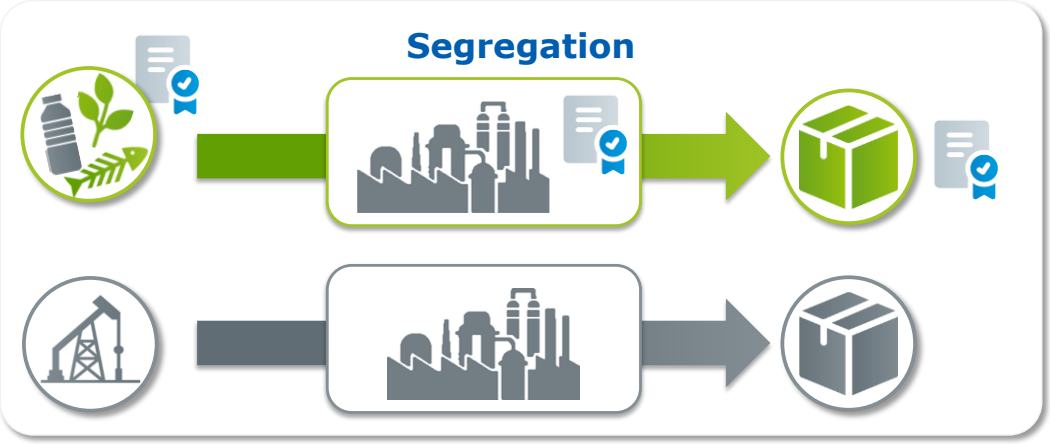

Figure 3: Diagram representing a dedicated production process. Incoming sustainable and conventional materials are processed separately; no mixing occurs.

The use of sustainably produced biogenic materials results in bio-based products, for which the presence of the sustainable material can be proved by analysis. Using recycled materials results in recycled products which cannot necessarily be distinguished from conventional products by analysis.

4.2 Controlled blending

In the controlled-blending approach, certified and uncertified sustainable inputs can be mixed in known proportions, as long as it is guaranteed that there is always a quantity of certified sustainable inputs physically present in the product that aligns with those proportions.

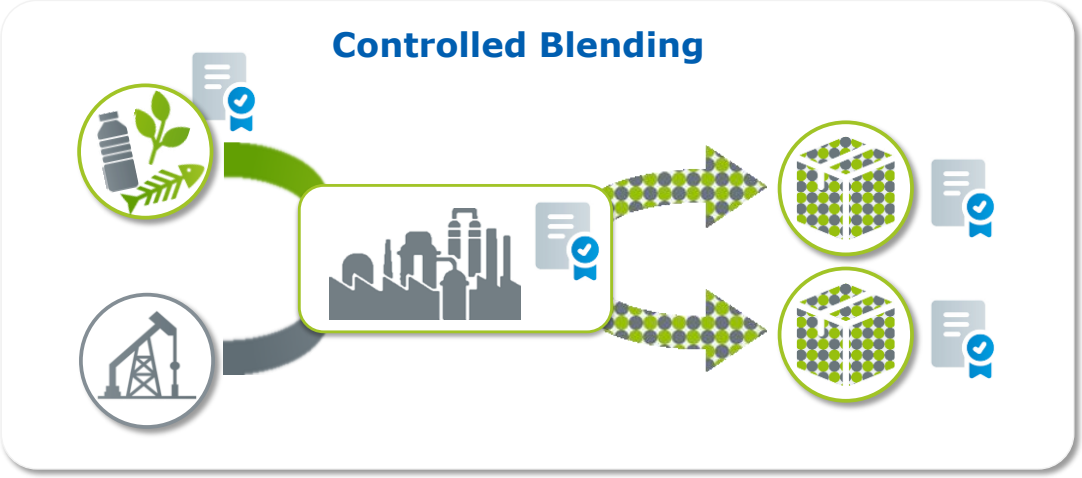

Figure 4: Diagram representing a controlled-blending process. Incoming sustainable and conventional materials are processed together, mixed in known proportions, with the result that all products contain the same physical proportion of sustainable materials.

4.3 Process-specific mass balancing

The concept of process-specific mass balancing permits the mixing of certified sustainable and conventional materials during production, storage and transport. Scheme participants must set up a site-specific accounting system in which incoming and outgoing materials certified as sustainable are recorded. Those certified sustainable materials can only be credited to the accounting system if their subsequent use in production processes is guaranteed.

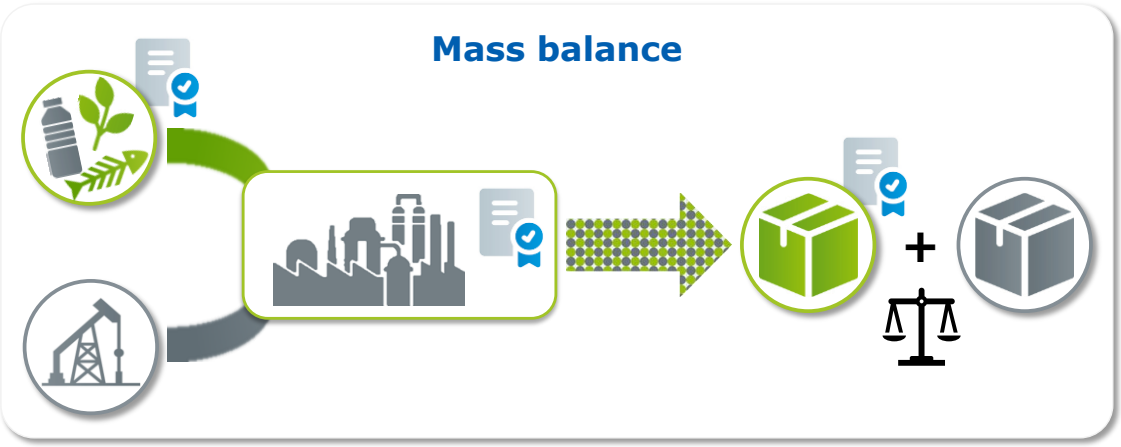

Figure 5: Diagram representing mass balance. Incoming materials are not physically separated from one another but can be stored and processed together. Sustainability characteristics are attributed by means of an accounting system within the mass balance period.

An attribution process allocates sustainability characteristics among products, which no longer have to coincide with the physical composition of those products. This makes it possible to deal flexibly with fluctuations in production and allows sustainability characteristics to accumulate.

Balance period and balance management

The balance period is the timeframe within which the quantities of incoming and outgoing certified sustainable materials must be at least equal (input ≥ output). The balance period usually comprises three months; in justified exceptional cases only, REDcert can be applied to for an extension of no more than 12 months.

It is possible for the account to be temporarily in debit during that period. This can happen if, from a stock of mixed products, more goods are sold as sustainable than there are sustainable goods physically present. Such deficits must be balanced out before the end of the balance period by the purchase or production of additional certified sustainable goods, which must then be sold on as conventional goods. If the balance period has been extended to more than three months, a temporary deficit is not permitted. Conversely, it is always possible to achieve a temporary surplus, e.g. when a large quantity of products have been sold as conventional. If conventional goods are restocked by production or purchase in time, the mass balancing system allows the accumulated sustainability characteristics to be transferred to them.

Sustainable materials still in the credit column at the end of the balance period can be carried over to the next balance period if corresponding physical stock is present. In contrast, surpluses which exist only on the books without corresponding stock simply expire. This occurs where large quantities of sustainable goods have been sold as conventional and there are insufficient conventional goods present at the end of the balance period to balance out that deficit.

5 Certification of GHG emissions values and use of sustainable electricity

Certification of GHG emissions or emissions savings is optional under the REDcert^2 certification system. The underlying calculation methodology must either follow the principles described in the REDcert-EU scheme documents "Scope and basic scheme requirements" and "Scheme principles for GHG calculation" or meet the requirements of a valid life cycle assessment, e.g. according to ISO 14040:2006, 14044:2006 or 14067:2018. Default values must not be used; GHG calculations must always be individual and process-specific. However, GHG balances already certified under one of the above-named standards can be incorporated into REDcert product certificates.

It is also possible to testify separately, in the product certificate, to the use of electricity from renewable sources ("green electricity"). In that case, the entirety of the electricity

used for the production process and all other processes directly connected with the product must meet the requirements pertaining to origin and sustainability. The required electricity can either be generated on site or purchased on the market from the public power grid. The electricity can be attributed within the accounting system to the processes to be certified.

For details, see section 5.12 of the scheme document "Scheme principles for the certification of sustainable material flows in the chemical industry".

6 Certification process

The applicable provisions are set out in detail in the REDcert-EU document "Scheme principles for neutral inspections" and in section 9 of the document "Scheme principles for the certification of sustainable material flows in the chemical industry".

6.1 Registration of scheme participants

Companies intending to participate in the REDcert^2 scheme must register on REDcert's website (*www.redcert.org*). Once a responsible member of REDcert staff has initially checked the registered data for completeness, the scheme participant is sent a scheme contract to sign. Without a valid REDcert^2 scheme contract, no audit can be conducted.

In addition to a valid REDcert2 scheme contract, scheme participants need to contact a certification body authorised by REDcert for the REDcert^{2}chemistry standard and conclude a contract for neutral inspections. Once the certification body engaged has sent REDcert a legally binding declaration, it receives authorisation from REDcert to upload audit reports, certificates and product lists to the REDcert database for the relevant scheme participant.

6.2 Conduct of the audit

The certification process is conducted by a neutral third party, a REDcert-recognised certification body.

To satisfy the certification requirements for companies in the processing industries engaged not in chemical but in mechanical conversion, REDcert provides an adapted checklist to facilitate the practice-focused and efficient conduct of the audit. Auditors must use that checklist for companies within those sectors and as a basis for certification decisions.

6.3 Certification

Certification can take the form of single-site or multi-site certification. Single-site certification testifies to the scheme compliance of one operating site at a time. In contrast, multi-site certification covers two or more operating sites belonging to one company. The definitions contained in Annex 1 to "Scheme principles for the certification of sustainable material flows in the chemical industry" apply.

Where a company has more than one operating site, it is up to the certification body, following a risk assessment, to carry out group certification with a reduced scale of inspection. The general requirements for group certification are described in section 9.8 of "Scheme principles for the certification of sustainable material flows in the chemical industry". In sum, the annual audit must include on-site inspections of at least a third of all the certificate holder's registered operating sites in addition to its head office.

Following successful certification, the certification body records all the sustainable products covered by the scope of the certification in a protected area of the REDcert database (*www.redcert.eu*). The scheme participant can obtain proof of compliance in respect of the products logged there in the form of product certificates. In addition, all the certified products covered by a certificate can be listed, as required and on a voluntarily basis, in the annex of the single- or multi-site certificate.

Further information is available in section 5.6 of "Scheme principles for the certification of sustainable material flows in the chemical industry".

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