kemira

Kemira Supplier PCF Guideline

PRODUCT CARBON FOOTPRINT REPORTING GUIDELINE FOR KEMIRA DIRECT MATERIAL SUPPLIERS

PUBLIC DOCUMENT – FOR KEMIRA STAFF AND BUSINESS PARTNERS

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Content

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1 DOCUMENT CHANGE HISTORY

Date	Version	Remarks	Sign-off
1.2.2023	1	Document created	JE
3.1.2024	2	Specifying gate, excluding freight emission reporting, links and definitions, content requirement	JE

Location of latest document version: https://www.kemira.com/company/sustainability/resources/

2 ACRONYMS AND DEFINITIONS

Allocation	In case of co-products, the process of allocating the emissions of the product system to the products with a specific allocation approach
Biogenic carbon	Carbon derived from biomass
Biogenic emissions	Carbon dioxide emitted during the burning and degrading of renewable materials, and other biogenic greenhouse gas emissions, such as methane from anaerobic degradation of biomass in landfills
Biogenic removal	Carbon dioxide bound during plant growth
CO_2eq	Carbon dioxide equivalent. Carbon dioxide equivalent is a measure used to compare the emissions from various greenhouse gases based upon their global warming potential. Global warming potentials of greenhouse gases are defined by IPCC.
EPD	Environmental Product Declaration
GHG	Greenhouse Gas
LCA	Life-Cycle Assessment
PCF	Product Carbon Footprint. Cradle-to-gate GHG emissions in kg CO_2eq per unit of sold product
Primary PCF data	PCF data about the actual consumption of materials, energy, etc. collected directly at the source and concerning the specific value chains for the product out of each individual manufacturing facility where it is produced
SBTi	Science-Based Target initiative
SDG	Sustainable Development Goal
Secondary PCF data	PCF Data that is not from specific processes from the company's value chain, but derived from research, governmental or other public organizations and databases
Supplier	Manufacturer or distributor, who is the contractual party with Kemira

3 INTRODUCTION

Kemira has set an ambitious climate target for significant reductions in its greenhouse gas (GHG) emissions by 2030 in line with the Science Based Target initiative (SBTi). As a part of reducing Kemira's upstream Scope 3 emissions, we are setting out to achieve value chain transparency with the ambition to work with our suppliers to manage our collective emissions. As over 80% of Kemira's GHG emission are estimated to occur in our value chain, we need to work together with our value chain partners to succeed.

Kemira is requesting from its suppliers information related to the carbon footprint of the products supplied to Kemira. The purpose is to collect, validate, manage and update Product Carbon Footprint (PCF) Data over time. This technical document provides Kemira's reporting guidelines for suppliers.

Kemira aims to understand the total environmental impact of Kemira's products and value chain also beyond the climate impact. We highly encourage suppliers to provide a Life Cycle Assessment (LCA) together with the PCF, to illustrate all the environmental aspects and impacts throughout the product's life cycle.

Reporting Checklist

You will have received:

- ❑ Kemira Supplier PCF Guideline
- ❑ Kemira Supplier PCF Questionnaire

Documents to submit as part of the supplier PCF:

- ❑ PCF data sheet (either filled Kemira Supplier PCF Questionnaire, or in supplier own format as long as content is per this guideline)
- ❑ LCA (if available)
- ❑ Environmental Product Declaration (if available)
- ❑ Critical Review Statement (if available)

Please make sure that you have also familiarized yourself with Kemira's general supplier requirements, including:

- ❑ Kemira Code of Conduct for business partners: https://www.kemira.com/code-of-conduct/
- ❑ Detailed requirements specific to sourcing category and material

4 OVERVIEW OF REQUIREMENTS

This document considers requirements related to purchased direct materials Product Carbon Footprint (PCF) reporting.

The Product Carbon Footprint is the sum of greenhouse gas (GHG) emissions and removals of a product converted into a CO_2 equivalent (CO_2eq). The carbon footprint data shall be disclosed in **kg of CO_2eq per declared unit of unpacked as-delivered product**. In case of chemical products, the declared unit is often defined as 1 kg of product. In case the carbon footprint is including product packaging, it shall be clearly specified. In case the product contains free water, the PCF shall be reported on wet-basis (as-delivered product).

Figure 1 below from the GHG Protocol shows the GHG emission scopes from the perspective of the reporting company. Kemira's upstream Scope 3 activities with a purchased good correspond to that goods supplier's Scope 1, Scope 2 and upstream Scope 3 activities.

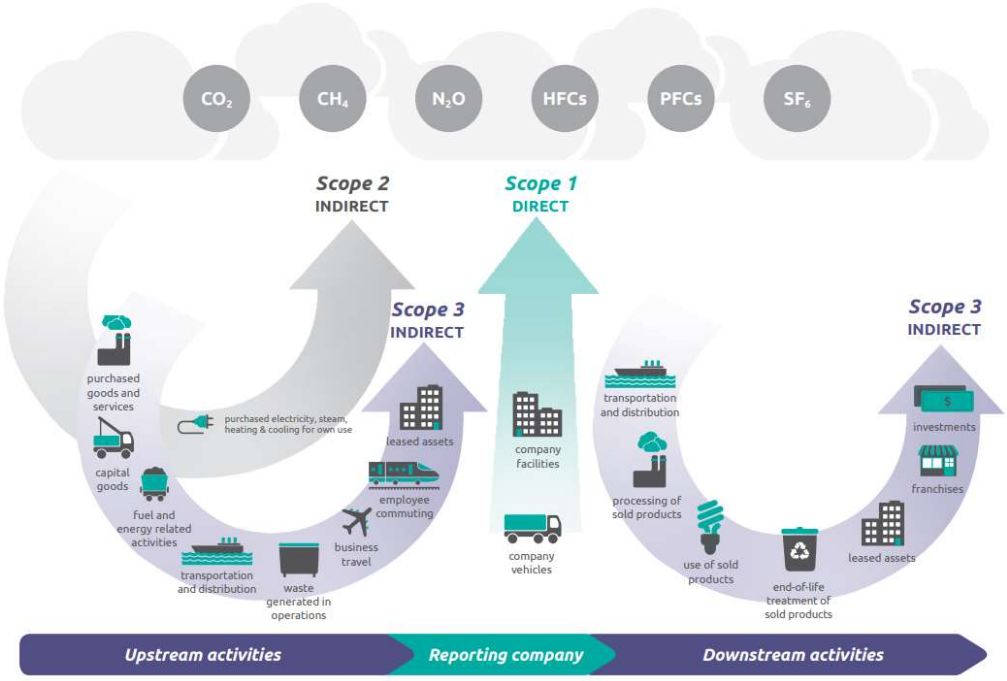

Figure 1: Overview of GHG Protocol scopes and emission across the value chain from the perspective of the reporting company.

Source: https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

The supplier PCF data to be provided is the **cradle-to-gate** product carbon footprint covering the product's life cycle from raw material extraction up until the supplier's last controlled location (= "the gate") when material is loaded for shipment to Kemira's site (see figures 2 and 3), including emissions of effluent and waste treatment. Emissions from transportation from the supplier's gate to Kemira **shall not be reported**.

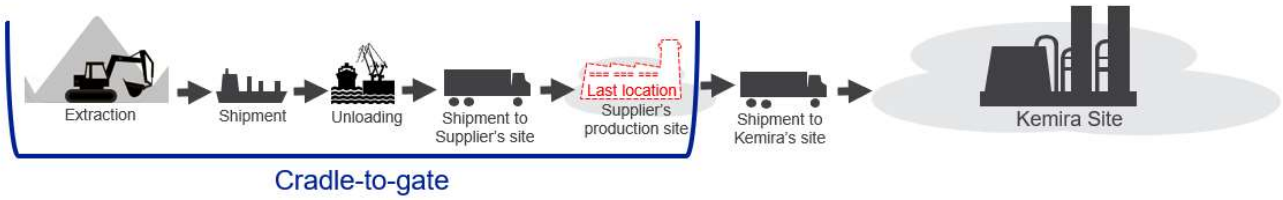

Figure 2: When the last controlled location (= "the gate") is the supplier production site.

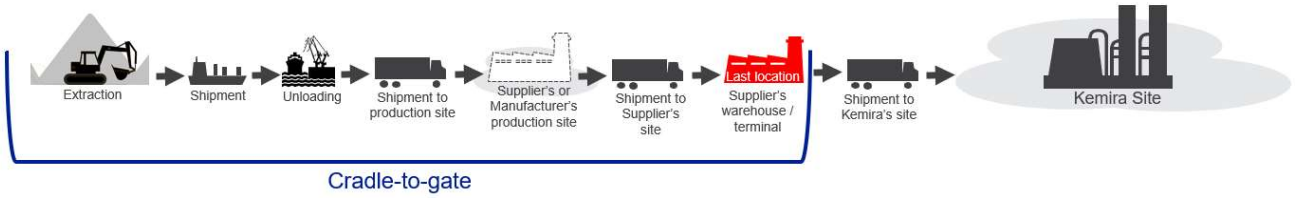

Figure 3: When the last controlled location (= "the gate") is the supplier's warehouse/terminal.

If you have any additional documentation to support the PCF, such as a **LCA report, Environmental Product Declaration,** or **Critical Review Statement**, please provide this also to Kemira. Any exclusions from the carbon footprint data should be documented and reported to Kemira.

The information shared with Kemira will be strictly used to calculate product carbon footprint of Kemira products and GHG emissions management. The primary PCF data provided by a supplier to Kemira will not be directly shared with any third party that is not part of the Kemira Group or a cooperation partner contracted by Kemira and bound with an NDA. Kemira's emissions resulting from the use of the supplied product will be incorporated into Kemira own product carbon footprint calculation that will be openly shared with Kemira customers and other stakeholders.

4.1 Reporting Methodology

It is **recommended** to use the TfS PCF guideline for the PCF calculation.

At a minimum, the PCF shall be calculated **cradle-to-gate** per the ISO14067:2018 for carbon footprint of products, which builds on the principles and requirements of the ISO standards 14040:2006 and 14044:2006 for life cycle assessment, and additionally per the GHG Protocol Product standard. The required reporting content is outlined in section 4.2.

In case the supplier manufactures the same product in several plants, it is recommended that a separate PCF is reported for each plant from where the product is produced and supplied from to Kemira. At minimum, a separate PCF shall be reported for each region (EMEA, Asia Pacific, North America, South America) from where the product is produced and supplied from to Kemira.

It is recommended that an accredited third-party conducts an assurance or verification of the PCF data or alternatively that a critical review or a peer review is conducted.

4.2 PCF reporting content

Category	Attribute	Further explanation	Example	Mandatory
Company and product	Company name	(Legal) Name of data owner	My Corp	yes
	Supplier contact	Contact person	James Smith	yes
	Product trade name	Product name	Green Ethanol	yes
	Declared unit	Unit of analysis of the product	1 kg	yes
	Product description including reference to the solution for which PCF is reflected	(Technical) Description of product or waste	Ethanol, 95% solution	yes
	CAS	CAS Number	58-08-2	yes, if available
	Producer	Name of producer	Ally Chemicals LLC	yes
PCF	PCF (excl. Biogenic emissions and removals)	Cradle-to-gate PCF in kg CO2 eq/kg product Sum of separate emission values 1 + 2 + 3	2.6 kg CO2 eq/kg Ethanol	yes
	PCF (incl. biogenic emissions and removals)	Cradle-to-gate PCF in kg CO2 eq/kg product	0.7 kg CO2 eq/kg Ethanol	yes, if product is bio-mass balance based

		Sum of separate emission values 1+2+3+4		and/or contain renewable carbon
	Separated into emission values: 1. Fossil CO2 eq-emissions (net result of fossil emissions and removals) 2. Biogenic CO2eq-emissions (only other GHG emissions than CO2 – excludes biogenic CO2) 3. Land use and direct land use change CO2eq-emissions 4. Biogenic removals (biogenic CO2 contained in the product) 5. Aircraft CO2eq-emissions	In kg CO2eq/kg product	1. Fossil CO2eq: 2.0 kg CO2eq/kg Ethanol 2. Biogenic CO2eq*: 0.4 kg CO2eq/kg Ethanol 3. Land use /LUC CO2eq: 0.2 4. Biogenic removal: -1.9 kg CO2eq/kg Ethanol 5. Aircraft CO2eq: 0.0 kg CO2eq/kg	yes, if product is bio-mass balance based and/or contain renewable carbon Please keep in mind that reporting is mandatory if compliance with ISO 14067 or PEF is anticipated
	Total carbon content	Kg C/kg product	0.495 kg/kg Ethanol	yes
	Reference period (year or start/end date if > one yr) and version (if revised within reference period)	Year/period of PCF calculation	2021, v 2.0 Or 01/01/2020 – 31/12/2021	yes
	Geography (as specific as possible)	Location of production / product	Global, Europe, Germany, or Ludwigshafen, 67063, Germany	yes
	Technological reference **	Technological description	Electrolysis	optional

	Data quality rating (DQR)	DQR in score from 1 to 3	DQR 1.5	optional
	Primary data share (PDS)	PDS in %	PDS 95%	optional
	Source of secondary data and version	Refers only to source of secondary data at reporting company	ILCD, Carbon Minds, ecoinvent 3.8, open sources	yes
	Allocation method used**	Type of allocation	Mass allocation	yes, if applied
	Verification approach (None, Internal LCA Expert, Third Party Verification - Product Review, Third Party Verification - Systematic Approach Review)		Verification by internal LCA expert	yes
Boundary & standards	PCF calculation Standards or guidelines used (or product or sector specific rules if used)	Standard used for calculating the PCF	PCR, TfS Guideline 2022, ISO 14067: 2018	yes
Additional information – biobased materials	Biogenic carbon content (physical or BMB)	Kg Bio-C/kg product	0.495 kg biogenic C/kg Ethanol	yes, if product is bio-mass balance based and/or contain renewable carbon
Additional information – waste incineration	Allocation approach used for waste incineration with energy recovery	Cut-off, reverse cut-off or system expansion		optional
Additional information – chemical recycled materia	Recycled carbon content (physical or BMB)	Kg recycled-C/kg product	0.495 kg recycled C /kg Ethanol	no

	Allocation method used for recycled carbon content		Upstream System expansion or cut-off	no
	Type of recycled content		Post-industrial, post-consumer	no
Additional information – Captured and used CO2 material	CCU-based carbon content	Kg CCU-C/kg product	0.495 kg recycled C/kg Ethanol	no
	Allocation method used for CCU		System expansion and substitution	no
	CO2-origin	Source from where CO2 is captured	DAC or Point source ammonia plant	no
Additional information – general	Further information on modelling	Assumptions and limitations	Cut-off set on 6%	no

* If the share of biogenic CO2 emissions is not known and cannot be determined, the calculated CO2 emissions shall be considered as fossil CO2 emission. In this case the CO2 removal shall only be calculated based on the carbon content in the product.

** Of the foreground system, i.e. the last process in the value chain that is calculated.

Excluded information

- Engineering and R&D
- Business travel and commuting
- Production of investment goods
- Defined cut-off activities

Optional information

- Packaging (shall be specified if included)

4.3 Secondary data used for PCF reporting

The product carbon footprint calculation shall be based as much as possible on primary data, meaning actual consumption of materials and energy collected directly at the source. If primary data is not available, secondary data can be used to fill in the gaps. Secondary data refers to data derived from, for example, research, governmental or other public organisations and databases. In case secondary data has been used, the secondary data source and its share in the calculations should be specified and reported to Kemira.

Recommendations for sources of Secondary emission factors

Ecoinvent https://ecoinvent.org/	Database that is a compliant data source for studies and assessments based on ISO 14040 and 14044.
Commercially available PCF software tools	Commercially available PCF software tools (such as for example Sphera/ GaBi) contain emission databases to support PCF calculation.
GLEC (Global Logistics Emissions Council) https://www.smartfreightcentre.org/en/how-to-implement-items/what-is-glec-framework/58/	Global framework and method for calculation and reporting of logistics emissions.
EcoTransitIT World https://www.ecotransit.org/en/	Solution to calculate emissions of global freight transports.

4.4 Offsetting

The PCF must be reported to Kemira without offsetting. In case of offsetting, please provide Kemira with further information and evidence of these activities.

4.5 How to report PCF

It is recommended that suppliers use Kemira Supplier PCF Questionnaire to report the PCF. Alternatively, suppliers may provide the PCF Data in their existing reporting format (such as, for example, a PDF) as long as provided PCF Data is compliant with the content requirements per section 4.2.

4.6 Timelines for the requirements

In case the supplier does not have a PCF readily available, Kemira expects that the supplier will calculate and report the PCF as soon as possible but latest within one year from Kemira's PCF request. The PCF is valid up to 5 years unless otherwise required by Kemira, but more regular updates are recommended and required if impactful changes (>20% of PCF) have occurred.

5 RESOURCES

TfS PCF Guideline

English
https://www.tfs-initiative.com/app/uploads/2023/04/TfS_PCF_guidelines_2022_English.pdf

Other languages
https://www.tfs-initiative.com/how-we-do-it/scope-3-ghg-emissions

TfS PCF Guideline – Supplier Briefing

https://www.tfs-initiative.com/app/uploads/2022/08/TfS_PCF_Guideline_-_Supplier_Briefing.pdf

Other references

GHG Protocol Product Standard https://ghgprotocol.org/product-standard	The Product Life Cycle Accounting and Reporting Standard can be used to understand the full life cycle emissions of a product and focus efforts on the greatest GHG reduction opportunities.
GHG Protocol Corporate Standard https://ghgprotocol.org/corporate-standard	The GHG Protocol Corporate Accounting and Reporting Standard provides requirements and guidance for companies and other organizations preparing a corporate-level GHG emissions inventory.
GHG Protocol Value Chain (Scope 3) Standard https://ghgprotocol.org/standards/scope-3-standard	The Corporate Value Chain (Scope 3) Accounting and Reporting Standard allows companies to assess their entire value chain emissions impact and identify where to focus reduction activities.
ISO 14040	Environmental management — Life cycle assessment — Principles and framework
ISO 14044	Environmental management — Life cycle assessment — Requirements and guidelines
ISO 14067	Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
Kemira Sustainability page https://www.kemira.com/company/sustainability/	Kemira sustainability section in corporate web page

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