Concrete Sustainability Council

Technical Manual - CO2-Module

The Concrete Sustainability Council (CSC)

Rue de la Cité 1
1204 Geneva
Switzerland

https://www.concretesustainabilitycouncil.com/

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CSC CO2-Module Introduction

Welcome to the CSC CO2-Module

The CSC CO2-Module is a voluntary product add-on to the main CSC-certificate for concrete.

The CSC CO2-Module

- aims at creating transparency and credibility
- can be used as a marketing tool for concrete to lead the low CO2 definition of concrete
- Is not an EPD, because it adds performance levels to material specific CO2 values in relation to a regional benchmark

Application

The CSC CO2-Module can be obtained for a specific selection of concrete mix designs supplied by an already CSC certified (Silver or higher) concrete plant.

Performance levels

The CSC CO2-module can be obtained with one to four stars.

The color (Silver, Gold, Platinum) of the CSC CO2-Module is the color of the main CSC certificate held by the concrete plant supplying the low CO2-concrete.

Benchmarking

The benchmarking consists of three elements

1. Setting the baseline
2. Reference calculation by the concrete plants
3. Benchmarking against the baseline

1. Setting the baseline

The baselines for a given country/region are set by the Regional System Operator (RSO) in charge for this country/region:

- The baselines are set in clusters for strength classes - there are no clusters for exposition class
- The RSO will determine an average mix design per strength class, e.g.
    - By getting representative mix designs from RSO members or
    - By average RMX EPDs and
    - Exchanging the average cement content for CEM I/OPC
- The average mix designs per strength class will be made publicly available

2. Reference calculation by the concrete plants

The concrete plant has to provide a CO2-calculation for each concrete mix design to obtain the CSC CO2-module:

- The plant has to specify and store each concrete mix design under the CSC CO2-module in a comprehensible way
- The calculation has to follow locally accepted EPD standards
- The calculation has to be made with calculation tools accepted by the CSC
- For more details see the annex to the CSC CO2-Module manual

3. Benchmarking against the baseline

Each CO2-calculation for a concrete has to be benchmarked against the baseline of its respective strength class cluster.

- Depending on the %age of CO2-reduction, a CO2 reduced concrete mix design can obtain one to four stars.
- For the required level of CO2-reduction for each star see the annex to the CSC CO2-Module manual.

Certification process

The verification of the reference calculation and the benchmarking will be verified by the CSC Certification Body (CB).

First time CO2-Module certification

- The correct CO2 calculation must be proven for at least one individual low CO2 concrete mix design to be potentially delivered from the concrete plant that is targeting to obtain a CSC CO2 module. This can be done by means of a valid EPD or by providing the CO2 calculation for a specific low CO2 concrete mix design with a distinctive identification number - including background calculations (e.g. transport distances) - generated by a CSC accepted EPD tool (see the annex)
- The CB must name the sample which has been assessed.
- The number of CSC CO2-Module stars granted corresponds to the highest reduction level as proven by the distinctive mix design.

Upgrades

- Higher achievement levels claimed at a later point in time need to be proven by an upgrade certification which follows the same rules as the first time certification.

Annual Assurance

The management of the plant under certification confirms by means of an annual compliance declaration that

- the CO2-module has been issued only for the declared mix designs
- all calculations are in line with the CSC CO2-criteria
- The annual compliance declaration must come with a list of all CO2-Module deliveries of the previous year containing and include
    - Identification number
    - Concrete strength class
    - Volume supplied (per strength class or per mix design)
    - kg CO2/m3 (per strength class or per mix design)
    - CO2-Module performance (number of stars)
- The annual compliance declaration and the list of all CO2-Module deliveries must be uploaded to the CSC toolbox (per document upload, or per tool entry)

Re-certification

Full check by the CB upon a plant recertification (max. after 3 years), checking a number of 'n' representative samples

- n = 0.7 x square root of number of identification numbers delivered as low CO2 concrete
- with a cap at nmax = 15
- n to be mathematically rounded, but at least = 1
- The CB must list and name the samples which have been assessed

Quality assurance

The CO2-module certification process must be performaed by a qualified expert of the CSC Certification Body.

The CB must nominate a qualified CO2-calculation expert with a proven track record, who will do the CO2-Module audit.

Sanctions will be imposed in case of certificate misuse (or fraud)

In case of falsely issued CSC CO2-Module certificates

- The CO2-modules of the plant will be waived
- All customers will have to be informed - copy to the CSC and RSO
- A 2 years ban for the company from all further CSC CO2-Modules will be imposed.
- Further optional sanctions, to be approved by the CSC Grievance Committee, may apply.

In severe/repetition cases after written warning, the CSC Grievance Committee can irrevocably waive the entire plant certificate (CSC, CSC CO2-Module and CSC R-Module)

Early calculation checks

In case of significant doubts, the CSC can ask the CB to do a check of the calculations of a certain plant at any time. In case of no findings, the cost has to be paid by the CSC. In case of findings, the cost has to be paid by the plant.

CO2-Module

L1 - Responsible Sourcing

Aim

To ensure that responsible sourcing is appropriately addressed.

Total points achievable for this credit

Concrete: This credit is a prerequisite for obtaining the CSC R-Module. No points can be achieved for this credit.

L1.01 CSC Certification

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The concrete plant is CSC certified at the level Silver or higher.

Required evidence

CSC certificate at the level Silver or higher

L2 - Cement supply chain

Aim

Ensure the use of sustainable and responsible sourced cement.

Total points achievable for this credit

Concrete: This credit is a prerequisite for obtaining the CSC R-Module. No points can be achieved for this credit.

L2.01 Supply chain coverage and CSC supplier certificate

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The concrete plant must provide evidence for a cement supply chain coverage of at least 75%. The coverage is proven by the respective mass of cement supplied from producers holding a CSC certificate at the level "Bronze" or higher. No points can be achieved.

Required evidence

Supply chain report showing supply chain coverage of >= 75% (See C1 of the parent assessment).

L3 - Monitoring of GHG emissions

Aim

To the monitoring of Greenhouse Gas (GHG) emissions.

Total points achievable for this credit

Concrete: This credit is a prerequisite for obtaining the CSC R-Module. No points can be achieved for this credit.

L3.01 Monitoring of GHG emissions

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The Plant monitors its relevant GHG emissions, i.e. GHG emissions relating to own operations and concrete delivery.

Required evidence

Extract of the monitoring results and the related GHG emission calculations

OR

Criterion E3.02 of the plant's CSC "mother certificate" is fulfilled.

L4 - Quality management

Aim

To ensure that all Low CO2-materials meet the relevant quality standards.

Total points achievable for this credit

Concrete: This credit is a prerequisite for obtaining the CSC R-Module. No points can be achieved for this credit.

L4.01 Quality management system (QMS)

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The company has a documented quality management system in place, see the annex.

Required evidence

CSC certificate version 2.1 or later at the level Silver or higher
OR
Validation by the auditor that the company has a documented quality management system.

L5 - Minimum CO2 reduction vs. baseline

Aim

To ensure that a minimum CO2 reduction of the Low CO2-materials is achieved.

Total points achievable for this credit

Concrete: This credit is a prerequisite for obtaining the CSC R-Module. No points can be achieved for this credit.

L5.01 Minimum CO2 reduction vs. baseline (Level 1)

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The CO2 reduction vs. the valid baseline (see the annex) has to be declared for each individual concrete delivery in an appropriate manner (see the annex).

For the minimum CO2 reduction level of the low CO2 material eligible to obtain the CSC CO2 Module-certification in a given performance class, see the annex.

For calculation methods, CSC accepted tools, data upload, labelling and data validation / verification, see the annex.

Required evidence

Exemplary sample check of a selection of concrete mix design protocols for concrete supplied carrying the CSC CO2-module certificate (**Level 1**).

The following information of each mix-designs covered by the CO2-module needs to be uploaded in the CSC Toolbox:

- Distinctive identification number
- CO2 emission value
- Number of stars claimed

CO2 reduction class to be confirmed by the delivery slip or a producer confirmation with reference to the delivery slip

AND

in case of first time certification:

CO2 calculation for at least one individual low CO2 concrete mix design to to be potentially delivered from the concrete plant that is targeting to obtain a CSC CO2 module. The highest targeted CO2 reduction class is decisive

AND

Annual compliance declaration by the management (see the annex)

OR

Automatically achieved if evidence for Level 2 (L5.02), 3 (L5.03) or 4 (L5.04) is provided.

L5.02 Minimum CO2 reduction vs. baseline (Level 2)

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The CO2 reduction vs. the valid baseline (see the annex) has to be declared for each individual concrete delivery in an appropriate manner (see the annex).

For the minimum CO2 reduction level of the low CO2 material eligible to obtain the CSC CO2 Module-certification in a given performance class, see the annex.

For calculation methods, CSC accepted tools, data upload, labelling and data validation / verification, see the annex.

Required evidence

Exemplary sample check of a selection of concrete mix design protocols for concrete supplied carrying the CSC CO2-module certificate (**Level 2**).

The following information of each mix-designs covered by the CO2-module needs to be uploaded in the CSC Toolbox:

- Distinctive identification number
- CO2 emission value
- Number of stars claimed

CO2 reduction class to be confirmed by the delivery slip or a producer confirmation with reference to the delivery slip

AND

in case of first time certification:

CO2 calculation for at least one individual low CO2 concrete mix design to to be potentially delivered from the concrete plant that is targeting to obtain a CSC CO2 module. The highest targeted CO2 reduction class is decisive

AND

Annual compliance declaration by the management (see the annex)

OR

Automatically achieved if evidence for Level 3 (L5.03) or 4 (L5.04) is provided.

L5.03 Minimum CO2 reduction vs. baseline (Level 3)

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The CO2 reduction vs. the valid baseline (see the annex) has to be declared for each individual concrete delivery in an appropriate manner (see the annex).

For the minimum CO2 reduction level of the low CO2 material eligible to obtain the CSC CO2 Module-certification in a given performance class, see the annex.

For calculation methods, CSC accepted tools, data upload, labelling and data validation / verification, see the annex.

Required evidence

Exemplary sample check of a selection of concrete mix design protocols for concrete supplied carrying the CSC CO2-module certificate (**Level 3**).

The following information of each mix-designs covered by the CO2-module needs to be uploaded in the CSC Toolbox:

- Distinctive identification number
- CO2 emission value
- Number of stars claimed

CO2 reduction class to be confirmed by the delivery slip or a producer confirmation with reference to the delivery slip

AND

in case of first time certification:

CO2 calculation for at least one individual low CO2 concrete mix design to to be potentially delivered from the concrete plant that is targeting to obtain a CSC CO2 module. The highest targeted CO2 reduction class is decisive

AND

Annual compliance declaration by the management (see the annex)

OR

Automatically achieved if evidence for Level 4 (L5.04) is provided.

L5.04 Minimum CO2 reduction vs. baseline (Level 4)

Criterium Type

Plant

Points achievable for this criterion

Concrete: 0 points

The CO2 reduction vs. the valid baseline (see the annex) has to be declared for each individual concrete delivery in an appropriate manner (see the annex).

For the minimum CO2 reduction level of the low CO2 material eligible to obtain the CSC CO2 Module-certification in a given performance class, see the annex.

For calculation methods, CSC accepted tools, data upload, labelling and data validation / verification, see the annex.

Required evidence

Exemplary sample check of a selection of concrete mix design protocols for concrete supplied carrying the CSC CO2-module certificate (**Level 4**).

The following information of each mix-designs covered by the CO2-module needs to be uploaded in the CSC Toolbox:

- Distinctive identification number
- CO2 emission value
- Number of stars claimed

CO2 reduction class to be confirmed by the delivery slip or a producer confirmation with reference to the delivery slip

AND

in case of first time certification:

CO2 calculation for at least one individual low CO2 concrete mix design to to be potentially delivered from the concrete plant that is targeting to obtain a CSC CO2 module. The highest targeted CO2 reduction class is decisive

AND

Annual compliance declaration by the management (see the annex)