VERIFICATION CHECKLIST ON THE PCR-NL

MRPI
milieu relevante product informatie

MAY 2021

FINAL: V1.0

Requirements for obtaining MRPI®-EPDs for the Dutch market and inclusion of data in the Dutch National Environmental Database (NMD)

Nationale Milieu DATABASE

ECO PLATFORM EPD EN 15804 VERIFIED

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PREFACE

This document is compiled by Stichting MRPI® (MRPI®) and NMD Foundation, represented by:

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ABOUT MRPI®
MRPI® is an independent non-profit organization founded in 1999 by NVTB (www.nvtb.nl), the Dutch Association for the Construction Supply in co-operation with the Dutch government.
In 2014 MRPI® was one of the founding partners of the European ECO Platform. Currently MRPI® is the Dutch program operator issuing MRPI®-EPDs.

MRPI®-EPD certificates are used by leading producers that want to profile their sustainable building products and want to ensure customers that the environmental information is controlled and independently verified. MRPI®-EPD certificates are published at www.mrpi.nl/epd-certificaten, at the ECO Portal and multiple product databases, such as the Dutch National Environmental Database.

ABOUT NMD FOUNDATION AND DETERMINATION METHOD
The Dutch National Environmental Database (NMD) Foundation has been established as an independent organization to manage and maintain the Determination Method for the Environmental Performance of Construction Works (Bepalingsmethode or PCR-NL) with the accompanying database (NMD) for determining the environmental performance of buildings and civil engineering projects. The Determination Method has been developed to calculate the material-related environmental performance of buildings and civil engineering works over their entire life cycle in a clear and verifiable manner. The Determination Method forms a coherent whole with the NMD and the calculation rules. To account for the Dutch context, The Determination Method prescribes additional requirements compared to EN 15804+A2; hence it is also referred to as the PCR-NL.

1. INTRODUCTION

This document lists the specific requirements that must be satisfied in order to be able to develop MRPI®-EPDs for the Dutch market and which, additionally, can be included in the Dutch National Environmental Database (Nationale Milieudatabase), hereafter referred to as 'NMD'. The aim of this document is to ease the LCA-review process by integrating the two verification checklists of MRPI® and NMD Foundation into one verification checklist. Since the Determination Method prescribes additional LCA-requirements compared to EN 15804+A2 (and thus compared to MRPI®-EPDs), additional information needs to be verified.

This document is based on an analysis[1] in which the verification protocols of MRPI® and the NMD Foundation were compared. Additionally, this document has been reviewed by recognized verifiers from both Stichting MRPI and the NMD Foundation. The original MRPI-verification protocol can be found at www.mrpi.nl and for more information on the NMD-verification protocol, see www.milieudatabase.nl.

The MRPI-verification checklist Part A (Calculation rules for the Life Cycle Assessment and requirements on the LCA project report) served as starting point for the LCA-verification checklist described in this document. The additional requirements that LCA data need to comply to in order to be included in the NMD are explained in more detail in section 2 and section 3. The core product category rule (PCR) followed is the NEN-EN15804 including amendment A2.

The verification checklist can be used by LCA verifiers recognized by both MRPI® and NMD Foundation:

Company	Represented by
Pluk Sustainability	Dr. N. (Niels) Jonkers
Primum	Ing. K (Kamiel) Jansen
Ecoreview	P. (Pieter) Stadhouders, MSc
Advieslab VOF	A. K. (Anne-Kees) Jeeninga
SGS Intron	Dr U. (Ulbert) Hofstra and H. (Harry) van Ewijk, MSc
EcoChain Technologies	Dr A. L. (Lex) Roes
NIBE B.V.	Ir. J. (Jorg) Blass (contact for verification requests)

[1] Memo – Vergelijking Toetsingsprotocollen Bepalingsmethode en MRPI®, Dr Ulbert Hofstra, SGS Intron B.V. 14 december 2020

2. INTRODUCTION TO THE VERIFICATION CHECKLIST (PART A)

Section 3 contains the full checklist that integrates both the verification checklists of MRPI® and NMD Foundation. As required by the ECO Platform guidelines, the MRPI-verification checklist (following EN15804 + A2) served as starting point of this list. The MRPI-verification checklist has been expanded with a column (c5) which shows additional requirements that are prescribed by the Determination Method, but are not included in the MRPI-verification checklist. Figure 1 shows an impression of the checklist.

c1	c2	c3	c4	c5	c6
2	Study goal – availability of info	M/O	Ref. A2	Determination Method (PCR_NL)	C&A
2.1	Reasons for performing the LCA.	M	§8.2		
2.2	Intended application – (e.g. for EPD, databases, publication etc.) Is the LCA designed in such a way that it allows B2B communication for environmental assessments of buildings?	M	§8.2		
		M		this verification is for product cards in the NMD.	
		M		Latest NMD format for product cards is used.	
		M		Communication format is according to 2.8.2.2. of Determination Method	

Figure 1: Impression of the MRPI-verification checklist used for verification of the LCA report.

From left to right the checklist contains 6 columns (c1 – c6):

- Column c1:
  - Adds a number to simplify communication between LCA-consultant and recognized LCA-verifier.
- Column c2:
  - Describes the requirement to be assessed.
- Column c3:
  - Determines whether the requirement is mandatory (M) or optional (O) to verify;
  - The highlighted cells (grey) are requirements to be assessed specifically for the Determination Method.
- Column c4:
  - Refers to the paragraph in EN15804+A2.
- Column c5:
  - Explains and describes the requirements to be assessed specifically for the Determination Method.
- Column c6:
  - Is filled/marked by the recognized verifier with “OK” if checked (C) and approved (A).

The verification checklist contains the minimal amount of required topics that have to be assessed. It is presented, and can be used as, a ‘tick-box’, but it should be clear from the verification report that discussions between the LCA-consultant and recognized LCA-verifier have taken place and (if applicable) improvements have been made according to the recognized LCA-verifier’s comments and recommendations. Usage of this document for the verification of LCA-data is limited to data presented in MRPI®-EPD’s to be included in the NMD.

The requirements included in the verification checklist in section 3 must be checked during the verification process. Most requirements are mandatory to check, some are optional. If, according to the verifier, the requirement is described in, and fulfilled by, the LCA report, the box “C & A[4]” can be ticked. C & A[4] stands for ‘checked’ and ‘approved’.

Any deviations from the requirements should be reported by the recognized LCA-verifier. The dialogue between the recognized LCA-verifier and the LCA-consultant should be made transparent, as well as the improvements made following the dialogue. This can be done separately from the checklist in the dialogue document (an example is provided after the checklist in ANNEX 3).

3. VERIFICATION CHECKLIST LCA PROJECT REPORT (PART A)

[1] M = Mandatory, O = Optional;

[2] Reference to the section of EN15804 + Amendment A2;

[3] Column with description of verifications specifically to the Determination Method (PCR_NL);

[4] C = checked, A = Approved;

1	General information - availability	M/O[1]	Ref. A2[2]	Determination Method (PCR_NL) [3]	C & A[4]
1.1	Commissioner of LCA study, LCA practitioner	M	§8.2		
1.2	Date of issue of LCA report	M	§8.2		
1.3	Statement that the LCA study has been performed in accordance with the requirements of EN 15804 and applicable PCRs	M	§8.2 + applicable PCR		
1.4	Any other independent verification of the data given in the LCI/LCA documentation?	O			
2	**Study goal – availability of info**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
2.1	Reasons for performing the LCA.	M	§8.2		
2.2	Intended application – (e.g. for EPD, databases, publication etc.) Is the LCA designed in such a way that it allows B2B communication for environmental assessments of buildings?	M	§8.2		
		M		This verification procedure is aiming to assess LCA data for inclusion in the NMD.	
		M		Most recent NMD format for submitting product cards has been used.	
		M		It meets the communication format requirements described in 2.8.2.2. of the Determination Method	
2.3	Target group (B2B, B2C, …)	M	§8.2		
3	**Functional unit / Declared unit – availability of info**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
3.1	Functional / Declared unit, including relevant technical specification	M	§6.3.1/6.3.2 and/or applicable PCR or additional specific requirements for		

			certain product groups		
		M		Contains the quantity of the function(s) expressed in a SI unit or a combination of SI-units.	
		M		Contains the weight of the construction product.	
		M		Contains the materialization of the construction product in terms of material description and weight.	
		M		The functional unit is consistent with NMD's functional descriptions and the most recent list can be found at www.milieudatabase.nl. The correct reference to the functional description is included. It is clear whether a product is a 'total product' (totaalproduct) or a 'sub-product' (deelproduct). If it is a total product, all compulsory components are verified as actually having been included in the study. If it is a sub-product, the total products and the component (CUAS) to which it belongs are clearly defined.	
3.2	If product groups (similar products from one manufacturer and/or from different production plants) are formed as averages: a. Calculation rules for the formation of averages b. Representativeness of averages	M	§8.2		
		M		The average composition is based on: - Annual figures or multi-year figures for all manufacturing, weighted by manufacturing; - Or on a composition covering over 80% of the manufacturing volume in that year of study.	
4	**Product description – availability of info**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
4.1	Composition of the product The level of detail: the main components necessary to understand what type of product is concerned (detailed mass description is not necessary if confidential) Note: It should be settled before the verification how confidential information is dealt with (acc. to provisions ISO 14025)	M	ISO 14025		
4.2	Description of technical and functional characteristics and area of intended application in the building	M	Applicable PCR		
4.3	Flow diagram of main production processes and visualization of system boundaries. Level of detail: see 4.1	M	§7.2.1		

	Note: It should be settled before the verification how confidential information is dealt with (acc. to provisions ISO 14025)				
5	**System boundaries in accordance with the modular design of the EN 15804**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
5.1	Comprehensive declaration of modules A1 to A3 as a minimum requirement, if necessary as an aggregated module A1-A3	M	§6.3.5		
		M		It is clearly indicated what the EPD type is: 1) only the production phase as a basic profile ("basisprofiel); 2) the entire lifecycle as product card ("productkaart").	
		M		The life-cycle phases have been included in accordance with the Determination Method: If 1): only production phase as "basisprofiel" modules A1-A3; If 2): entire lifecycle as "productkaart" all modules A to D.	
5.2	A1 to A3: System boundary a. Clear description of what the modules cover b. System boundary to nature (e.g. forest in wood production) c. Use of secondary materials and secondary fuels and waste produced (check end-of-waste state) d. If applicable: Ref. A1 to the certificate of the offsetting of CO_2	M	§6.3.5.2 and applicable PCR		
5.3	A1 to A3: Allocation of co-products: a. Specification of the "end-of-waste state" b. Selection of the allocation factors for co-product allocation c. Justification of specific allocation processes (e.g. if data are not available to allocate according to the EN15804 rules) d. Presentation of the energy and material flows as a result of deviating allocation processes e. No declaration of loads and benefits in Module D from allocation in A1-A3	M	§6.4.3.2 + annex B.1		
5.4	A4 to A5 (optional module): Clear description and content of modules	M	§6.3.5.3 and applicable PCR		
		M		Transport phase A4 starts when the construction product or component at the manufacturer's premises is ready for transport to the customer and ends when it is delivered at the construction site alongside the haulage vehicle.	
		M		Building and installation processes (A5) are included in the form of one or more scenarios. Default values for "material loss at the building site" are taken from §2.6.3.7 of the Determination Method. The default values are:	

				- Prefab products: 3%; - In situ products: 5%; - Auxiliary materials and finishings: 15%. Always check: https://milieudatabase.nl/milieuprestatie/bepalingsmethode/ for the latest version of the document. If deviation from these default values is required, this is possible, provided it can be quantitatively justified by research results.	
5.5	Accounting losses in the modules in which they arise (e.g. A4, transport to construction site)	M	§6.3.5.1		
5.6	B1 to B5 (optional module): Delineation and content of modules	M	§6.3.5.4.2 and applicable PCR		
		M		Check the system boundaries of the use phase components:. - B1: Usage of the construction product concerns its application in the Netherlands; - B2: maintenance only concerns material-related maintenance, rather than structure-specific or site-specific maintenance. Cleaning maintenance only if functionally significant; - B3: Repair; - B4: Replacement of the entire construction product is defined in the calculation rules applicable at building level by multiplying the product cards. Replacement of the entire product is therefore not reported separately in the use phase. However, replacement of components that have a shorter service life than that of the entire product is included here; - B5: renovation is not part of the Determination Method.	
5.7	B6 and B7 (optional module): Delineation and content of modules	M	§6.3.5.4.3 and applicable PCR		
5.8	C1 to C4 (optional module): Delineation and content of modules	M	§6.3.5.5 and applicable PCR		
		M		C2: Default values for transport distances to sorting site, recycling site, landfill site, and waste incineration plants can be found in §2.6.3.7 of the Determination Method. The next default transport distances (single trip) are in place according to §2.6.3.7: The following fixed values apply: - one-way transport distance to the construction site if the construction product is manufactured in the Netherlands: 50 km for bulk materials, 150 km for other materials, products, and elements;	

				in civil engineering works, the transport distance of each project is included in the calculation tool; - location used to calculate the transport distance of materials from abroad to and from the construction site or customer: Utrecht; - one-way transport distance from demolition site to sorting and/or crushing plant: 50 km; - one-way transport distance to soil disposal site: 50 km; - one-way transport distance from demolition or sorting site to landfill site: 50 km; - one-way transport distance for combustible material from demolition or sorting site to waste incineration plant: 100 km; - EoL scenarios waste processing according to https://milieudatabase.nl Always check: https://milieudatabase.nl/milieuprestatie/bepalingsmethode/ for the latest version of the document. If deviation from these default values is required, this is possible, provided it can be quantitatively justified by research results.	
5.9	C3 (optional module): Justification of the "end-of-waste state" a. Existing purpose b. Existing market or demand c. Compliance with technical requirements and legal guidelines d. Fulfils limit values for Substances of Very High Concern (SVHC)	M	§6.3.5.5 + annex B.1 and applicable PCR		
		M		If a material, product, or element remains in place without fulfilling any other function ('leaving it in place without function'), it is treated further as landfill. An example is foundation elements that are being left in the ground.	
		M		Specific aspects to verify considering waste: - Has been determined whether the released substances are waste? - Has the end-of-waste status been verified? - Has the waste been determined as hazardous?	
5.10	C4 (optional module): Carefully check the correct allocation	M	§6.3.5.5 and §6.3.5.6		

5.11	D (optional module): System boundary and contents of Module justified	M	§6.3.5.6		
5.12	D (optional module): Check if the net flow calculation is done correctly taking into consideration relevant factors, e.g.: a. Processing losses b. Inputs in Modules A1 to A3 (and A4 to B5 if necessary)	M	§6.3.5.6 and §6.4.3.3		
5.13	D (optional module): No benefits or loads of allocated co-products	M	§6.4.3.3		
6	**Power mix (e.g. electricity)**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
6.1	Selection of the power mix in accordance with the location of the production site(s)	M	CEN TR15941 and applicable PCR		
		M		The processes in the product system that occur at the manufacturer of the construction product must provide an up-to-date picture (for the period or date of the environmental declaration) that is both geographically and technologically representative.	
		M		Individual manufacturing sites must draw data from that production site.	
6.2	If applicable: Validity of the certificates for green power	O	Applicable PCR		
7	**CO_2 certificates**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
7.1	If applicable: Selecting allowable certificates in accordance with the PCR	O	Applicable PCR		
7.2	If applicable: Offsetting in accordance with the requirements from the individual program operators	O	Applicable PCR		
8	**Description of the system boundaries**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
8.1	Transparent description of the system boundaries: a. Representativeness (temporal, geographical, technological) b. Assessment period for each module considered in the Life Cycle Assessment (eg one year average, etc) c. Omissions of life cycle stages, processes and data requests d. Assumptions with regard to energy and electricity production incl. year of reference. It should also be transparent which electricity/energy model is applies as avoided product if energy recovery is included in the optional Module D. e. Assumptions concerning other relevant background data where relevant for the system boundary	M	ISO 14040 + §8.2		

		M		The other processes in the product system must give a representative or typical picture of the current geographical and technological situation. The area of application covered by this standard is the Netherlands. 'Representative' means that the data provides a close representation of the actual population. 'Typical' means that the data describes a certain, common situation (also called modal).	
9	**Criteria for excluding inputs and outputs**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
9.1	Selection of the cut-off criteria, description of application of the criteria and assumptions	M	§6.3.6 and §8.2 and applicable PCR		
		M		Estimates of for missing data are made conservative ("worst case")	
		M		Process data include infrastructure and capital goods (such as default Ecoinvent data). Any deviations are reported and substantiated.	
9.2	List of excluded processes available		§8.2		
10	**Data collection**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
10.1	Data collection, including data quality issues, according to LCA rules	M	ISO 14044:2006, section 4.3.2; Documentation ISO 14040 §6.4.1		
		M		Data quality is based on the principle that the data of processes that occur at the manufacturer of the construction product must be of a higher quality than that of the other processes. It is also based on the principle that economic flows should approximate reality as closely as possible within practically feasible limits for the LCA executor.	
		M		Data of the processes of the manufacturer must originate from primary sources representative for the period the EPD is valid.	
		M		The data of other processes must be representative for the period the EPD is valid.	
11	**Development of scenarios at product level in modules A4-A5-B-C-D**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
11.1	Statement that the scenarios included are currently in use and are representative for one of the most likely scenario alternatives.	M	§6.3.9 Applicable PCR		

	Check the PCR / program rules if average scenarios are allowed. (preferably no average scenarios for various alternatives)				
		M		As an exception to the rule of timeliness, a future scenario may be assumed for the disposal scenario if the conditions of the hardship clause are met, in that a demonstrably working return system will be in operation at the time of disposal. Any deviation from the timeliness requirement must be transparent. The plausibility of this has been explicitly tested.	
		M		If a product (or functional unit) has several installation options that have an impact on its end-of-life phase and/or the possibilities for its reuse, recovery or recycling, several environmental profiles (C1-C4, D) can be issued for this purpose. The following preconditions apply here: - the product is actually delivered as suitable for the application; - additional resources (including auxiliary resources) and/or substances are declared in the relevant module D; - specific design conditions for application are clearly defined; - disposal scenarios are current, the same exception as described above applies.	
11.2	Documentation of the relevant technical information, e.g. recycling or reuse rates, with reference to the literature source	M			
		M		The next default transport distances (single trip) are in place according to §2.6.3.7: The following fixed values apply: - one-way transport distance to the construction site if the construction product is manufactured in the Netherlands: 50 km for bulk materials, 150 km for other materials, products, and elements; in civil engineering works, the transport distance of each project is included in the calculation tool; - location used to calculate the transport distance of materials from abroad to and from the construction site or customer: Utrecht; - one-way transport distance from demolition site to sorting and/or crushing plant: 50 km; - one-way transport distance to soil disposal site: 50 km; - one-way transport distance from demolition or sorting site to landfill site: 50 km; - One-way transport distance for combustible material from demolition or sorting site to waste incineration plant: 100 km - EoL scenarios waste processing according to: https://milieudatabase.nl Always check:	

				https://milieudatabase.nl/milieuprestatie/bepalingsmethode/ for the latest version of the document. If deviation from these default values is required, this is possible, provided it can be quantitatively justified by research results.	
		M		For the release of construction waste, the default values from the Determination Method are used for: - prefab products: it is assumed that 3% of the materials are lost (on the construction site or during transport); - in-situ products: it is assumed that 5% of the materials are lost; - auxiliary and finishing materials: it is assumed that 15% of the materials are lost. If deviation from these fixed values is required, this is possible, provided it can be quantitatively justified by research results.	
		M		If burning occurs in a waste incineration plant, the avoided energy production can be calculated in module D from the amount of net exported energy (MJ per energy carrier).	
12	**Selecting data / background data**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
12.1	Selection and use of generic data and background data justified and validity demonstrated (Commonly used and publicly available databases in Europe are: GaBi database, EcoInvent, Okobau.dat, ILCD, EIME … [to be extended by Program Operators])	M	§6.3.7 EN 15941 and applicable PCR		
		M		For use of generic data and background data Ecoinvent X.X must be used in line with the applicable Determination Method. For the latest version check: https://milieudatabase.nl/milieuprestatie/bepalingsmethode/ including the amendments. The amendment starts with the current version of Ecoinvent to be used.	
12.2	Data as follows: a. < 10 years for background data b. < 5 years for manufacturer's data c. Data manufacturer based on 1 year average d. Time period of 100 years in case of a landfill scenario, longer if relevant e. Technical background complies with physical reality	M	§6.3.8 EN15941 and applicable PCR		

	f. Integrity of generic data records, system limit and cut-off criteria for generic data records validity demonstrated				
		M		If a supplier uses sector average data (category 2), the supplier must demonstrate to be part of this sector average or an equivalent.	
12.3	Documentation on data / background data: a. Name of the (background) data record, its source (data base, literary source etc.), year of data collection and its representativeness b. Handling missing data c. Assessing data quality	M	EN15941 and applicable PCR		
		M		All interventions from the latest CML-NMD method must be considered. Each intervention is allocated a value unless the value is not known. The options are: 1) A positive or negative value; 2) Value 0 for all interventions whose value is below the detection limit); 3) A question mark (?) (if it is not known whether the action will take place). If NMD data or Ecoinvent is used, this requirement is in general not verified.	
				The documentation format and datasets for the LCI used in the LCA, follow the current ILCD format and nomenclature as defined in the ILCD handbook.	
12.4	Manufacturing data should be reproducible, e.g. by available data management systems. Random checks could be carried out, or based on importance; some data could be checked in the verification.	O			
		M		A justification of consistency of the LCA must be demonstrated by explanation of the used sources and operations to make the LCA consistent.	
13	**Allocations**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
13.1	General allocation principles applied (avoidance of allocation, no double counting / omissions, uniform application of the allocation rules etc.)	M	ISO14044:2006 4.3.4		
13.2	Presentation and justification of allocations in the use of secondary materials or secondary fuels as raw materials	M	§6.4.3 and §8.2 and applicable PCR		
13.3	Presentation and justification of allocations in the plant (delineation from other products in a plant)	M			

13.4	If applicable: Presentation and justification of allocation of multi-input processes (e.g. landfilling or incineration)	M			
13.5	Co-product allocation correctly applied, see also 5.3	M	§6.4.3.2		
13.6	Documentation of allocation factors used and their (independent) sources	M			
		M		Module D credits must be declared correctly. The following aspects are substantiated in this: - a mass balance that includes all individual input flows of secondary raw materials and all output flows of materials for recycling; - the quality and quantity of the recycling materials, used as secondary materials, must be determined; - any waste flows from the recycling process are included; - module D is calculated based on the sum of the net output of the individual flows of secondary raw materials.	
13.7	Allocation process for reuse, recycling and recovery, check specifically: a. Consistency with other scenarios of waste management b. Conventional average technologies and practices c. Specification and justification of end-of-waste state where applicable d. If applicable (module D): Selecting substituted processes in accordance with the PCR or (if no PCR is available) representative actual processes e. If applicable (substitution in Module D): Calculation of net flows f. Conservative approach, i.e. choice of those scenarios and calculation rules that reflect the highest environmental impacts in comparison to other choices	M	§6.4.3.3 and applicable PCR		
13.8	Is there any presentation or expert guess of data sets which do not comply with the allocation principles and description of consequences for the LCA results?	M	Applicable PCR		
14	**Life cycle modeling information**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
14.1	Transparent presentation of Life Cycle Assessment modeling (for example by tables, screenshots from Life Cycle Assessment software programs etc.)	M	§8.4		
14.2	Clear description how company data are used in which data records in Life Cycle Assessment software programs	M	§8.4		
14.3	Assignment of process data to the Life Cycle Assessment modules	M	§8.4		

14.4	For several locations/products: Presentation of modeling of all locations and products as well as weighting thereof	M			
		M		If all manufacturing sites supply data when horizontal aggregation in the product system occurs, the result is automatically representative of the group in question. If manufacturing sites in the group do not all supply data, a representative cross-section of the group of manufacturing sites must be taken, provided that they manufacture for the Dutch market, in respect of geographical and technical differences that may lead to differences in environmental effects.	
		M		When aggregating environmental profiles, an 'average' environmental profile of a process is obtained. The average profiles are calculated on the basis of a weighted production quantity (Or production volume, if that is a customary unit) average of the selected manufacturing sites. Production quantities may be estimated in terms of order of magnitude.	
14.5	Plausibility and consistency of data (mass balance, energy balance) Balances on company level and in the life cycle. e.g. Mass balance between reference flow and wastes for cradle to grave data / Mass of non-energetic resources used coherent with the reference flow / CO and CO2 emissions coherent with the mass of fossil energetic resources / check of the sum of non-renewable and renewable parts or between feedstock and fuel parts / Is the energy indicators coherent with the energetic resources used?	M	§8.4		
		M		For the processes that take place at the construction product manufacturer, the energy balance at company level must be determined and any discrepancies corrected to an accuracy of □ 95%.	
		M		For the processes that take place at the construction product manufacturer (if different from the data at company level), the mass balance (if different from the data at company level) must be determined for each process used and any discrepancies corrected to an accuracy of □ 95%.	
		M		Validity of the other processes must be checked by determining the mass balance of each process and correcting any discrepancies to an accuracy of ≥ 95%.	

15	Parameters of the Life Cycle Inventory Analysis and Life Cycle Impact Assessment	M/O[1]	Ref. A2	Determination Method (PCR_NL)	C & A[4]
15.1	Presentation of the parameters in tabular form for all modules A1 to D Marking unassessed modules as "ND" (= Not Declared)	M	§7.2.2 EN15978, §12.5		
15.2	According to EN 15804 (A2): Presentation of the parameters describing core environmental impacts (13 parameters), the parameters describing additional environmental impacts (6 parameters), the parameters for describing the use of resources (10 parameters), parameters for describing the waste categories (3 parameters), parameters concerning output material flows (4 parameters) and parameters describing the biogenic carbon content at the factory gate (2 parameters). See ANNEX 2.	M	§6.5, §7.2.3 – §7.2.5		
		M		According to EN 15804 (A1): Presentation of the parameters describing environmental impacts (7 parameters) and indicators describing toxicity (4 parameters). See ANNEX 2. The environmental profile of set 1 (EN15804/A1:2013) consists of the eleven impact-categories mentioned in section 2.7.2.3 of the Determination Method.	
		M		Uptake and emission of biogenic carbon is modelled in the Module where it occurs.	
15.3	Selection of correct characterization factors and elimination of long-term emissions (> 100 years)	M	§8.2 and annex C.4 and applicable PCR		
15.4	Justification of characterisation factors applied in case of input/output flows that are not on the list of characterisation factors of the EN15804 and applicable PCR	M			
15.5	Information on the environmental impacts in the project report: a. Reference to characterisation models and factors b. Statement that the estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks	M	§8.2		
		M		The LCA report contains at least the information as described in §2.8 of the Determination Method	
		M		All environmental interventions of the most recent CML-NMD method (see www.milieudatabase.nl) and the ILCD handbook (identified by EN_15804) must be taken into account. Next interventions, as a minimum must have a result:	

				- Emissions to air of CO_2, CO, NO_x (NO_2 and NO), SO_2, C_xH_y and particulate matter (PM10: parts < 10 μm) when using thermal energy; - Emissions to water of CZV, BZV, P-total, N -total and particulate matter (PM10: parts < 10 μm); - Emissions to soil of PAK and heavy metal content; - Other emissions as demanded by legislation to the manufacturer.	
16	**Interpretation**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
16.1	Interpretation of the results based on a dominance/contribution analysis of selected indicators	O			
		M		A sensitivity analysis has been conducted and contains: - The influence of geographical and technological spread within a group of production sites. Use the highest and the lowest values in the sensitivity analysis; - The distribution as a result of dispersion in an average composition. Use the highest and the lowest values in the sensitivity analysis; - The distribution as a result of centring when setting up a group average. Use the highest and the lowest values in the sensitivity analysis.	
16.2	Relationship between the results of the Life Cycle Inventory Assessment and the results of the Life Cycle Impact Assessment (LCIA)	M	§8.2		
16.3	Assumptions and restrictions as regards the interpretation of results in the EPD, in terms of both methods and data	M	§8.2		
16.4	Variance from the means of LCIA results must be presented if generic data is provided from several sources or [the results] refer to a number of similar products.	M	§8.2		
		M		The differences may not exceed 20% on one of the environmental impacts compared to the average value. If the sensitivity analysis shows that the differences are higher than 20%, the environmental product declarations must be split up to stay below the 20% limit. It is also possible to choose to display the worst-case profiles. The variations in environmental impacts with very low values can be dealt with in this way.	
16.5	Data quality assessment	M	§8.2 ISO 14040 CEN TR15941 Applicable PCR		
16.6	Comprehensive transparency as regards value decisions, justifications and expert opinions	M	§8.2		

17	Additional information	M/O[1]	Ref. A2	Determination Method (PCR_NL)	C & A[4]
17.1	Where relevant to check the documentation: a. Laboratory results/measurements listed in the content declaration b. Laboratory results/measurements listed in the functional/technical performance c. Documentation on the declared technical information on individual life cycle stages not taken into consideration in the construction product's Life Cycle Assessment and applied for evaluation of the building (e.g. transport routes, energy consumption during the usage stage, cleaning cycles etc.) d. Laboratory results/measurements pertaining to the declared emissions in indoor air, soil or water during the use stage	M	§8.3		
17.2	Where relevant: ensure that information additional to EN15804 is verified				
18	**Documentation for calculating the reference service life (RSL)**	**M/O[1]**	**Ref. A2**	**Determination Method (PCR_NL)**	**C & A[4]**
18.1	Necessary if the entire life cycle A1-C4 is declared: Documentation for calculating the reference service life (RSL), should be representative for the declared product	M	§6.3.4		
		M		If the entire life cycle A-D is explained, the reference service life (RSL) is based on the reference service life of each type of construction product in the SBR publication "*Levensduur van bouwproducten"* (Service life of construction products) [SBR, 2011]. The document is available at: https://milieudatabase.nl/milieuprestatie/bepalingsmethode/ If substantiated, it is possible to deviate from this rule. Documentation is then required to calculate the RSL. The RSL must be representative for the specified product in the specified application(s).	

ANNEX 1: VERIFICATION CHECKLIST (PART B) REQUIREMENTS ON THE MRPI®-EPD CERTIFICATE

This is a separate document and will be added later.

ANNEX 2: FULL LIST OF ENVIRONMENTAL INDICATORS TO BE DECLARED AND TO BE TAKEN INTO THE NMD.

Environmental Indicators according to EN15804 + amendment A1

INDICATOR	UNIT	DESCRIPTION
ADPE	[kg Sb eq.]	ADPE = Abiotic Depletion Potential for non-fossil resources
ADPF*	[MJ]	ADPF = Abiotic Depletion Potential for fossil resources
GWP	[kg CO2 eq.]	GWP = Global Warming Potential
ODP	[kg CFC11 eq.]	ODP = Depletion potential of the stratospheric ozone layer
POCP	[kg ethene eq.]	POCP = Formation potential of tropospheric ozone photochemical oxidants
AP	[kg SO2 eq.]	AP = Acidification Potential of land and water
EP	[kg (PO4)3- eq.]	EP = Eutrophication Potential

Indicators describing toxicity (specific for Dutch market)

INDICATOR	UNIT	DESCRIPTION
HTP	[kg DCB-Eq]	HTP = Human Toxicity Potential
FAETP	[kg DCB-Eq]	FAETP = Fresh water aquatic ecotoxicity potential
MAETP	[kg DCB-Eq]	MAETP = Marine aquatic ecotoxicity potential
TETP	[kg DCB-Eq]	TETP = Terrestrial ecotoxicity potential

Indicators shown on the MRPI®-EPD

INDICATOR	UNIT	DESCRIPTION
ECI	[euro]	ECI = Environmental Cost Indicator
ADPF*	[kg Sb eq.]	ADPF = Abiotic Depletion Potential for fossil resources expressed in [kg Sb-eq.]

* ADPF is according to EN15804 + A1 expressed in MJ. The NMD takes ADPF expressed in [kg Sb eq.]. Multiplying ADPF in MJ by 4,81E-4 kg Sb/MJ gives ADPF in [kg Sb eq.]

Core Environmental Indicators according to EN15804 + amendment A2

INDICATOR	UNIT	DESCRIPTION
GWP-total	[kg CO2 eq.]	GWP-total = Global Warming Potential total
GWP-fossil	[kg CO2 eq.]	GWP-fossil = Global Warming Potential fossil fuels
GWP-biogenic	[kg CO2 eq.]	GWP-biogenic = Global Warming Potential biogenic
GWP-luluc	[kg CO2 eq.]	GWP-luluc = Global Warming Potential land use and land use change
ODP	[kg CFC11 eq.]	ODP = Depletion potential of the stratospheric ozone layer
AP	[mol H+ eq.}	AP = Acidification Potential, Accumulated Exceedence
EP-freshwater	[kg PO4 eq.]	EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment
EP-marine	[kg N eq.]	EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment
EP-terrestrial	[mol N eq.]	EP-terrestrial = Eutrophication Potential, Accumulated Exceedence
POCP	[kg NMVOC eq.]	POCP = Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals	[kg Sb eq.]	ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources
ADP-fossil	[MJ, net calorific value]	ADP-fossil = Abiotic Depletion for fossil resources potential
WDP	[m3 world eq. Deprived]	WDP = Water (user) deprivation potential, deprivation-weighted water consumption

Additional Environmental Indicators according to EN15804 + amendment A2

INDICATOR	UNIT	DESCRIPTION
PM	Disease incidence	PM = Potential incidence of diseasedue to PM emissions
IRP	kBq U235 eq.	IRP = Potential Human exposure efficiency relative to U235
ETP-fw	CTUe	ETP-fw = Potential Comparative Toxic Unit for ecosystems
HTP-c	CTUh	HTP-c = Potential Comparative Toxic Unit for humans
HTP-nc	CTUh	HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer
SQP	----	SQP = Potential soil quality index

Parameters describing resource use according to EN15804 + amendment A2

INDICATOR	UNIT	DESCRIPTION
PERE	[MJ]	PERE = Use of renewable energy excluding renewable primary energy resources
PERM	[MJ]	PERM = Use of renewable energy resources used as raw materials
PERT	[MJ]	PERT = Total use of renewable primary energy resources
PENRE	[MJ]	PENRE = Use of non-renewable primary energy resources excluding non-renewable energy resources used as raw materials
PENRM	[MJ]	PENRM = Use of non-renewable primary energy resources used as raw materials
PENRT	[MJ]	PENRT = Total use of non-renewable primary energy resources
SM	[kg]	SM = Use of secondary materials
RSF	[MJ]	RSF = Use of renewable secondary fuels
NRSF	[MJ}	NRSF = Use of non renewable secondary fuels
FW	[m3]	FW = Use of net fresh water

Environmental information describing output flows and waste categories according to EN15804 + amendment A2

INDICATOR	UNIT	DESCRIPTION
HWD	[kg]	HWD = Hazardous Waste Disposed
NHWD	[kg]	NHWD = Non Hazardous Waste Disposed
RWD	[kg]	RWD = Radioactive Waste Disposed
CRU	[kg]	CRU = Components for reuse
MFR	[kg]	MFR = Materials for recycling
MER	[kg]	MER = Materials for energy recovery
EEE	[MJ]	EEE = Exported Electrical Energy
ETE	[MJ]	ETE = Exported Thermal Energy

Information on biogenic carbon content according to EN15804 + amendment A2

INDICATOR	UNIT	DESCRIPTION
BCCpr	[kg C]	BCCpr = Biogenic carbon content in product
BCCpa	[kg C]	BCCpa = Biogenic carbon content in packaging

ANNEX 3: EXAMPLE DIALOGUE DOCUMENT

The dialogue document is the same for both a conventional verification and a verification including the c-PCR-NL. For the sake of completeness, an example of dialogue between verifier/Program Operator and EPD owner / practitioner during the verification process is added to the Determination Method (PCR_NL).

Any deviations from the requirements should be reported by the verifier, and the dialogue between verifier and LCA practitioner should be made transparent as well improvements made following the verification process. This can be done separate from the checklist. The format to do so is free to choose. Examples are given below:

Example:

Issue number	Question / comment	Response

Example (partly based on XP TS14071)

Comment N°	Chapter Article Paragraph	Alinea Table	Type of comment (Ed, Te, Ge)*	Ref. to a Eco check list	Verifier comment and recommendation	EPD owner / LCA practitioner answer	Final verifier statement

*Ed = Editorial

*Te = Technical

*Ge = General

ANNEX 4: EXAMPLE FINAL VERIFICATION STATEMENT

Report on verification of the MRPI®-Environmental Product Declaration …… *[Registration number]*

For …… *[Product]* **by ……** *[Company]*

Verification statement:
The MRPI® recognized verifier shall give a statement about his work and the result, clarifying at minimum:

- the MRPI®-EPDs concerned;
- that the work concerned a verification (not a certification);
- that the verification has been done 3rd party independent;
- that the MRPI®-EPD was verified according to EN 15804+A2;
- that Determination Method (PCR_NL) was used.

Example:

I hereby confirm that, following detailed examination as independent 3rd party verifier, I have not been able to trace any relevant deviations by:

The Environmental Product Declaration: …….. *[MRPI® registration number]*

Issued for: …….. *[product name(s)]*

By: …….. *[company name]*

and by its project report from the requirements outlined in the corresponding product category regulations based on:

- EN 15804+A2
- Determination Method (PCR_NL)
- ……..

The company-specific data have been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity.

The project report on the Life Cycle Assessment is filed at …….. *[Manufacturer]*

and the report(s) on features of environmental relevance are filed at Stichting MRPI®.

Name and signature of

external recognized verifier Place and date