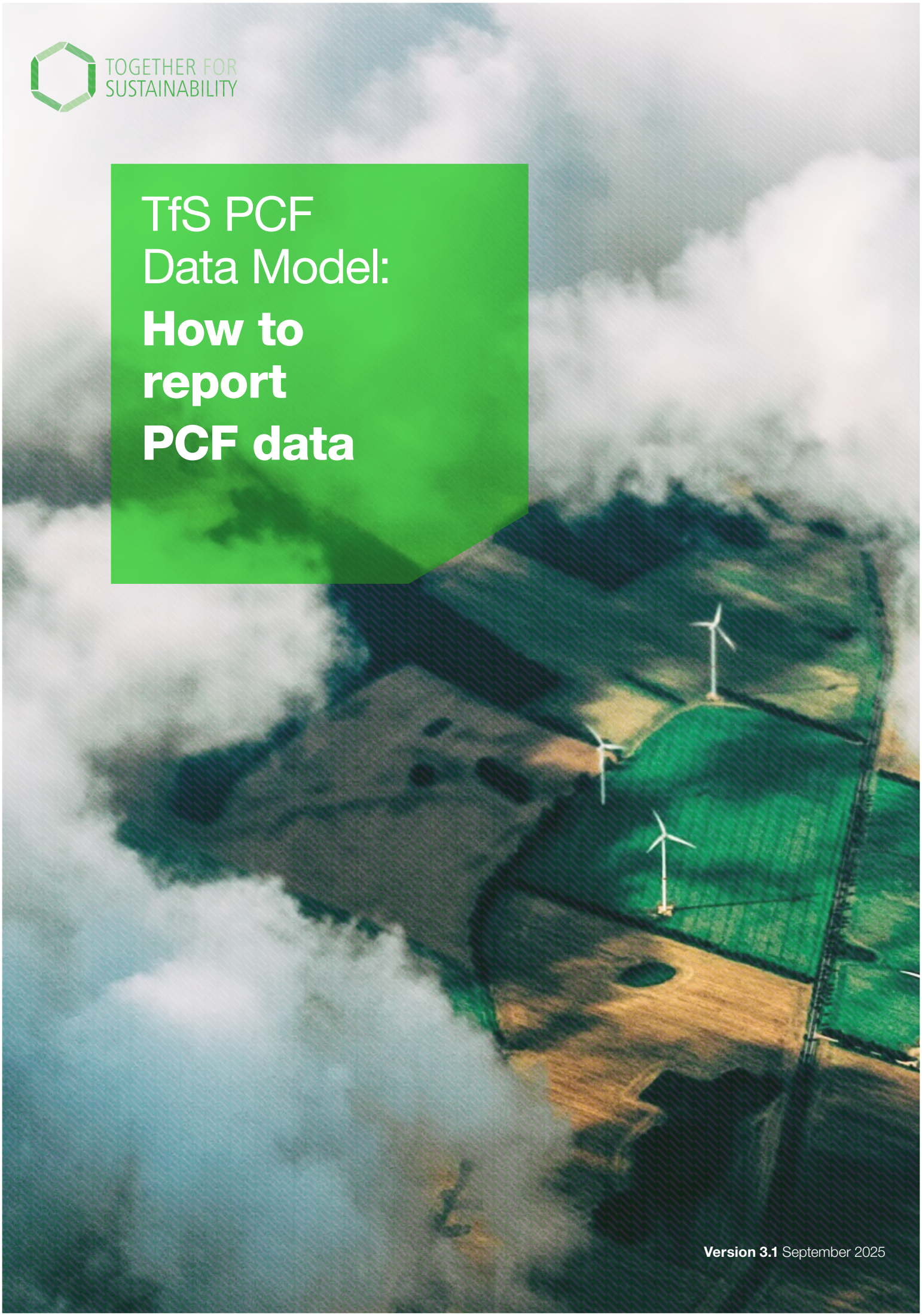
TOGETHER FOR SUSTAINABILITY

TfS PCF Data Model: **How to report PCF data**



Version 3.1 September 2025

Introduction

This document describes the data aspect model according to which PCF data shall be exchanged compliant to the Product Carbon Footprint Guideline for the Chemical Industry of Together for Sustainability. It supersedes the previous data model version v3.0.

The purpose of the TfS PCF Data Model is to specify information requirements to be provided by suppliers alongside PCF values and to facilitate System Integration of the PCF Data Exchange platform of TfS (read the press release). Additional information besides the PCF value is needed to support the interpretation and verification of PCF data, as well as to provide necessary information for quantification of customer PCFs further down the value chain. In this context it should be mentioned that the PCF covers one environmental impact and no overall statements on the environmental performance of the product can be given. Comparisons of PCF are only possible under certain criteria if all relevant information is reported.

The TfS PCF Data Model is outlined in the table below and is structured as follows:

- **Headlines**: conventional denomination of the key sections of the data aspect model.
- **Field Labels**: conventional denomination of the data fields of the data aspect model.
- **Technical Field Names**: technical name adopted in the PCF Data Exchange Platform of TfS.
- **Mandatory, Optional, Default**: characterization of the data field indicating whether it's defined as mandatory (M) or optional (O) for a compliant PCF data exchange. Default (D) indicated that the data field will be defaulted to a given value in the technical data exchange tool (e.g., the PCF Data Exchange Platform of TfS). If a data field is defined as mandatory starting form a given year (202X), the nomenclature M202X[1] is used. Required under Condition (R) indicates a data field which is mandatory only upon fulfillment of a certain condition as outlined in the Functional Description.
- **Type**: characterization of the typology of data required for a compliant PCF data exchange (e.g., string, value).
- **Functional Description**: brief description of the data field, with respective purpose, requirements, relationship to other data fields as well as to other guidelines, standards and initiatives.
- **Technical specification**: additional technical description for a compliant formatting and of the data field.
- **Value List/Default Value**: applicable list of values or default value applicable in the data field for a compliant PCF data exchange.
- **Sample Values**: example of data field values with compliant formatting.

An additional API technical description document for a PCF data exchange with the PCF Data Exchange Platform of TfS according to this TfS PCF Data Model will be published separately.

1 M202X means that the technical implementation in a data exchange solution shall be mandatory by the start of year 202X at the latest. Additionally, the reporting of the data field through the data provider (product supplier) shall be mandatory by the end of year 202X at the latest.

tfs-initiative.com/scope-3-ghg-emissions

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
1	**Scope of PCF Form**							
2	Data model and version	specVersion	M	string array (According URN:FPI: name and version of data model)	Specification of the PCF format/data model, which is used. The required data input fields will be tailored accordingly. Multiple entries are possible. The data model and version can be selected independently of the standard or guidance document, you followed during the assessment of the PCF.	The version of the specification, for the given reporting standard. (can be autofilled by application)		urn:tfs-initiative.com: datamodel-version:3.1.0
3	Partial or a full PCF declaration	partialFullPcf	D	string (dropdown)	A partial PCF (cradle-to-gate) is covering the emissions from resource extraction until the product leaves the gate of your organization (optionally including the distribution stage). A full PCF (cradle-to-grave) is covering the complete life cycle of the product from resource extraction all the way to end-of-life stage.	cradle-to-gate selected as default value for TfS.	cradle-to-gate; cradle-to-grave	cradle-to-gate
4	**Company and Product Information**							
5	**Company Information**							
6	Company name	companyName	M	string	State the (legal) name of the company supplying the product and reporting the PCF (data owner).	The name of the company that is the Product Footprint Data Owner, with a value that is a non-empty String.		MyCompany
7	Company IDs	companyIds	M	string array (According URN: FPI as defined by TfS and WBCSD)	Company identifier according to the sharing scheme you are reporting in.	A non-empty set of CompanyIds. Each value of this set is supposed to uniquely identify the ProductFootprint Data Owner. Each entry should be according URN:FPI including domain name of the organization issuing the identifier, the entity and identifier-type and the identifier.		urn:fpi: www.myCompany.com: org-id:401765[1], urn:fpi:www.myCompany.com:suborg-id:401765-DE, urn:fpi:www.BusinessPartner-Company.com:org-id:ABCD1234, urn:fpi:duns.dnb.com:duns-number:12-345-6789, urn:fpi: www.bzst.de:VAT-number:DE99999999
8	**Product information**							
9	Product name	productNameCompany	M	string	State the name of the product in order for it to be recognizable by the receiver of the PCF information.	The non-empty trade name of the product.		Green Ethanol
10	Product identifiers	productIds	M	string array (According URN: FPI as defined by TfS and WBCSD)	A set of several relevant product identifiers can be provided including e.g. supplier part number, GTIN, article number, manufacturerPartID, customerPartID, GTIN, ISPN-number or any product specific identifier.	A non-empty set of Product Ids. Each of the values in the set is supposed to uniquely identify the product. What constitutes a suitable product identifier depends on the product, the con-ventions, contracts, and agreements between the Data Owner and a Data Recipient and is out of the scope of this specification. Each entry should be according URN: including main domain name of the organization issuing the identifier, the entity and identifier-type and the identifier.		urn:fpi:mycompany.com: product-id:401765, urn:fpi:mysupplier.com: SupplierComponent-id:ABCD1234, urn:fpi:registry.cas.org:cas-number:71-43-2

1 The term “myCompany.com” is used as a placeholder to represent the actual company domain.

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
11	Product classifications	productClassifications	O	string array (According URN as defined by TfS and WBCSD)	A list of classification or category identifiers in URN format. Use well known urn's here, or adhere to recommended urn:pact: format. For example UN CPC, CAS Number, CN-Code etc. For communication use URN fromat (e.g. urn:gtin:4712345060507)	Each entry should be according URN:FPI including domain name of the organization issuing the classification, the entity and classification system-type and the class/identifier.		urn:registry.cas.org:cas-number:64-17-5 urn:iso:std:iso:4217
12	Product description	productDescription	O	string	A brief description of the product (for example functions and technical parameters).	The free-form description of the product and other information related to it such as production technology or packaging.		Ethanol, 95% solution
13	Declared unit	declaredUnitOfMeasurement	M	string (dropdown; Unit ISOCODE + "piece")	The declared unit serves as reference to which the inputs and outputs in the PCF calculation are related (e.g. kg of product, piece of component, MJ electrical energy).	The unit of analysis of the product. See Data Type Declared Unit for further information.	piece; kilogram; liter; cubic meter; kilowatt hour; megajoule; ton kilometer; square meter; hour; megabit second	kilogram
14	Quantity (of declared unit)	declaredUnitAmount	M	decimal	The quantity (amount) of the declared unit as numerical value to which the PCF is referring to.	The amount of Declared Units contained within the product to which the PCF is referring to. The value MUST be strictly greater than 0.		1
15	Product mass [kg] per declared unit amount	productMassPerDeclaredUnit	M	decimal	The mass of the product per declared unit amount (e.g., the declared unit of a circuitboard is one piece; one piece represents 0.123 kg). Product mass excluding packaging.	This is required, especially if piece is selected.		0.123 kg
16	**PCF assessment & methodology**							
17	**PCF assessment information**							
18	**ID & version**							
19	PCF ID	Id	M	string (According UUID v4)	This ID is used to identify a specific PCF. In case of update a new PCF ID is required. It is automatically generated.	Automatically generated number (UUID). The product footprint identifier has to be a global unique value. In case of manually entry it can be generated by applications like www.uuidgenerator.net/version4		550e8400-e29b-11d4-a716-446655440000
20	Previous PCF IDs	precedingPfIds	O	string array (According UUID v4)		If defined, MUST be non-empty set of preceding product footprint identifiers (UUIDs).		[550e8400-e29b-11d4-a716-446655440000]
21	PCF version	version	D	value (integer; 0..2^31-1)	The PCF version is a pathfinder specific number, which is not used by TfS.	The version of the Product Carbon Footprint. Default for TfS is 1.	Default:“1”	1
22	PCF status	status	D	string (dropdown)	The PCF status is a pathfinder specific attribute, which is not used by TfS.	If defined, the value must be one of the following values: Active.	Active (Default); Deprecated	Active
23	**Boundary specifications**							
24	Cut-off rule	exemptedEmissionsPercent	M	decimal (Range 0-10)	Applied cut-off criteria in percent of total emissions. This specifies which percentage of emissions were excluded from the PCF in total, in order to reduce efforts in data collection of irrelevant processes.	Value has to be between 0 and 10.		3
25	Exemption rules: explanation	exemptedEmissionsDescription	O	string	Rationale behind exclusion of specific PCF emissions. Potential Cut-offs are defined in the TfS PCF Guideline.	Free Text field.		Criteria to exclude certain activities (Cut-off) according TfS guideline.
26	**Technology**							

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
27	Important unit processes and used technologies	boundary ProcessesDescription	O	string	Brief description of the significantly contributing manufacturing steps of the product (including general description of used technologies).	The processes attributable to each lifecycle stage. Example text value: Electricity consumption included as an input in the production phase.		Hydrogen liquid chlor-alkali electrolysis
28	Type of recycled content	typeRecycledContent	O	string (dropdown)	Choose the type of recycled content.	Selected value according value list.	post-industrial; post-consumer	post-consumer
29	CCU CO_2-origin	ccuCo2Origin	O	string	Source from where CO_2 is captured (e.g. DAC/ direct air capture or source ammonia plant).	Text field. Leave empty or enter “not-applicable” in case field is not relevant.		not-applicable
30	CCS/BECCS applied	ccsTechnologicalCO2 CaptureIncluded	M	boolean	Declare if CCS/BECCS (incl. geological storage) technology has been employed. BECCS stands for Bioenergy with Carbon Capture and Storage.	Boolean value. TRUE in case of CCS/ BECCS technology applied.	True; False	False
31	**Geography**							
32	City/state as country subdivision	geographyCountrySubdivision	O	string (ISO 3166-2 Subdivision Code)	The location of factory gate(s) refers to the last manufacturing step. It is the location where the product is produced. State the country subdivision as subdivision code according to ISO 3166-2 (example: Germany, Bavaria = DE-BY); https:// www.iso.org/glossary-for-iso-3166.htmlw	If present, the value MUST conform to data type RegionOrSubregion. See § 4.2.1 Scope of a CarbonFootprint for further details. Additionally, see the Pathfinder Framework Section 6.1.2.2.	Value List according ISO 3166	DE-BY
33	Geography country	geographyCountry	O	string (ISO 3166-2 alpha-2 country code)	The location of factory gate(s) refers to the last manufacturing step. It is the location where the product is produced. State the country as country code according to ISO 3166-1 alpha-2 (example: US:=United States, FR:=-France); https://www.iso.org/glossary-for-iso-3166.html	“If present, the value MUST conform to data type ISO3166CC. See § 4.2.1 Scope of a CarbonFootprint for further details. Example value in case the geographic scope is France”.	Value List according ISO 3166	DE
34	Geography with region or subregion	geographyRegionOrSubregion	M	string (dropdown)	Region of the supplier production site according to ISO 3166 (Example: “Global”, “Europe”, “Eastern Europe”).		Africa; Americas; Asia; Europe; Oceania; Australia and New Zealand; Central Asia; Eastern Asia; Eastern Europe; Latin America and the Caribbean; Melanesia; Micronesia; Northern Africa; Northern America; Northern Europe; Polynesia; South-eastern Asia; Southern Asia; Southern Europe; Sub-Saharan Africa; Western Asia; Western Europe; Global	Europe
35	**Time**							
36	Reference period start	referencePeriodStart	M	DateTime (ISO 8601; UTC Timezone)	Start of time period of data collection for primary data sources (this does not refer to publication dates of secondary data).			2021-11-20T08:30:00.000Z
37	Reference period end	referencePeriodEnd	M	DateTime (ISO 8601; UTC Timezone)	End of time period of data collection for primary data sources.			2022-11-20T08:30:00.000Z
38	Date of issue	created	M	DateTime (ISO 8601; UTC Timezone)	The time stamp at which the PCF has been declared, independently of when or if it has been shared. This represents the validity period start unless specified separately.			2023-11-20T08:30:00.000Z

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
39	Validity period start	validityPeriodStart	O	DateTime (ISO 8601; UTC Timezone)				2022-11-20T08:30:00.000Z
40	Validity period end	validityPeriodEnd	M	DateTime (ISO 8601; UTC Timezone)	Time stamp declaring the expected end of the use period for this declaration or date of expected update (i.e. when does the data validity period end?).	Resolving attribute: 3 years after "reference period (maximum 3 years) end"		2025-11-20T08:30:00.000Z
41	**PCF Methodology**							
42	**Standards**							
43	Cross-sectoral standards applied	crossSectoralStandards	M	string array (dropdown)	Standards the PCF calculation is based on (multiple entries are possible). Please note: the PCF can be calculated according to another standard than the standards which defines the communication format.	List of selected standard. Can be multiselect.	ISO 14067; Pathfinder v1; Pathfinder v2; Pathfinder v3; GHG Protocol Product; PAS 2050; ISO 14040-44; PEF; Other	ISO 14067
44	Product or sector rules	productOrSectorSpecificRules	M	string array (dropdown & free text)	Name the most specific rule (Sector specific guidance frameworks, such as Product Category Rules (PCR), are sets of rules how to calculate and document Life Cycle Assessments. They provide product category specific guidance and enhance comparability between assessments of the different suppliers for the same category (sector). The same applies to Product Environmental Footprint Category Rules (PEFCR)).	Dropdown of predefined values and option to enter a free text of applied sector rules should be TfS PCF Guideline V3.0. Other values are for example Catena-X Rulebook; EN 50693; EN 15804; BPX 30-323; Not specified.	Default: TfS PCF Guideline V 3.0	"TfS PCF Guideline V3.0, Catena-X Rulebook"
45	**GWP characterization factor details**							GWP characterization factor details
46	IPCC report version of GWP values	characterizationFactors	M	string (dropdown)	The IPCC (Intergovernmental Panel of Climate change) frequently releases (GWP) global warming potential values for climate gases related to CO_2. These GWP values are released in Assessment Reports (AR), which are numbered. The AR number can be used to track the age and accuracy of the GWP values used in reporting.	Resolving attribute AR6. Prefilled, but changeable updated and including carbon feedback	AR1; AR2; AR3; AR4; AR5; AR6; unspecified	AR6
47	**Allocation in foreground (own processes)**							Allocation in foreground (own processes)
48	Allocation rules used	allocationRulesDescription	O	string	Describe the allocation rules applied to your foreground data (e.g., physical, economic allocation).			mass allocation
49	Allocation approach used for waste incineration with energy recovery	allocationWasteIncineration	M	string (dropdown)	Material recycling and waste treatment with energy recovery are considered separate and not equal. Incineration is the least favorable solution because it is a final disposal. One of the three allocation approaches shall be followed: Cut-off approach also known as recycled content approach; Reverse Cut-off approach also known as waste allocation; System expansion & substitution. Declare which approach was applied.		cut-off; reverse cut-off; system expansion; not-applicable	reverse cut-off
50	Calculation approach for material recycling	allocationRecycledCarbon	M	string (dropdown)	Declare which approach for material recycling has been applied. Possible options: not-applicable/ empty, cut-off, cut-off plus, Upstream system expansion (USE). Refer to Pages 74-75 of TfS PCF Guideline v3.		upstream system expansion; cut-off	cut-off
51	Calculation Approach used for CCU	ccuCalculationApproach	M	string (dropdown)	Declare which approach for CCU has been applied. Possible options: not-applicable/empty; cut-off method; credit method.	Dropdown list with predefined values and the option to add custom entries through free text input.	not-applicable; cut-off method; credit method	not-applicable

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
52	TfS PCR used	tfsPositivelistPcrUsed	O	string (dropdown & free text)	Optionally declare if and which PCR has been used from the positive list for PCR of TfS for allocation.		Refer to https://www.tfs-initiative.com/app/uploads/2024/11/List-of-accepted-PCR-by-TfS.pdf	PCR steam cracker (Plastics EU)
53	SystemExpansion & Substitution used	systemexpansion PositivelistUsed	O	string (dropdown & free text)	Optionally declare if and which system expansion and substitution has been used form the positive list for sytem expansion and substitution of TfS.		Refer to https://www.tfs-initiative.com/app/uploads/2024/11/List-of-substitued-products-Multi-output-TfS.pdf	not used
54	**Mass balancing Information**							
55	Mass Balancing used	massBalancingUsed	M	boolean	Declare, if Mass Balancing is used; If mass balancing (credit method) is used, select "true". If rolling average (equal distribution of different inputs among outputs) is used, select "false". If both is used, select "true".	Boolean value. TRUE in case of Mass Balancing applied	True; False	True
56	Free attribution in mass balancing	freeAttributionInMassBalancing	R	boolean	True/False; Apply mandatorily only if in “Mass Balancing used” the option “True” has been selected.	Required, if massBalancingUsed = TRUE	True; False	True
57	Mass-Balance Calculation approach	massBalancingCalculation Approach	R	string (dropdown)	“Conventional reference”/“Inventory”/“Both Conventional reference & Inventory”; apply mandatorily only if in “Mass Balancing used” the option "True" has been selected.	Required, if massBalancingUsed = TRUE	Conventional reference; Inventory; both Conventional reference & Inventory	Inventory
58	Mass Balancing Certificate Scheme	massBalancing CertificateScheme	R	string	Declare which certification scheme has been used for mass balancing. Apply mandatorily only if in “Mass Balancing used” the option “True” has been selected.	Required, if massBalancingUsed = TRUE	REDcert2; ISCC+	ISCC+
59	**Credit Information**							
60	CCU Credit Certificate Scheme	ccuCreditCertificateScheme	R	string	Declare which cerification scheme has been used for CCU credit method. Apply mandatorily only if in "Calculation Approach used for CCU" the option "credit method" has been selected.	Required, if ccuCalculationApproach = “credit method”		not-applicable
61	CCS capturing	ccsTechnologicalCO2Capture	O	decimal (Unit kg CO_2 e/declared unit)	Declare CO_2/kg captured and stored. Apply optionally only if in “CCS/BECCS applied” the option “true” has been selected.			0.0
62	USE Credit	useCredit	R	decimal (Unit kg CO_2 e/declared unit)	Declare the CO_2/kg amount of the Upstream System Expansion (USE) credit. Apply mandatorily only If in “Calculation approach for material recycling” the option “Upstream System Expansion (USE)” has been selected.	Required, if allocationRecycledCarbon = “Upstream System Expansion (USE)”		0.0
63	USE Credit Certificate Scheme	useCreditCertificateScheme	R	string	Declare which certification scheme has been used for Upstream System Expansion (USE). Apply mandatorily only If in “Calculation approach for material recycling” the option “Upstream System Expansion (USE)” has been selected.	Required, if allocationRecycledCarbon = “Upstream System Expansion (USE)”		not-applicable
64	**Data Sources and Quality**							
65	Primary Data Share (PDS)	primaryDataShare	M 2027	decimal (Range 0-100)	Share of primary data in the final PCF.			80
66	Secondary data source and version	secondaryEmission FactorSources	M	string	Which secondary data sources and versions have been used by you or by suppliers (e.g. data bases such as ecoinvent)?			ecoinvent v3.8
67	Technological representativeness	technologicalDQR	M 2027	decimal (Range 1-5)	The degree to which the data reflects the actual technology(ies) used. Refer to Table 5.14 in chapter 5.2.11.2 of v3.0 of TfS PCF Guideline for the rating (1-5).	Value has to be between 1 and 5. Fractions are allowed.		2.1

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
68	Temporal representativeness	temporalDQR	M 2027	decimal (Range 1-5)	The degree to which the reference period is for the data set is close to the issue date. Refer to Table 5.16 in chapter 5.2.11.2 of v3.0 of TfS PCF Guideline for the rating (1-5).	Value has to be between 1 and 5. Fractions are allowed.		2.1
69	Geographical representativeness	geographicalDQR	M 2027	value (Decimal; 1-5)	Geographical representativeness. The degree to which the data reflects the actual geographic location of the manufacturing process. processes within the inventory boundary (e.g., country or region). Refer to Table 5.15 in chapter 5.2.11.2 of v3.0 of TfS PCF Guideline for the rating (1-5).	Value has to be between 1 and 5. Fractions are allowed.		1.4
70	**Verification and Ceritification shares**							
71	PCS	programCertificationShare	O	decimal (Range 0-100)	PCF Program Certification Share (PCS) indicates the share of the PCF result which was calculated by PCF program certified suppliers.			50.5
72	3PVS	productVerificationShare3rd-Party	O	decimal (Range 0-100)	Third-party Product Verification Share (3PVS) represents the share of the PCF result which is based on verified data from an independent third party verifier.			0.0
73	2PVS	productVerificationShare2nd-Party	O	decimal (Range 0-100)	Second-party Product Verification Share (2PVS) represents the share of the PCF result which is based on verified data from a second party verifier.			50.5
74	1PVS	productVerificationShare1st-Party	O	decimal (Range 0-100)	First-party Product Verification Share (1PVS) represents the share of the PCF result which is based on verified data from a first party verifier.			50.5
75	**General**							
76	Comment	comment	O	string	Comment/Document of anything relevant for the receiving party or your own company, necessary to understand the representativeness of this PCF for his/her application. This free text may contain any non-confidential information, which can't be documented in the attributes with specific purpose of this PCF documentation above.			
77	Legal Statement	pcfLegalStatement	O	string	In case your organization defined certain legal conditions which apply to the publication of this PCF, you can state the legal disclaimer in here. The text might include an URL link to the legal disclaimer of the PCF provider.			The provided PCF data does not imply any warranties.
78	**Attestation of Conformance**	**attestationOfConformance**	**O**	**(object array)**		object array		
79	Attestation type	AttestationType	R	string (dropdown & free text)	Attestation type, which defines the type and level of trust conveyed by this attestation of conformance (PCF Program certification; PCF 3rd party verification ; PCF 2nd party verification; PCF 1st party verification; ...)	open value list	"PCF Program certification; PCF 3rd party verification; PCF 2nd party verification; PCF 1st party verification; Mass balance certificate"	PCF Program Certification

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
80	Conformant with cross-sectoral standards or product or sector rules or mass balance standard	standardName	R	string array (value list & free text)	The specific cross-sectoral standards or product or sector rules (PCRs) on which the attestation of conformance is based.	open value list	"TfS Guideline V1.0; TfS Guideline V2.0; TfS Guideline V3.0; Catena-X Rulebook V1; Catena-X Rulebook V2; Catena-X Rulebook V3; Catena-X Rulebook V4; World Steel LCIA methodology report; International Aluminium Good Practice Guidance PCF v2.0; European Aluminium Methodological Guidance Rev. 8"	Catena-X Product Carbon Footprint Rulebook v4
81	Attestation scheme standard	attestationStandard	R	string array (value list & free text)	e.g. PCF Verification and PCF Program Certification Framework.	open value list	PCF Verification and PCF Program Certification Framework V2	PCF Verification and PCF Program Certification Framework V2
82	Attestation ID	attestationOfConformanceId	R	string array (free text)	e.g. unique number of the certificate or verification statement used for tracking and referencing, use UUID v4 if ID is newly generated.			4a7c4482-8431-4c31-a895-70341d2a1376
83	Link to attestation	attestationOfConformanceLink	R	string	A link leading to the declaration of conformance, allowing for a manual option to verify the validity and authenticity of the declaration.	link to document on website		www.Certifierrepository_example.com/Certificate123456
84	Issuer of attestation	providerName	R	string	Name of the issuing certifier's or verifier's legal entity.	for 3rd party PCF verification and PCF program certification only		TÜV X Germany
85	Issuer of attestation ID	providerID	R	string array (free text)	A unique identifier for the entity issuing the declaration, such as a Business Partner Number (BPN) or other official registration number, issued by the appointing organization or accreditation institute.			BPNL0000000A0IVV
86	Date of attestation	completedAt	R	DateTime (ISO 8601; UTC Timezone)	Time stamp for when the attestation of conformity was issued.			2022-11-20T08:30:00.000Z
87	**Product Life Cycle Stages and Emissions**							
88	**Production Stage**	productionStage			**This lifecycle stage is intended to cover "cradle-to-gate" (gate of the producer) system boundary.** The emissions of the packaging shall be included in the "Production Stage" if the "packagingEmissionsIncluded" has been set to "True".			
89	GWP total incl. bio. uptake	pcfIncludingBiogenicUptake	M	decimal (Unit kg CO_2 e/declared unit)	**Position T1= = A+B**(negative contribution)**+C+D**(negative contribution)**+E+F+G**(negative contribution)**+H** [note: letters are coded below]			0.49 kg CO_2 e/kg
90	GWP total excl. bio. uptake	pcfExcludingBiogenicUptake	M	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position T2= = A+B**(negative contribution)**+C+E+F+G**(negative contribution)**+H** [note: letters are coded below]	Has to be >=0. Combined group and field name as used in API: productionStage. pcfExcludingBiogenic		2.8 kg CO_2 e/kg

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
91	GWP fossil	fossilGhgEmissions	M2027	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position A:** includes all fossil emissions, including industrial processes, stationary/mobile combustion and fugitive emissions. This position includes the fossil emissions associated to land management (A1: "GWP fossil land management").			2.2 kg CO_2 e/kg
92	GWP Removals (BECCS)	TechnologicalCO2Removals	R	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position B (negative contribution):** carbon capture and geologic storage of CO_2 emissions and counting as removal (e.g. technology capture of biogenic CO_2 emissions / BECCS - refer to PACT v3.0). Apply mandatorily only if in "CCS/ BECCS applied" the option "True" has been selected, AND only if the case of "removal" (e.g. BECCS) applies. If it's a fossil CO_2 CCS (i.e. not to be considered as removal), the field should be declared as "0".			0.0 kg CO_2 e/kg
93	GWP fossil land management	landManagementFossilGhg Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position A1:** fossil emissions occurring in land management activities. This is a detail, which must be included in the total position A "GWP fossil". It encompasses emissions as described in PACT v3.0: N_2O emissions from fertilizers; fossil CO_2 emissions from soil management; CO_2 emissions from soil amendments (such as lime, urea and other inputs); land management production emissions (including CO_2 emissions from on-site machinery, and emissions from manufacturing of production inputs such as fertilizers and chemical inputs,); hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) emissions from air-conditioning and refrigerant use; emissions from on-site waste or wastewater management; indirect emissions from purchased energy associated with land management production activities.	detail of GWP fossil		0.0 kg CO_2 e/kg
94	GWP biogenic emissions other than CO_2	biogenicNonCO2Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position C:** non-CO_2 biogenic emissions related to agricultural activities. It encompasses emissions as described in PACT v3.0: CH_4 emissions from livestock and manure; CH_4 emissions from biomass burning and fires; CH_4 emissions from rice production; CH_4 emissions from transformation and degradation (e.g., combustion, digestion, composting, landfilling). It must be noted that N_2O from land management activities are not included in this position and are reported in position A and A1 (as a detail).		Default "ext"	0.4 kg CO_2 e/kg
95	GWP biogenic CO_2-uptake (biogenic CO_2 contained in the product)	biogenicCO2Uptake	R	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position D (negative contribution):** biogenic CO_2 uptake in the product. It can be attributed by means of Mass Balancing: in such a case the "Mass Balancing used" must be set to "True". Apply mandatorily if in "Biogenic Carbon Content" a non-"0" has been selected.	Required, if Biogenic Carbon Content is specified.		-2.31 kg CO_2 e/kg
96	GWP land use change (LUC, excluding iLUC)	landUseChangeGhgEmissions	M 2027	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position E:** Emissions from LUC constitute a release of GHG emissions due to a change in land use from one land use category or subcategory to another, such as primary forest to agricultural land, or peat land (type of wetland) to cropland. This position encompasses dLUC (direct land use change) emissions. If that data is not available, companies should account for LUC using statistical land-use change (sLUC) emissions. iLUC emissions are excluded. Refer to PACT v3.0 for details.			0.2 kg CO_2 e/kg

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
97	GWP Land Management CO_2 Emissions	landManagement BiogenicCO2Emissions	M 2027	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position F:** carbon stock losses occurring within the same land use category or subcategory due to agricultural practices such as tillage, field preparations, pruning and harvest. Land Management CO_2 emissions measures biogenic CO_2 emissions from a net loss in carbon stock within one land use category or subcategory. This includes impact on the land-carbon pools,including above- and below-ground biomass, dead organic matter, and soil carbon pools. If the carbon stock increases within the same land use category and the conditions to report removals are met, this may be calculated as a land management CO_2 removal (position G). Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg
98	GWP Land Management CO_2 Removals	landManagement BiogenicCO2Removals	O	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position G (negative contribution):** Land management removals are net CO_2 removals resulting from net increases to carbon stored in land-based carbon pools (biomass, dead organic matter and soil carbon pools) due to ongoing land management practices. This extra net carbon stock is gained over the crop rotation or crop cultivation cycle (e.g., multiple years for perennial crops and multiple years in a rotation that includes annual crops). Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg
99	GWP Aviation emissions (cradle-to-gate)	aircraftGhgEmissions	M	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position H:** Aviation emissions which have occurred in distribution stages cradle-to-gate (if applicable).			0.0 kg CO_2 e/kg
100	**Packaging Stage**	packaging			The "Packaging stage" fields allow to provide details on the GWP contribution of the packaging; however, the impact of packaging shall be included in the Production stage.			
101	Packaging emissions included	packagingEmissionsIncluded	M	boolean	The value 'true' shall be selected, if emissions related to the preparation and packaging of your products are included.	In the API this field is outside the Group "packing" and specifies in case of TRUE to include the group "packaging"	True; False	True
102	GWP total incl. bio. uptake	packagingPcfIncluding BiogenicUptake	O	decimal (Unit kg CO_2 e/declared unit)	**Position T1= = A+B**(negative contribution)**+C+D**(negative contribution)**+E+F+G**(negative contribution)**+H** [note: letters are coded below]	kg CO_2 e/declared unit	Default "0 kg CO_2 e"	0.2 kg CO_2 e/kg
103	GWP total excl. bio. uptake	packagingPcfExcluding BiogenicUptake	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position T2= = A+B**(negative contribution)**+C+E+F+G**(negative contribution)**+H** [note: letters are coded below]			0.2 kg CO_2 e/kg
104	GWP fossil	packagingFossilGhgEmissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position A:** includes all fossil emissions, including industrial processes, stationary/mobile combustion and fugitive emissions. This position includes the fossil emissions associated to land management (A1: "GWP fossil land management").			0.2 kg CO_2 e/kg
105	GWP Removals (BECCS)	packaging TechnologicalCO2Removals	O	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position B (negative contribution):** carbon capture and geologic storage of CO_2 emissions and counting as removal (e.g. technology capture of biogenic CO_2 emissions / BECCS - refer to PACT v3.0). Apply mandatorily only if in "CCS/ BECCS applied" the option "True" has been selected, AND only if the case of "removal" (e.g. BECCS) applies. If it's not a removal, the field should be declared as "0".			0.0 kg CO_2 e/kg

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
106	GWP fossil land management	packagingLandManagement FossilGhgEmissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position A1:** fossil emissions occurring in land management activities. This is a detail, which must be included in the total position A "GWP fossil". It encompasses emissions as described in PACT v3.0: N_2O emissions from fertilizers; fossil CO_2 emissions from soil management; CO_2 emissions from soil amendments (such as lime, urea and other inputs); land management production emissions (including CO_2 emissions from on-site machinery, and emissions from manufacturing of production inputs such as fertilizers and chemical inputs,); hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) emissions from air-conditioning and refrigerant use; emissions from on-site waste or wastewater management; indirect emissions from purchased energy associated with land management production activities.			0.0 kg CO_2 e/kg
107	GWP biogenic emissions other than CO_2	packagingBiogenicNonCO2 Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position C:** non-CO_2 biogenic emissions related to agricultural activities. It encompasses emissions as described in PACT v3.0: CH_4 emissions from livestock and manure; CH_4 emissions from biomass burning and fires; CH_4 emissions from rice production; CH_4 emissions from transformation and degradation (e.g., combustion, digestion, composting, landfilling). It must be noted that N_2O from land management activities are not included in this position and are reported in position A and A1 (as a detail).			0.0 kg CO_2 e/kg
108	GWP biogenic CO_2-uptake (biogenic CO_2 contained in the product)	packagingBiogenicCO2Uptake	O	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position D (negative contribution):** biogenic CO_2 uptake in the product. It can be attributed by means of Mass Balancing: in such a case the "Mass Balancing used" must be set to "True". Apply mandatorily if in "Biogenic Carbon Content" a non-"0" has been selected.			0.0 kg CO_2 e/kg
109	GWP land use change (LUC, excluding iLUC)	packagingLandUseChange GhgEmissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position E:** Emissions from LUC constitute a release of GHG emissions due to a change in land use from one land use category or subcategory to another, such as primary forest to agricultural land, or peat land (type of wetland) to cropland. This position encompasses dLUC (direct land use change) emissions. If that data is not available, companies should account for LUC using statistical land-use change (sLUC) emissions. iLUC emissions are excluded. Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg
110	GWP Land Management CO_2 Emissions	packagingLandManagement BiogenicCO2Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position F:** carbon stock losses occurring within the same land use category or subcategory due to agricultural practices such as tillage, field preparations, pruning and harvest. Land Management CO_2 emissions measures biogenic CO_2 emissions from a net loss in carbon stock within one land use category or subcategory. This includes impact on the land-carbon pools, including above- and below-ground biomass, dead organic matter, and soil carbon pools. If the carbon stock increases within the same land use category and the conditions to report removals are met, this may be calculated as a Land management CO_2 removal (position G). Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
111	GWP Land Management CO_2 Removals	packagingLandManagement BiogenicCO2Removals	O	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position G (negative contribution):** Land management removals are net CO_2 removals resulting from net increases to carbon stored in land-based carbon pools (biomass, dead organic matter and soil carbon pools) due to ongoing land management practices. This extra net carbon stock is gained over the crop rotation or crop cultivation cycle (e.g., multiple years for perennial crops and multiple years in a rotation that includes annual crops). Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg
112	GWP Aviation emissions (cradle-to-gate)	packagingAircraftGhg Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position H:** Aviation emissions which have occurred in distribution stages cradle-to-gate (if applicable).			0.0 kg CO_2 e/kg
113	**Distribution Stage**	distributionStage			outbound logistics			
114	GWP total incl. bio. uptake	distributionStagePcf IncludingBiogenicUptake	O	decimal (Unit kg CO_2 e/declared unit)	**Position T1=** **= A+B**(negative contribution)**+C+D**(negative contribution)**+E+F+G**(negative contribution)**+H** [note: letters are coded below]			0.15 kg CO_2 e/kg
115	GWP total excl. bio. uptake	distributionStagePcf ExcludingBiogenicUptake	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position T2=** **= A+B**(negative contribution)**+C+E+F+G**(negative contribution)**+H** [note: letters are coded below]			0.15 kg CO_2 e/kg
116	GWP fossil	distributionStageFossilGhg Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position A:** includes all fossil emissions, including industrial processes, stationary/mobile combustion and fugitive emissions. This position includes the fossil emissions associated to land management (A1: "GWP fossil land management").			0.15 kg CO_2 e/kg
117	GWP Removals (BECCS)	distributionStageTechnological CO2Removals	O	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position B (negative contribution):** carbon capture and geologic storage of CO_2 emissions and counting as removal (e.g. technology capture of biogenic CO_2 emissions / BECCS - refer to PACT v3.0). Apply mandatorily only if in "CCS/ BECCS applied" the option "True" has been selected, AND only if the case of "removal" (e.g. BECCS) applies. If it's not a removal, the field should be declared as "0".			0.0 kg CO_2 e/kg
118	GWP fossil land management	distributionStageLand ManagementFossilGhg Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position A1:** fossil emissions occurring in land management activities. This is a detail, which must be included in the total position A "GWP fossil". It encompasses emissions as described in PACT v3.0: N_2O emissions from fertilizers; fossil CO_2 emissions from soil management; CO_2 emissions from soil amendments (such as lime, urea and other inputs); land management production emissions (including CO_2 emissions from on-site machinery, and emissions from manufacturing of production inputs such as fertilizers and chemical inputs,); hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) emissions from air-conditioning and refrigerant use; emissions from on-site waste or wastewater management; indirect emissions from purchased energy associated with land management production activities.			0.0 kg CO_2 e/kg

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
119	GWP biogenic emissions other than CO_2	distributionStageBiogenic NonCO2Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position C:** non-CO_2 biogenic emissions related to agricultural activities. It encompasses emissions as described in PACT v3.0: CH_4 emissions from livestock and manure; CH_4 emissions from biomass burning and fires; CH_4 emissions from rice production; CH_4 emissions from transformation and degradation (e.g., combustion, digestion, composting, landfilling). It must be noted that N_2O from land management activities are not included in this position and are reported in position A and A1 (as a detail).			0.0 kg CO_2 e/kg
120	GWP biogenic CO_2-uptake (biogenic CO_2 contained in the product)	distributionStageBiogenic-CO2Uptake	O	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position D (negative contribution):** biogenic CO_2 uptake in the product. It can be attributed by means of Mass Balancing: in such a case the "Mass Balancing used" must be set to "True". Apply mandatorily if in "Biogenic Carbon Content" a non-"0" has been selected.			0.0 kg CO_2 e/kg
121	GWP land use change (LUC, excluding iLUC)	distributionStageLand UseChangeGhgEmissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position E:** Emissions from LUC constitute a release of GHG emissions due to a change in land use from one land use category or subcategory to another, such as primary forest to agricultural land, or peat land (type of wetland) to cropland. This position encompasses dLUC (direct land use change) emissions. If that data is not available, companies should account for LUC using statistical land-use change (sLUC) emissions. iLUC emissions are excluded. Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg
122	GWP Land Management CO_2 Emissions	distributionStageLand ManagementBiogenicCO2 Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position F:** carbon stock losses occurring within the same land use category or subcategory due to agricultural practices such as tillage, field preparations, pruning and harvest. Land Management CO_2 emissions measures biogenic CO_2 emissions from a net loss in carbon stock within one land use category or subcategory. This includes impact on the land-carbon pools,including above- and below-ground biomass, dead organic matter, and soil carbon pools. If the carbon stock increases within the same land use category and the conditions to report removals are met, this may be calculated as a Land management CO_2 removal (position G). Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg
123	GWP Land Management CO_2 Removals	distributionStageLand ManagementBiogenicCO2 Removals	O	decimal (<=0; Unit kg CO_2 e/declared unit)	**Position G (negative contribution):** Land management removals are net CO_2 removals resulting from net increases to carbon stored in land-based carbon pools (biomass, dead organic matter and soil carbon pools) due to ongoing land management practices. This extra net carbon stock is gained over the crop rotation or crop cultivation cycle (e.g., multiple years for perennial crops and multiple years in a rotation that includes annual crops). Refer to PACT v3.0 for details.			0.0 kg CO_2 e/kg
124	GWP Aviation emissions (production gate to customer gate if applicable)	distributionStageAircraftGhg Emissions	O	decimal (>=0; Unit kg CO_2 e/declared unit)	**Position H:** Aviation emissions occurring in the reported distribution stage after the production gate until customer gate (if applicable).			0.0 kg CO_2 e/kg
125	**Carbon Content**	carbonContent						
126	Total carbon content per DU	carbonContentTotal	M	decimal (Unit kg C/declared unit)	Total carbon content.	kg total C/declared unit		0.52 Kg total C/kg

	Field labels	Technical field names	Mandatory (M) Optional (O) Default (D) Required under condition (R)	Type	Functional Description	Technical specification	Value list / Default value	Sample values
127	Fossil carbon content per DU	fossilCarbonContent	D	decimal (Unit kg C/declared unit)	Defaulted equal to “Total carbon content - Biogenic carbon content”.	kg fossil C/declared unit		0.0 kg fossil C/kg
128	Biogenic carbon content per DU	biogenicCarbonContent	M	decimal (Unit kg C/declared unit)	Carbon content defined as “biogenic”. It can be attributed by means of Mass Balancing: in such a case the “Mass Balancing used” must be set to “True”.	kg biogenic C/declared unit		0.52 kg biogenic C/kg
129	Packaging Biogenic carbon content per DU	packagingBiogenicCarbon-Content	O	decimal (Unit kg C/declared unit)	Detail (if packaging included) and only optional. The biogenic carbon in the packaging should always be included in the “biogenic carbon content per DU”.	kg biogenic C/declared unit		0.0 kg biogenic C in packaging/kg
130	Recycled carbon content	recycledCarbonContent	O	decimal (Unit kg C/declared unit)	Carbon content defined as recycled. It can be attributed by means of Mass Balancing: in such a case the “Mass Balancing used” must be set to “True”.	kg recycled-C/declared unit		0.0 kg recycled C/kg
131	CCU-based carbon content	ccuCarbonContent	R	decimal (Unit kg C/declared unit)	Carbon content from Carbon Capture and Utilization (CCU). Apply if in “Calculation Approach used for CCU” the options “cut-off method” or “credit method” have been selected. If “credit method” is followed, this position indicates the amount of the credit.	Required, if ccuCalculationApproach =“cut-off method” or “credit method”. Defined as kg CCU-C/declared unit		0.0 kg CCU C/kg

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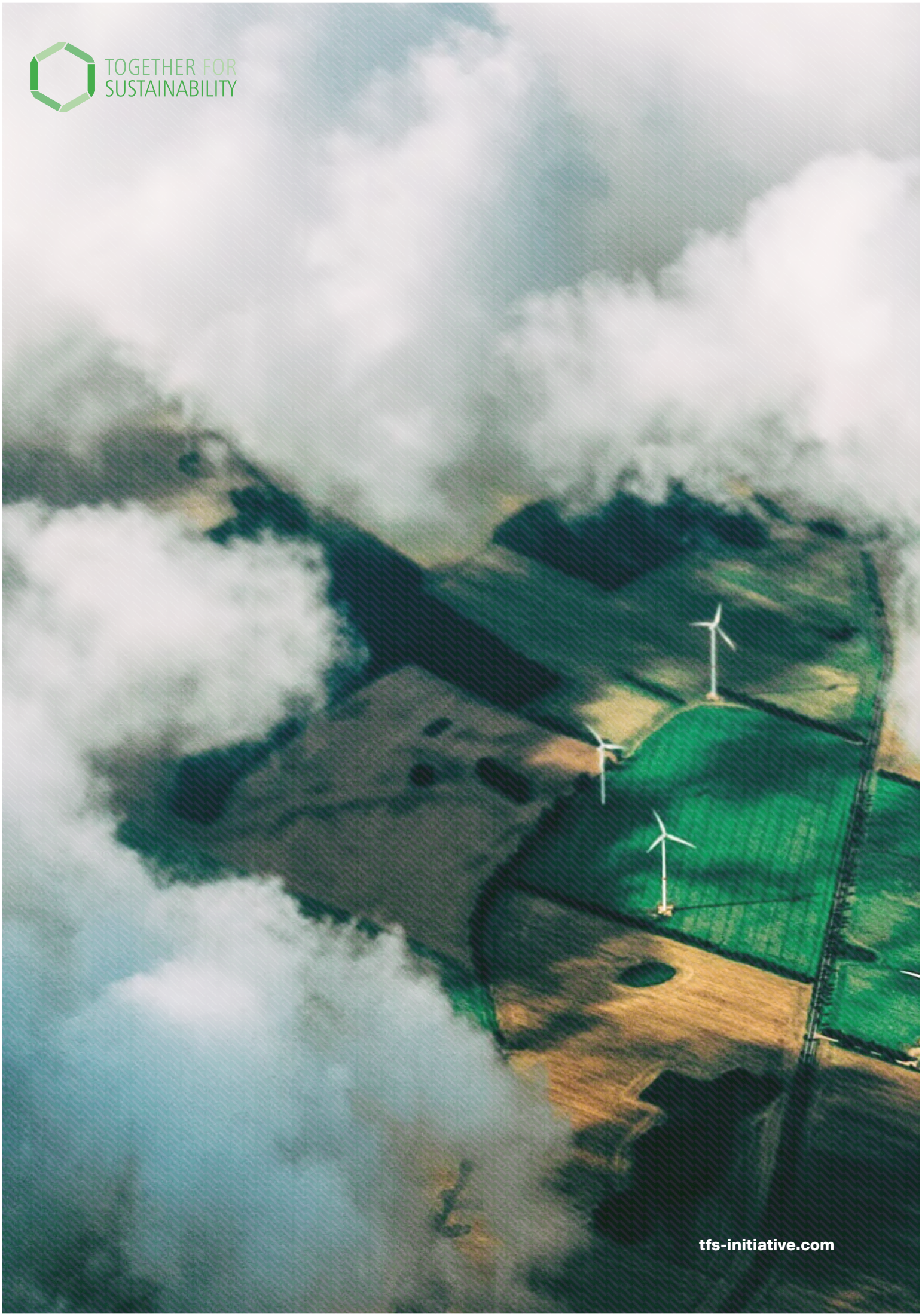

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