REVIEW REPORTING	
General information	
Data set name	Titanium dioxide; chloride and sulphate processes; production mix, at plant; > 80% TiO2
Data set UUID and version number	Aggregated: bbd2b9df-a4d4-4d0a-9308-0ab63a68b3df Disaggregated: 5474d517-218b-4ef8-a74c-3cece4a0bb73 Version number: 01.00.001
Data set locator	CEPE LCDN node: Chemicals for Paints datasets for PEF calculations, reference package EF3.0; https://lcdn-cepe.org/
Review commissioner(s)	The European association of Paint, Printing Inks and Artists' colours manufacturers (CEPE)
Reviewer name(s) and affiliation(s), contact	Max Sonnen, Ecomatters B.V., max.sonnen@ecomatters.nl; Natalia Chebaeva, Ecomatters B.V., natalia.chebaeva@ecomatters.nl
Review type applied, and compliance with EF requirements for review	Review type 2, EF review compliance fulfilled.
Method used for review , and review scope	The dataset has been reviewed with a check of each single datapoint. Suggestions for the dataset documentation were provided, discussed, and implemented. Review was carried out with study of the provided data set ILCD files, data set documentation, a series of dialogues with the data set developer and data entry practitioner, and additional information provided on request.
Date of review completion	29.04.2022
Reviewed against/Compliance system name	PEF/OEF
Compatibility with EF reference package (Version)	EF3.0 (3f5b0b56-60e6-4df7-869d-a811830386d9)
Overall compliance assessment	

Aspect	yes	no	comments
Compliance with specific EF requirements	X		Electricity consumption is modelled in accordance with the geography of manufacturing. No biogenic nor land use and land use change carbon emissions are modelled in the foreground system. Fossil carbon emissions modellings is marked as fossil in accordance to the EF3.0 refence package nomenclature. No emissions offsetting or uptake included in the foreground inventory. No agricultural modelling is carried out in the foreground system beyond land use change. Land use change in the foreground is inventorised by land use type on global level. Agricultural modelling in the background processes is not reviewed. Transport on the foreground is modelled as one single sub-process for each transport dataset

			entering the gate of the central dataset modelled, without differentiation on transported material/ingredient/component. The transported weight and distance are modelled as one value without indication as two separate parameters at the level of the central dataset. The modelling diviates from the EF modelling requirements and agreed upon with the data providers subject confidentiality. Capital goods and infrastructure are not included with reasoning of neglectible contribution into the total impact documented in the metadata. Water flows are mainly regionalized, with separation of withdrawal, release and evaporation for both foreground and background. Non-regionalised water flows are explained as allocated to countries not covered by the EF reference package, according to the EF guidance. Land related flows are partially regionalised. Non-regionalised flows are possible to be allocated to countries not listed in the EF reference package. No duplicated or waste flows detected. No duplicated elementary flows detected.
Allocation rules clearly explained and consistent	X		Allocation - market value, is documented for the dataset; allocated co-products or allocation factors are not disclosed.
Circular Footprint Formula (correct implementation)	X		Reference product is assumed without recycled content, and is an intermediate product (end of life of the product is outside the system boundary). Circular footprint formula (CFF) is therefore not applied in the foreground modelling as not relevant. CFF application in the background system is assumed in accordance to the background data sets used (primarily, as concerns energy recovery in waste treatment), and is not included into the scope of review.
LCIA results consistency	X		LCIA results are reported consistently. Verification of the reported characterised results is done with Look@LCA. No discrepancies above 1% detected.
Nomenclature			
Correctness and consistency of applied nomenclature (use of Specific EF reference package;	X		Nomenclature of the process and relevant flows is compliant (Reference

Correct nomenclature of other flows, processes etc.)			package EF3.0), and applied correctly and consistently.
Documentation			
Appropriateness of documentation.			Information on the dataset name, UUID, reference flow and its qualities, technology and geographical covereage are indicated. Modelling choices and principles are listed (LCI method and approaches, cut-off, specific modelling), explanations are given to specific modelling and diviations from the EF guidance and listed principles (excl. specified below). A link to the flow diagramme is included. Data selection principles, data treatment, data quality assessments are presented. LCIA per impact category are provided in accordance to the EF3.0 reference package. Review details are given. Administrative data is sufficient, including publication and ownership, and intended applications. Documentation does not specify absence of carbon offsetting or uptake, nor biogenic carbon emissions modelling. Allocation method used is declared but is not detailed in the documentation as of particular allocations applied on foreground and background allocation factors uses. Provided range of documentation is EF compliant (with reservations), and allows for a fair assessment of the dataset. Provided metadata is detailed enough, and mainly respects ILCD entry-level and additional EF requirement. Deviations do not impede a fair assessment of the dataset use.
Appropriateness / correctness of documentation format (ILCD Format)			Documentation format is appropriate, all required documentation fields are filled in providing the relevant metadata for the dataset. Documentation check tool applied, with no detected issues.
Validation with ILCD Validation tool	X		ILCD validation tool is applied, no issues detected.
DQRs	X		The DQR is calculated by the dataset developer and data entry practitioner. DQR is calculated for the reference year 2016. DQR (P) = 1.54 DQR (Ti) = 1.00 DQR (Te) = 1.53 DQR (G) = 1.59 Total DQR score is 1.42. The calculations have been carried out in compliance with the Guide for EF compliant datasets, assumptions and calculations reviewed.
Cut-off	X		Cut-off rules of the Guide for EF complaint datasets are observed and declared in the documentation of the dataset.
Additional information			User is advised to take into account that packaging materials are not included in the modelling of the reference product, as well as modelling of capital goods and infrastructure.

The reviewers declare on their responsibility that the reviewed data set is compliant with the Environmental Footprint general and specific compliancy rules, with the deviation notions provided.

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