Questionnaire
for collecting data for the review of the BAT Reference Document (BREF) for the Surface Treatment of Metals and Plastics (the STM BREF)

Final version
April 2023

European IPPC Bureau

Questionnaire

for collecting plant-specific data
for the review of the BAT Reference Document (BREF)
for the Surface Treatment of Metals and Plastics (STM BREF)

Final version - April 2023

Please read the STM BREF questionnaire User's manual which accompanies this questionnaire and consult the EndNotes sheet of this questionnaire if in doubt during filling in.

This questionnaire is designed for the collection of data for emissions to air and water, noise and odour emissions, consumption of materials, water, energy, generation of waste/by-products, and corresponding contextual information about processes, techniques and monitoring from STM installations falling under the scope of the STM BREF. **The quality of the data provided is fundamental for deriving sound BAT conclusions. Therefore, this questionnaire should be filled in carefully and as exhaustively as possible.**

The questionnaire consists of the following sheets:

0. Introductory notes
1. Installation
2. Processes description
3. Points of release
4. Emissions to air
5. Noise & Odour
6. Emissions to water
7. Water consumption & Discharge
8. Energy consumption
9. Raw materials & Chemicals
10. Residues & Circular economy
11. Industrial symbiosis & Decarbonisation

EndNotes

ATTENTION

Not all sheets are initially visible. Some sheets will appear when data are entered in the respective cells.
This questionnaire was designed with Excel 2016 and many functions have been automated using Excel macros. **Please enable the macro options of Excel before completing the questionnaire.**

Macros may only work within the precisely defined structure of the questionnaire provided by the European IPPC Bureau. Therefore, **the structure of this questionnaire must not be changed under any circumstances. Please do not:**

- fill in a questionnaire version other than the final blank questionnaire template uploaded to BATIS;
- insert, delete, hide, unhide or modify the order or names of worksheets;
- insert, delete, hide, unhide or modify a line or a yellow cell in the worksheets;
- modify the content, the format or any other property of yellow cells;
- insert a value or write text outside white cells;
- modify the format or any property, other than the content, of white cells.

You may

- fill in cells with a white or light red background using the required format (i.e. number, text, date).

Contact person (i.e. the person completing the questionnaire; will only be contacted if further information or clarification is needed):

Company name:	Volvo Car Belgium NV
Site name:	Volvo Car Gent
First name and surname:	Jan Smet
Job title:	Enviromental Engineer
E-mail (certified if available):	jan.smet@volvocars.com
Telephone:	0032 494 46 37 51
Comments:	

Quality check (to be filled in by the Member State's competent authority that verifies the quality of the completed questionnaire):	
Country	Belgium (BE)
Date of quality check (xx/xx/xxxx):	13/07/2023
Organisation:	Department of environment and spatial development; VITO
First name and surname:	Stéphanie Vandamme and Tim Goelen
Job title:	Environmental policy advisor and researcher BAT-knowledge centre
E-mail:	stephanie.vandamme@vlaanderen.be and tim.goelen@vito.be
Telephone:	0032496 40 21 93 and 003214 33 52 76

Only to be used by MS competent authorities | Only for continuous coil activities

Once the questionnaire has been checked by the MS competent authorities, this button may be used to automatically remove all information entered in the light red cells and save a non-confidential version of the questionnaire.

To be filled in by the TWG member(s) from industry giving assistance with completing the questionnaire:	
Industrial organisation:	
Date of completion (xx/xx/xxxx):	
First name and surname:	
Job title:	
E-mail:	
Telephone:	

To be filled in by the TWG member(s) from environmental NGOs giving assistance with completing the questionnaire:	
Environmental NGO:	
Date of completion (xx/xx/xxxx)::	
First name and surname:	
Job title:	
E-mail:	
Telephone:	

In the event that you have doubts or difficulties when completing this questionnaire, please contact the European IPPC Bureau,

JRC-B5-EIPPCB-STM@ec.europa.eu

The filled-in questionnaire, together with any additional documents (such as flow diagrams/layouts), should be returned to the contact person in your Member State (i.e. the person who sent you the questionnaire).

INFORMATION ABOUT THIS QUESTIONNAIRE

Industrial Emissions Directive and BREFs

The Industrial Emissions Directive (IED), 2010/75/EU, of 24 November 2010 foresees under Article 13(1) an information exchange to draw up and review Best Available Techniques (BAT) reference documents (BREFs) as the vehicle through which BAT (and emerging techniques) are determined in a transparent manner, based on sound techno-economic information. The key section of a BREF comprises the 'BAT conclusions', which are adopted through a Committee procedure. The 'BAT conclusions' are published as EU Implementing Decisions in the Official Journal of the European Union and provide the reference for setting the permit conditions of installations covered by the IED. Each BREF is the outcome of a 3- to 4-year information exchange process involving numerous experts, representing EU Member States, industry, environmental NGOs, and services of the Commission.

Information exchange under the IED for the review of the STM BREF

Following Commission Implementing Decision 2012/119/EU, the information exchange leading to the drawing up and review of BREFs is organised by the European Integrated Pollution Prevention and Control Bureau (EIPPCB). Located in Seville (Spain), the EIPPCB is part of the Circular Economy and Sustainable Industry Unit of Directorate B - Fair and Sustainable Economy of the European Commission's Joint Research Centre (JRC).

The review of the BREF for the Surface Treatment of Metals and Plastics (STM BREF) officially started with the reactivation of the Technical Working Group (TWG) in June 2021. The Kick-off Meeting of the TWG was held as a series of web-based sessions from 30 May to 7 June 2022; a meeting report is available on the EIPPCB website at: https://eippcb.jrc.ec.europa.eu/reference

All data and information for the review of the STM BREF are exchanged via an electronic BAT information system (BATIS), except for confidential and sensitive information. Only registered members and JRC staff are allowed to submit and view information on BATIS. The BATIS privacy statement can be consulted on the EIPPCB website: http://eippcb.jrc.ec.europa.eu/batis/downloadPdf?name=Privacy_Statement_BATIS__DPO-1586.pdf

The personal data requested about the persons who filled in or checked the questionnaire will only be used so that they can be contacted if questions arise when the EIPPCB analyses the data. Should you have any queries concerning the processing of your personal data, please address them to the secretariat of the Circular Economy and Sustainable Industry Unit: JRC-B5-SECRETARIAT@ec.europa.eu

Purpose of this questionnaire

The purpose of this questionnaire is to collect plant-specific data and information on the environmental performance of installations that are within the scope of the STM BREF (see below). As one of the main information sources for the STM BREF review, the collected data and information will provide the basis to derive the Best Available Technique (BAT) conclusions regarding: 1) emissions to air and water, 2) consumption of materials, water and energy, and 3) generation of waste, waste water and residues. Moreover, the collected data and information will be used to draw up the chapters on 'Current emission levels' and 'Techniques to consider in the determination of BAT' of the STM BREF.

Scope of the revised STM BREF

The **activity listed in point 2.6 of Annex I to the IED (surface treatment of metals or plastic materials using an electrolytic or chemical process where the volume of the treatment vats exceeds 30 m^3)** is in the scope of the STM BREF. Based on the KoM conclusions, the following activities are also included:

- **semiconductor manufacturing**,
- **porcelain/vitreous enamelling of metals**,
- **on-site combustion processes** that either generate hot gases for direct contact heating, drying or any other treatment of objects or materials; or whose radiant and/or conductive heat is transferred to objects or feed material through a solid wall without using an intermediary heat transfer fluid,
- **independently operated treatment of waste water** not covered by Directive 91/271/EEC (activity listed in point 6.11 of Annex I to the IED) when the main pollutant load originates from the activities within the scope of the STM BREF,
- **combined treatment of waste water** from different origins provided that the main pollutant load originates from the activities within the scope of the STM BREF and that the waste water treatment is not covered by Directive 91/271/EEC,
- **chemical vapour deposition** when it occurs as a process step of or as an activity directly associated with the STM activity.

Member States are responsible, with the support of industrial organisations and environmental NGOs, for collecting and checking the filled-in questionnaires so that the EIPPCB can have them all returned by the strict deadline of 14 July 2023.

The quality of the data provided is fundamental for deriving sound BAT conclusions. Therefore, this questionnaire should be filled in carefully and as exhaustively as possible.

Type of requested information

Please submit data and information that you have available and/or that you are able to collect. Please provide information and descriptions as well as plant-specific and process-specific data on emissions to air and water, consumption of energy, water and materials, and generation of waste, waste water, and residues. You may attach supporting documents to provide other relevant information together with this questionnaire.

Handling of information considered confidential business information (CBI)

The exchange of information under the Industrial Emissions Directive shall not lead to the breaching of EU and national competition laws or other laws designed to protect legitimate economic interests. The data and information submitted in this questionnaire will be used solely for the purpose of reviewing the STM BREF.

The questionnaire cells marked in red will contain information dealt with as CBI.

The EIPPCB will ensure that confidential business information will not be shared with representatives of undertakings and of trade associations with an economic interest in the industrial activities concerned and related market, in accordance with competition law. The EIPPCB will also ensure that requests for access to confidential business information are handled in accordance with the requirements and limits set out in Regulations (EU) 1049/2001 and (EU) 1367/2006.

The plant operator will:

- **send the filled-in questionnaire (containing CBI if applicable) to the Member State's competent authority for quality checks;**
- **send any process flow diagram(s) and other supporting documents to the Member State's competent authority; such documents should not contain CBI.**

The Member State representative will:

- **check the quality, completeness and consistency of the information in the filled-in questionnaire; ask plant operators for clarification or revisions, if needed;**
- **create and save a non-confidential version of the questionnaire (without CBI), using the functional button referred to above;**
- **post the non-confidential version of the questionnaire (without CBI), and any other supporting documents onto BATIS, so that they will be shared with the TWG;**
- **send the filled-in questionnaire containing CBI to the EIPPCB by email (preferably using encryption).**

The EIPPCB will store the questionnaire by:

- **anonymising the filled-in questionnaire (containing information considered CBI) and allocating a CBI reference number to each installation; this reference will be used to identify the installation whenever CBI is used as part of the data assessment and analysis;**
- **keeping the filled-in questionnaire (containing information considered CBI) and the CBI reference number in access-restricted and password-protected electronic folders; this location will be accessible only to the Head of the EIPPCB and the STM BREF authors for the purpose of reviewing the STM BREF.**

Scope of the data collection for emissions to air and to water					
The scope of the data collection covers emissions to air for the following (groups of) substances and parameters:					
TVOC	Sulphur oxides	Odour	Cadmium and its compounds	Total acidity	Formaldehyde
TVOC containing CMR 1 and CMR 2 substances	Dust	Zinc and its compounds	Hexavalent chromium	Lead and its compounds	
Tetrachloroethylene	Gaseous chlorides	Nickel and its compounds	Ammonia	Hydrochloric acid	

Hydrogen cyanide	Hydrochloric acid (HCl)	Chromium and its compounds	Sulphuric acid	Noise	
Nitrogen oxides and carbon monoxide	Gaseous fluorides	Copper and its compounds	Alkalinity	Greenhouse gases (GHGs)	

The scope of the data collection covers emissions to water for the following (groups of) substances and parameters:					
PFOS	Trichloromethane	Metals	Halogenated organic compounds	Cyanides and free CN	Ammonium nitrate
PFAS	(OP/OPEOs) – (NP/NPEOs)	Sulphides and organosulphides	Phenols	Total nitrogen	BOD5
EDTA	Surfactants (other than OP/OPEOs – NP/NPEOs)	TOC and COD	Phosphates and Total P	Parameters proposed as contextual information	Nitrite nitrogen
Poorly biodegradable complexing agents (other than EDTA)	Acute toxicity / whole effluent toxicity	Fluorides	Chlorides	Suspended Solids & TSS	Silicon
Hydrocarbon Oil Index					

1 Identification of the installation

1,1 General information about the installation

1.1.1	**Plant name (automatically reported from Worksheet 0 (Introductory notes)):**	Volvo Car Gent	Plant code number for the data collection (from the list of plants proposed to participate in the data collection available on BATIS):	BE_018

1.1.2	**Name of the company/operator (as reported in Worksheet 0 (Introductory notes)):**	Volvo Car Belgium NV

1.1.3	**Country ▼**	Belgium (BE)
	Region	East Flanders
	City	Ghent

1,2 Activities

1.2.1

STM activity (surface treatment of metals or plastic materials using an electrolytic or chemical process where the volume of the treatment vats exceeds 30 m^3)	Y/N ▼	Total permitted volume of treatment vats (m3)	Total volume of rinsing vats (m3)	Total permitted production capacity in mass of treated objects per year (t/y)	Total permitted production capacity in number of treated objects per year (units/y)	Total permitted production capacity in total surface of treated objects per year (m2/y)	Total permitted production capacity expressed in other unit(s) - please specify in Additional information	Total volume of workspace (production area) heated (m3)
Installation permitted under activity 2.6 of Annex I to the IED?	Yes	2129,00	565,00		312000,00			
Additional information/Comments								

1.2.2

	Main process 1	Main process 2	Main process 3	Main process 4	Main process 5
Main process ▼	Electrolytic or chemical plating				
Additional information/Comments					

1.2.3 **Other activities (other than activity in point 2.6 of Annex I to the IED) carried out at the installation (based on permit information)**

Other directly associated activity(ies) (IED or non-IED) carried out at the installation ▼	Is this other directly associated (IED) activity the main permitted activity on site (YES/NO)? ▼	Additional information/Comments on the other activities carried out
Surface treatment using organic solvents (IED Annex I activity 6.7)	Yes	
Any other directly associated activity (e.g. combined treatment of waste water), please specify in additional information	No	Waste water of concerned processes are treaded on sites.

1.2.4.1 **Operating regime of the plant**

		Additional information/Comments
Total yearly operating time (hours)	5000	
Production days per week ▼	5	
Shifts per day ▼	3	
Production weeks per year	45	
Maintenance periods (% of overall line working/operation time)	20	
Capacity utilisation (% of maximum capacity - annual average)	92	

1,3 Supporting information about the installation

			Additional information/Comments
1.3.1	**Hyperlink to permits (public website) or copies of permits (attached to this questionnaire)) :**	https://gpbv.omgeving.vlaanderen.be/gpbv-register-beheer/installatiefiche/BE.VL.000001008.INSTALLATION	See Appendix: 1.Installation_Permit_2022_DEP_OMV_2022044163_EA_VOLVO CAR BELGIUM

			Additional information/Comments
1.3.2	**EIEP (European Industrial Emissions Portal - ex E-PRTR) code of the plant:**	BE.VL.000001008	BE.VL.000001008.INSTALLATION

1.3.3

EMAS, ISO certification or other EMS ▼	Year of implementation	Additional information/Comments (e.g scope of certification)
ISO 14001	2020	Initial certification : 2003

To give a better understanding of the different process sequences carried out as well as the order and interactions of those processes, please provide a flow diagram/layout presenting this information. Please attach the flow diagram (as an annex to the questionnaire); report the file name below. Please attach the flow diagram only in the event that the flow diagram is not part of (not included in) the permit provided above (see point 1.3.1.)			
1.3.4	**Name of the attached diagram**	Phosphate process Electrocoat process	**Additional information**	See Appendix: 1.Installation_Diagram phosphate process See Appendix: 1.Installation_Diagram electrocoat process

1.3.5	**Start of the installation operation (year):**	1986	**Additional information**	Phosphate line 1 (spare): 1986 - Phosphate line 2 (active): 2003 Electrocoat: 1997

1.3.6	**Latest retrofits of equipment having a major effect on the environmental performance of the above activities (e.g. process step concerned)**	**Year**	**Additional information/Comments (e.g. aim of the changes, implementation of new techniques, retrofit of equipment)**
	Demulsifying degreasing (closed loop)	2014	Waste water saving project – no boron
	Tin free paint CG800 (before CG350)	2014	Impact on waste water – no dibutyltin
	Boron and silicate free degreaser (GC5411 vs GC5193A)	2019	GC5411 vs GC5193A – no boron and silicates
	Passivation free process	2021	Impact on waste water – no zirconium
	Demister	2022	Installed on bath 6 degreasing

1.3.7	**Other than normal operating conditions (OTNOC) situations and relevant techniques**	**If YES, please provide its main elements (in the cells below)**	**Additional information/Comments on OTNOC**
	Is there an OTNOC management plan in place?	Spill => detection=> alarm to guard. Air pollution => Afterburner-> ideal temp.	Spill/leakage => emergency procedure Air pollution: — Critical process installations are our afterburners.
Retention of liquids in case of fire	**In case of fire, is there a plan for the retention and handling/management of firefighting material used (e.g. water/foam)?**	Emergency procedure in place: extinguishing water collection in containment/sewage system closable with ball valve.	
	Total volume of retention capacity for firefighting material in m^3 and area(s) covered? (e.g. chemical storage, production area, waste water treatment plant...)		
	Please specify which needs have been considered for the calculation of the total retention capacity? (e.g. foam and/or firefighting water as well as process vats/chemicals/liquid waste/waste water treatment plant...)		
	Is the rentention volume sufficient to allow time for waste water treatment?	Firefighting water will be transported external via waste handler.	
	Are there fire detectors/an alarm system installed?	Yes -> 24u/7days alarm to guard.	
	Other OTNOC measures applied 1		
	Other OTNOC measures applied 2		

1.3.8.1 Techniques to prevent pollution of soil and/or groundwater, rivers or water bodies

Techniques to prevent pollution of soil and/or groundwater ▼	**Additional information/Comments on the pollution of soil and/or groundwater**
Automated detection of possible leakage/spillage in retentions	Following Vlarem 2 requirements
Dedicated area for unloading process chemicals containing hazardous substances	Following Vlarem 2 requirements
Pollution prevention from unplanned releases – planning, design, construction and other systems (see Section 4.2.1)	Following Vlarem 2 requirements
Regular inspection and maintenance of plant and equipment	Following Vlarem 2 requirements
Rentention of liquids in case of treatment vat failure	Following Vlarem 2 requirements
Segregated storage of process chemicals and packagings	Following Vlarem 2 requirements
Use of level alarm for equipments and storage tanks containing harmful liquids	Following Vlarem 2 requirements

1.3.8.2	**Has the baseline report (according to IED Article 22.b) been prepared (please specify in Additional information)? ▼**	**Additional information/Comments (e.g. year, main conclusions of the baseline report)**
	Yes	Periodic soil investigation -> Frequency according in Appendix 1 of Vlarem II

1.3.9 Techniques to reduce diffuse (unchannelled) air emissions at plant level

Technique applied ▼	**Additional information/Comments on the techniques to reduce diffuse emissions to air**
Full enclosure with extraction	

1.3.10 List of hyperlinks and attached documents to help understand the processes carried out (e.g. process layout scheme, environmental (compliance) report)

Title/filename	Description
Folder: Air Emissions	Measuring reports extractions on electocoat
Folder: MSDS	Safety Data Sheets form products used in phosphate -electrocoat process
Folder: Permit	Permit - Volvo Car Gent
Folder: Process Drawing	Process descriptions from phosphate & electrocoat processes
Water emission	Overview discharge waste water

1.3.11

Any other additional information/Comments

2A Plating processes description

2A.1 General information on the production line

Production lines	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10	Additional information/Comments (e.g. handling of used vats)
Pretreatment steps ▼	Alkaline degreasing										
Pretreatment steps ▼	Alkaline degreasing										
Pretreatment steps ▼	Alkaline degreasing										
Pretreatment steps ▼	Other pretreatment step (please specify in additional information)										Activation step without pickling
Pretreatment steps ▼											
Pretreatment steps ▼											
Pretreatment steps ▼											
Pretreatment steps ▼											
Pretreatment steps ▼											
Pretreatment steps ▼											
Additional information on pretreatment											
Type of core activity per line (1) ▼	Phosphating layer conversion coatings	Electropainting or electrocoating (e-coating)									For Phosphate and electrocoat processes, the waste water is treated in the own waste water treatment plant.
Type of core activity per line (2) ▼											
Type of core activity per line (3) ▼											
Type of core activity per line (4) ▼											
Type of core activity per line (5) ▼											
Type of core activity per line (6) ▼											
Type of core activity per line (7) ▼											
Type of core activity per line (8) ▼											
Additional information on core activity(ies)											
Specific information on core activity (1) ▼	Other nickel plating solutions (please specify in additional information)	Electropainting or electrocoating (e-coating)									
Specific information on core activity (2) ▼											
Specific information on core activity (3) ▼											
Specific information on core activity (4) ▼											
Additional information on core activity(ies)	ZnNiMn phosphation process										
Post-treatment processes ▼		Drying using hot air (Sections 2.6.2, 2.9.7.1)									Two electrocoat curing ovens
Post-treatment processes ▼											
Post-treatment processes ▼											
Additional information on post treatment processes											
Substrate type (metal and/or plastic) ▼	Metal	Metal									
Specific information on substrate type (1) ▼	Steel	Steel									
Specific information on substrate type (2) ▼	Aluminium	Aluminium									
Specific information on substrate type (3) ▼											
Specific information on substrate type (4) ▼											
Additional information on substrate											
Number of treatment vats per line ▼	5	1									
Total volume of treatment vats (m^3) per line	421	370									
Number of rinsing vats per line ▼	5	4									
Total volume of rinsing vats (m^3) per line	235	305									

Number of rinsing steps ▼	3	2									
Type of rinsing used ▼	Multiple stage counterflow rinse	Multiple stage counterflow rinse									
Type of rinsing used ▼											
Type of rinsing used ▼											
Additional information on rinsing											
Continuous or batch plating process ▼	Batch	Batch									
Vats temperature (i.e. over/under room temperature) ▼	Higher than room temperature (more than 25 degrees warmer)	Higher than room temperature (more than 15 degrees warmer)									
Number of vats that are heated or cooled per line ▼	4	1									
Current density (A/m2) (annual average) ▼											
Current efficiency (%) (annual average) ▼											
Type of anode used (soluble/insoluble) ▼		Insoluble									
Type of handling system (e.g. drums or jigs) ▼											
Geometry of treated workpieces ▼	Complex shape (e.g. cavities)	Complex shape (e.g. cavities)									
Size of workpieces ▼	Large (e.g. bigger than 1 m2)	Large (e.g. bigger than 1 m2)									
Treated workpiece surface area (m^2 - annual average per piece)	110	110									
How the treated workpiece surface area (annual average per piece) is derived (measured, calculated, estimated)? ▼	Calculated	Calculated									
Layer thickness (µm or g/m^2 - please indicate the unit in Additional information) - average value for all the core activities of the line	2,50	18,00									
Thickness of workpiece (cm - average)	0	0									
Conductivity of workpiece (mS) - average value for all the core activities of the line											
How is the conductivity derived? (please indicated the method used)											
Quality requirement of end-products (e.g. high-end vs low-end - please specify in Additional information) ▼	High-end	High-end									
Surface roughness of workpiece/substrate (e.g. smooth/rough - please specify in Additional information) ▼	Smooth	Smooth									
Number of layers (metal layers - same metal or different metal) plated ▼	1	1									
Name of the attached diagram related to the line	See Appendix: 1.Installation_Diagram phosphate process	See Appendix: 1.Installation_Diagram electrocoat process									
Additional information	Layer thickness: g/m²	Layer thickness: µm									

2A.2 Techniques for drag-in reduction

Technique applied ▼	Additional information/Comments on techniques for drag-in reduction
Optimised draining time	
Other techniques (please specify in additional information)	Intermediate spray rings

2A.3 Techniques for drag-out reduction

Technique applied ▼	Additional information/Comments on techniques for drag-out reduction
Optimised design of workpieces	Keisealing
Transition from drag-out draining to rinsing (Section 4.6.6)	Spraying car steered

2A.4 **Rinsing techniques, drag-out recovery and process solution maintenance techniques**

Technique applied ▼	Additional information/Comments
Multiple stage counterflow rinse (Section 4.7.10.1)	
Regeneration and re-use/recycling of rinsing water by reverse osmosis (Section 4.7.8.2)	
Regeneration and re-use/recycling of rinsing water by ion exchange (Section 4.7.8.1)	
Spray rinsing (Section 4.7.5)	
Other techniques (please specify in additional information)	~~Ultra Filtration - closed loop electro plating~~

2A.5

Any other additional information/Comments

3 Emissions to air and to water - Points of release

3,1 Emissions to air

3.1.1 General information

Name of the attached diagram	Document description
See Appendix: 1.Installation_Diagram	

If emissions are not channelled, please specify the main reasons:	

3.1.2 Total number of monitored points of release to air

Emissions to Air (PA) ▼ (0-20)	Additional information on the total number of emissions to air
6	Dipphos: 4 / Electrocoat: 2

3.1.3 Information on the monitored points of release

	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Additional information/Comments
PA1	Air Emission degreasing	
PA2	Air Emission degreasing after demister	
PA3	Air Emission phosphate treatment	
PA4	Air Emission DI water rinse	
PA5	Air Emission Paint Bath	
PA6	Air Emission Afterbruner Electrocoat oven	Curing via indirectly heated air (heat exchanger)

3,2 Emissions to water

3.2.1 General information

Name of the attached diagram	Document description
	See Appendix: 1.Installation_Diagram phosphate

3.2.2 Total number of monitored points of release to water

Emissions to water (PW) ▼ (0-5)
1

3.2.3 Information on the monitored points of release

	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Additional information/Comments
PW1	Discharge point: LP2	Industrial Waste Water

4 Emissions to air - Outlet

4,1 Monitored point of release (for STM processes)

Name (as reported in worksheet 3)	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Number of associated processes connected to this point of release (1-20) ▼	Additional information on this emission point and its associated processes
PA1	Air Emission degreasing	1	No measurements executed on PA1 extraction

4.1.1

Process number	Associated processes with this point of release ▼ (in the event that more than 1 vat is associated to each process: please repeat the same process using several rows (e.g. process number #1, #2 and #3 = anodising) so that each vat related to anodising is reported individually using a single row)	Contextual information on the processes associated with this point of release: Associated line with this point of release ▼	Vat volume (m^3)	Vat temperature (°C)	Type of acid / alkali used ? ▼	Acid / alkali concentration (g/l)	pH	Spray used (Yes/No) ▼	Type of air extraction ▼	Fuel type ▼ (only for direct heating or indirect through a solid wall without intermediary heat transfer fluid)	Associated process to fuel use ▼	Off-gas flow rate (Nm3/h) from each process	Additional information/Comments (e.g. configurations associated with this point of release)
1	Alkaline degreasing	Line 1	49,00	54,00	Alkali	20,00	10,5	Yes	Full enclosure with extraction	No fuel used	Other process (please specify in		Associated process to fuel use: heat via heat exchanger hot water
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
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39													
40													

4,2 Air emissions abatement techniques in use during the reference years:

The techniques applied should be clearly presented in the attached flow diagram (see sheet 3), laying out the flow of waste gas streams through the waste gas treatment system (e.g. the sequence of treatments).

4.2.1

	Abatement technique ▼	Targeted pollutants/parameters, justification/rationale for using this technique or combination of techniques	Additional information on the abatement technique
Technique 1			
Technique 2			
Technique 3			
Technique 4			
Technique 5			
Technique 6			
Technique 7			
Technique 8			
Technique 9			
Technique 10			

4.2.2 What are the main factors which influence the design/operation of the abatement system?

4.2.3 If there is no waste gas treatment system or the generic techniques cannot be applied, please explain why: Products used process does not contain VOC

4,3 Waste gas characteristics

Please report all emission data at standard conditions (dry gas, temperature of 273.15 K, pressure 101.3 kPa) and indicate the O_2 reference level. The data reported here should refer only to normal operating conditions; data refering to other-than-normal operating conditions (OTNOC), as well as periods when the plant was not operational, should be excluded. Normal operation of the plant excludes conditions such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations. If the measured value is below the detection limit, please report the detection limit of the measurement method and explain under Additional information (last column).

Waste gas characteristics	Unit	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported	Sampling period	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurement s made during the reference year	95th percentile of the measurements taken during the reference year	Standard monitoring method	Additional information/Comments on the waste gas flow and its characteristics
Flow	Nm^3/h										
Temperature	°C										
Humidity	%										
O2 content during measurement	vol-%										

4.3.1	**Specify the reference conditions as set in the permit if they differ from the following conditions: dry gas, temperature of 273.15 K, a pressure of 101.3 kPa**	

4,4 Emissions of pollutants to air

KEI	Unit (if different please indicate in additional information)	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported (individual values of all measurments can be reported in Additionnal information)	Sampling period (h)	Minimum value of the measurements taken during the reference year (or indicate if not applicable)	Average value of the measurements taken during the reference year (or indicate if not applicable)	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year (or indicate if not applicable)	Average removal efficiency (%)	O2 reference level (vol-%) for the reported emission levels	Contextual monitoring information								Load			Additional information/Comments
												Standard monitoring method ▼	Measurement uncertainty (expressed in the same unit as the measured value)	Has the uncertainty already been taken into account (added/subtracted)? ▼	Limit of detection	Limit of quantification	Emission limit value (ELV) in the permit (in mg/Nm3)	Averaging period for ELVs ▼	Purpose of monitoring ▼	Emission load (kg/h)	How the emission load is calculated?	Emission limit value (ELV) in the permit as load (in kg/h)	
TVOC	C mg/Nm^3																						
TVOC containing CMR1	C mg/Nm^3																						
TVOC containing CMR2	C mg/Nm^3																						
Tetrachloroethylene	mg/Nm^3																						
HCN	mg/Nm^3																						
NO_X	mg/Nm^3																						
CO	mg/Nm^3																						
SO_X	mg/Nm^3																						
Dust	mg/Nm^3																						
Gaseous chlorides (as HCl)	mg/Nm^3																						
HCl (stand alone)	mg/Nm^3																						
Gaseous fluorides (as HF)	mg/Nm^3																						
Zn	mg/Nm^3																						
Ni	mg/Nm^3																						
Cr	mg/Nm^3																						
Cu	mg/Nm^3																						
Cd	mg/Nm^3																						
Pb	mg/Nm^3																						
Cr(VI)	mg/Nm^3																						
NH_3	mg/Nm^3																						
Sulphuric acid	mg/Nm^3																						
Alkaline emissions (OH^-)	mg/Nm^3																						
Acidic emissions (H+)	mg/Nm^3																						
Formaldehyde	mg/Nm^3																						
Other	mg/Nm^3																						

4.4.1	**Comments on the emissions of pollutants to air**	

4,5 Other information to be collected

	Remaining uses	Quantity used (kg) per reference year ▼			Substituted by:	Additional information/comments
HCFCs						
HFC						

	Dichloromethane						
4,6	Any other comments						

4 Emissions to air - Outlet

4,1 Monitored point of release (for STM processes)

Name (as reported in worksheet 3)	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Number of associated processes connected to this point of release (1-20) ▼	Additional information on this emission point and its associated processes
PA2	Air Emission degreasing after demister	1	No measurements executed on PA2 extraction

4.1.1

Process number	Associated processes with this point of release ▼ (in the event that more than 1 vat is associated to each process: please repeat the same process using several rows (e.g. process number #1, #2 and #3 = anodising) so that each vat related to anodising is reported individually using a single row)	Contextual information on the processes associated with this point of release: Associated line with this point of release ▼	Vat volume (m^3)	Vat temperature (°C)	Type of acid / alkali used ? ▼	Acid / alkali concentration (g/l)	pH	Spray used (Yes/No) ▼	Type of air extraction ▼	Fuel type ▼ (only for direct heating or indirect through a solid wall without intermediary heat transfer fluid)	Associated process to fuel use ▼	Off-gas flow rate (Nm3/h) from each process	Additional information/Comments (e.g. configurations associated with this point of release)
1	Alkaline degreasing	Line 1	142,00	54,00	Alkali	20,00	10,5	No	Full enclosure with extraction	No fuel used	Other process (please specify in		Associated process to fuel use: heat via heat exchanger hot water
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
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4,2 Air emissions abatement techniques in use during the reference years:

The techniques applied should be clearly presented in the attached flow diagram (see sheet 3), laying out the flow of waste gas streams through the waste gas treatment system (e.g. the sequence of treatments).

4.2.1

	Abatement technique ▼	Targeted pollutants/parameters, justification/rationale for using this technique or combination of techniques	Additional information on the abatement technique
Technique 1	Other technique (please specify in additional information)	Evaporated liquid	Demister
Technique 2			
Technique 3			
Technique 4			
Technique 5			
Technique 6			
Technique 7			
Technique 8			
Technique 9			
Technique 10			

4.2.2 What are the main factors which influence the design/operation of the abatement system?

4.2.3 If there is no waste gas treatment system or the generic techniques cannot be applied, please explain why: Products used process does not contain VOC

4,3 Waste gas characteristics

Please report all emission data at standard conditions (dry gas, temperature of 273.15 K, pressure 101.3 kPa) and indicate the O_2 reference level. The data reported here should refer only to normal operating conditions; data refering to other-than-normal operating conditions (OTNOC), as well as periods when the plant was not operational, should be excluded. Normal operation of the plant excludes conditions such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations. If the measured value is below the detection limit, please report the detection limit of the measurement method and explain under Additional information (last column).

Waste gas characteristics	Unit	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported	Sampling period	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurement s made during the reference year	95th percentile of the measurements taken during the reference year	Standard monitoring method	Additional information/Comments on the waste gas flow and its characteristics
Flow	Nm^3/h										
Temperature	°C										
Humidity	%										
O2 content during measurement	vol-%										

4.3.1	**Specify the reference conditions as set in the permit if they differ from the following conditions: dry gas, temperature of 273.15 K, a pressure of 101.3 kPa**	

4,4 Emissions of pollutants to air

KEI	Unit (if different please indicate in additional information)	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported (individual values of all measurments can be reported in Additionnal information)	Sampling period (h)	Minimum value of the measurements taken during the reference year (or indicate if not applicable)	Average value of the measurements taken during the reference year (or indicate if not applicable)	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year (or indicate if not applicable)	Average removal efficiency (%)	O2 reference level (vol-%) for the reported emission levels	Contextual monitoring information								Load			Additional information/Comments
												Standard monitoring method ▼	Measurement uncertainty (expressed in the same unit as the measured value)	Has the uncertainty already been taken into account (added/subtracted)? ▼	Limit of detection	Limit of quantification	Emission limit value (ELV) in the permit (in mg/Nm3)	Averaging period for ELVs ▼	Purpose of monitoring ▼	Emission load (kg/h)	How the emission load is calculated?	Emission limit value (ELV) in the permit as load (in kg/h)	
TVOC	C mg/Nm^3																						
TVOC containing CMR1	C mg/Nm^3																						
TVOC containing CMR2	C mg/Nm^3																						
Tetrachloroethylene	mg/Nm^3																						
HCN	mg/Nm^3																						
NO_X	mg/Nm^3																						
CO	mg/Nm^3																						
SO_X	mg/Nm^3																						
Dust	mg/Nm^3																						
Gaseous chlorides (as HCl)	mg/Nm^3																						
HCl (stand alone)	mg/Nm^3																						
Gaseous fluorides (as HF)	mg/Nm^3																						
Zn	mg/Nm^3																						
Ni	mg/Nm^3																						
Cr	mg/Nm^3																						
Cu	mg/Nm^3																						
Cd	mg/Nm^3																						
Pb	mg/Nm^3																						
Cr(VI)	mg/Nm^3																						
NH_3	mg/Nm^3																						
Sulphuric acid	mg/Nm^3																						
Alkaline emissions (OH^-)	mg/Nm^3																						
Acidic emissions (H+)	mg/Nm^3																						
Formaldehyde	mg/Nm^3																						
Other	mg/Nm^3																						

4.4.1	**Comments on the emissions of pollutants to air**	

4,5 Other information to be collected

	Remaining uses	Quantity used (kg) per reference year ▼			Substituted by:	Additional information/comments
HCFCs						
HFC						

	Dichloromethane						
4,6	Any other comments						

4 Emissions to air - Outlet

4,1 Monitored point of release (for STM processes)

Name (as reported in worksheet 3)	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Number of associated processes connected to this point of release (1-20) ▼	Additional information on this emission point and its associated processes
PA3	Air Emission phosphate treatment	1	No measurements executed on PA3 extraction

4.1.1

Process number	Associated processes with this point of release ▼ (in the event that more than 1 vat is associated to each process: please repeat the same process using several rows (e.g. process number #1, #2 and #3 = anodising) so that each vat related to anodising is reported individually using a single row)	Contextual information on the processes associated with this point of release: Associated line with this point of release ▼	Vat volume (m^3)	Vat temperature (°C)	Type of acid / alkali used ? ▼	Acid / alkali concentration (g/l)	pH	Spray used (Yes/No) ▼	Type of air extraction ▼	Fuel type ▼ (only for direct heating or indirect through a solid wall without intermediary heat transfer fluid)	Associated process to fuel use ▼	Off-gas flow rate (Nm3/h) from each process	Additional information/Comments (e.g. configurations associated with this point of release)
1	Other (please specify in additional information)	Line 1	163,00	48,00	Acid		2,0	No	Full enclosure with extraction	No fuel used	Other process (please specify in		Phosphating bath - Associated process to fuel use: heat via heat exchanger hot water
2													
3													
4													
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4,2 Air emissions abatement techniques in use during the reference years:

The techniques applied should be clearly presented in the attached flow diagram (see sheet 3), laying out the flow of waste gas streams through the waste gas treatment system (e.g. the sequence of treatments).

4.2.1

	Abatement technique ▼	Targeted pollutants/parameters, justification/rationale for using this technique or combination of techniques	Additional information on the abatement technique
Technique 1			
Technique 2			
Technique 3			
Technique 4			
Technique 5			
Technique 6			
Technique 7			
Technique 8			
Technique 9			
Technique 10			

4.2.2 What are the main factors which influence the design/operation of the abatement system?

4.2.3 If there is no waste gas treatment system or the generic techniques cannot be applied, please explain why: Products used process does not contain VOC

4,3 Waste gas characteristics

Please report all emission data at standard conditions (dry gas, temperature of 273.15 K, pressure 101.3 kPa) and indicate the O_2 reference level. The data reported here should refer only to normal operating conditions; data refering to other-than-normal operating conditions (OTNOC), as well as periods when the plant was not operational, should be excluded. Normal operation of the plant excludes conditions such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations. If the measured value is below the detection limit, please report the detection limit of the measurement method and explain under Additional information (last column).

Waste gas characteristics	Unit	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported	Sampling period	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurement s made during the reference year	95th percentile of the measurements taken during the reference year	Standard monitoring method	Additional information/Comments on the waste gas flow and its characteristics
Flow	Nm^3/h										
Temperature	°C										
Humidity	%										
O2 content during measurement	vol-%										

4.3.1	**Specify the reference conditions as set in the permit if they differ from the following conditions: dry gas, temperature of 273.15 K, a pressure of 101.3 kPa**	

4,4 Emissions of pollutants to air

KEI	Unit (if different please indicate in additional information)	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported (individual values of all measurments can be reported in Additionnal information)	Sampling period (h)	Minimum value of the measurements taken during the reference year (or indicate if not applicable)	Average value of the measurements taken during the reference year (or indicate if not applicable)	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year (or indicate if not applicable)	Average removal efficiency (%)	O2 reference level (vol-%) for the reported emission levels	Contextual monitoring information								Load			Additional information/Comments
												Standard monitoring method ▼	Measurement uncertainty (expressed in the same unit as the measured value)	Has the uncertainty already been taken into account (added/subtracted)? ▼	Limit of detection	Limit of quantification	Emission limit value (ELV) in the permit (in mg/Nm3)	Averaging period for ELVs ▼	Purpose of monitoring ▼	Emission load (kg/h)	How the emission load is calculated?	Emission limit value (ELV) in the permit as load (in kg/h)	
TVOC	C mg/Nm^3																						
TVOC containing CMR1	C mg/Nm^3																						
TVOC containing CMR2	C mg/Nm^3																						
Tetrachloroethylene	mg/Nm^3																						
HCN	mg/Nm^3																						
NO_X	mg/Nm^3																						
CO	mg/Nm^3																						
SO_X	mg/Nm^3																						
Dust	mg/Nm^3																						
Gaseous chlorides (as HCl)	mg/Nm^3																						
HCl (stand alone)	mg/Nm^3																						
Gaseous fluorides (as HF)	mg/Nm^3																						
Zn	mg/Nm^3																						
Ni	mg/Nm^3																						
Cr	mg/Nm^3																						
Cu	mg/Nm^3																						
Cd	mg/Nm^3																						
Pb	mg/Nm^3																						
Cr(VI)	mg/Nm^3																						
NH_3	mg/Nm^3																						
Sulphuric acid	mg/Nm^3																						
Alkaline emissions (OH^-)	mg/Nm^3																						
Acidic emissions (H+)	mg/Nm^3																						
Formaldehyde	mg/Nm^3																						
Other	mg/Nm^3																						

4.4.1	**Comments on the emissions of pollutants to air**	

4,5 Other information to be collected

	Remaining uses	Quantity used (kg) per reference year ▼			Substituted by:	Additional information/comments
HCFCs						
HFC						

	Dichloromethane						
4,6	Any other comments						

4 Emissions to air - Outlet

4,1 Monitored point of release (for STM processes)

Name (as reported in worksheet 3)	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Number of associated processes connected to this point of release (1-20) ▼	Additional information on this emission point and its associated processes
PA4	Air Emission DI water rinse	1	No measurements executed on PA4 extraction

4.1.1

		Contextual information on the processes associated with this point of release											
Process number	Associated processes with this point of release ▼ (in the event that more than 1 vat is associated to each process: please repeat the same process using several rows (e.g. process number #1, #2 and #3 = anodising) so that each vat related to anodising is reported individually using a single row)	Associated line with this point of release ▼	Vat volume (m^3)	Vat temperature (°C)	Type of acid / alkali used ? ▼	Acid / alkali concentration (g/l)	pH	Spray used (Yes/No) ▼	Type of air extraction ▼	Fuel type ▼ (only for direct heating or indirect through a solid wall without intermediary heat transfer fluid)	Associated process to fuel use ▼	Off-gas flow rate (Nm3/h) from each process	Additional information/Comments (e.g. configurations associated with this point of release)
1	Rinsing	Line 1	67,00					No	Full enclosure with extraction				
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
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4,2 Air emissions abatement techniques in use during the reference years:

The techniques applied should be clearly presented in the attached flow diagram (see sheet 3), laying out the flow of waste gas streams through the waste gas treatment system (e.g. the sequence of treatments).

4.2.1

	Abatement technique ▼	Targeted pollutants/parameters, justification/rationale for using this technique or combination of techniques	Additional information on the abatement technique
Technique 1			
Technique 2			
Technique 3			
Technique 4			
Technique 5			
Technique 6			
Technique 7			
Technique 8			
Technique 9			
Technique 10			

4.2.2

What are the main factors which influence the design/operation of the abatement system?	

4.2.3

If there is no waste gas treatment system or the generic techniques cannot be applied, please explain why:	Products used process does not contain VOC

4,3 Waste gas characteristics

Please report all emission data at standard conditions (dry gas, temperature of 273.15 K, pressure 101.3 kPa) and indicate the O_2 reference level. The data reported here should refer only to normal operating conditions; data refering to other-than-normal operating conditions (OTNOC), as well as periods when the plant was not operational, should be excluded. Normal operation of the plant excludes conditions such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations. If the measured value is below the detection limit, please report the detection limit of the measurement method and explain under Additional information (last column).

Waste gas characteristics	Unit	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported	Sampling period	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurement s made during the reference year	95th percentile of the measurements taken during the reference year	Standard monitoring method	Additional information/Comments on the waste gas flow and its characteristics
Flow	Nm^3/h										
Temperature	°C										
Humidity	%										
O2 content during measurement	vol-%										

4.3.1	**Specify the reference conditions as set in the permit if they differ from the following conditions: dry gas, temperature of 273.15 K, a pressure of 101.3 kPa**	

4,4 Emissions of pollutants to air

KEI	Unit (if different please indicate in additional information)	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported (individual values of all measurments can be reported in Additionnal information)	Sampling period (h)	Minimum value of the measurements taken during the reference year (or indicate if not applicable)	Average value of the measurements taken during the reference year (or indicate if not applicable)	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year (or indicate if not applicable)	Average removal efficiency (%)	O2 reference level (vol-%) for the reported emission levels	Contextual monitoring information								Load			Additional information/Comments
												Standard monitoring method ▼	Measurement uncertainty (expressed in the same unit as the measured value)	Has the uncertainty already been taken into account (added/subtracted)? ▼	Limit of detection	Limit of quantification	Emission limit value (ELV) in the permit (in mg/Nm3)	Averaging period for ELVs ▼	Purpose of monitoring ▼	Emission load (kg/h)	How the emission load is calculated?	Emission limit value (ELV) in the permit as load (in kg/h)	
TVOC	C mg/Nm^3																						
TVOC containing CMR1	C mg/Nm^3																						
TVOC containing CMR2	C mg/Nm^3																						
Tetrachloroethylene	mg/Nm^3																						
HCN	mg/Nm^3																						
NO_X	mg/Nm^3																						
CO	mg/Nm^3																						
SO_X	mg/Nm^3																						
Dust	mg/Nm^3																						
Gaseous chlorides (as HCl)	mg/Nm^3																						
HCl (stand alone)	mg/Nm^3																						
Gaseous fluorides (as HF)	mg/Nm^3																						
Zn	mg/Nm^3																						
Ni	mg/Nm^3																						
Cr	mg/Nm^3																						
Cu	mg/Nm^3																						
Cd	mg/Nm^3																						
Pb	mg/Nm^3																						
Cr(VI)	mg/Nm^3																						
NH_3	mg/Nm^3																						
Sulphuric acid	mg/Nm^3																						
Alkaline emissions (OH^-)	mg/Nm^3																						
Acidic emissions (H+)	mg/Nm^3																						
Formaldehyde	mg/Nm^3																						
Other	mg/Nm^3																						

4.4.1	**Comments on the emissions of pollutants to air**	

4,5 Other information to be collected

	Remaining uses	Quantity used (kg) per reference year ▼			Substituted by:	Additional information/comments
HCFCs						
HFC						

	Dichloromethane						
4,6	Any other comments						

4 Emissions to air - Outlet

4,1 Monitored point of release (for STM processes)

Name (as reported in worksheet 3)	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Number of associated processes connected to this point of release (1-20) ▼	Additional information on this emission point and its associated processes
PA5	Air Emission Paint Bath	1	

4.1.1

Process number	Associated processes with this point of release ▼ (in the event that more than 1 vat is associated to each process: please repeat the same process using several rows (e.g. process number #1, #2 and #3 = anodising) so that each vat related to anodising is reported individually using a single row)	Contextual information on the processes associated with this point of release: Associated line with this point of release ▼	Vat volume (m^3)	Vat temperature (°C)	Type of acid / alkali used ? ▼	Acid / alkali concentration (g/l)	pH	Spray used (Yes/No) ▼	Type of air extraction ▼	Fuel type ▼ (only for direct heating or indirect through a solid wall without intermediary heat transfer fluid)	Associated process to fuel use ▼	Off-gas flow rate (Nm3/h) from each process	Additional information/Comments (e.g. configurations associated with this point of release)
1	Electrocoating (e-coating)	Line 2	370,00	32,00	Acid		5,5	No	Full enclosure with extraction			18787,00	Bath is constently cooled to remain to 32°c - Flow rate: dray Nm^3
2													
3													
4													
5													
6													
7													
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12													
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4,2 Air emissions abatement techniques in use during the reference years:

The techniques applied should be clearly presented in the attached flow diagram (see sheet 3), laying out the flow of waste gas streams through the waste gas treatment system (e.g. the sequence of treatments).

4.2.1

	Abatement technique ▼	Targeted pollutants/parameters, justification/rationale for using this technique or combination of techniques	Additional information on the abatement technique
Technique 1			
Technique 2			
Technique 3			
Technique 4			
Technique 5			
Technique 6			
Technique 7			
Technique 8			
Technique 9			
Technique 10			

4.2.2 What are the main factors which influence the design/operation of the abatement system?

4.2.3 If there is no waste gas treatment system or the generic techniques cannot be applied, please explain why:

4,3 Waste gas characteristics

Please report all emission data at standard conditions (dry gas, temperature of 273.15 K, pressure 101.3 kPa) and indicate the O_2 reference level. The data reported here should refer only to normal operating conditions; data refering to other-than-normal operating conditions (OTNOC), as well as periods when the plant was not operational, should be excluded. Normal operation of the plant excludes conditions such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations. If the measured value is below the detection limit, please report the detection limit of the measurement method and explain under Additional information (last column).

Waste gas characteristics	Unit	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported	Sampling period	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurement s made during the reference year	95th percentile of the measurements taken during the reference year	Standard monitoring method	Additional information/Comments on the waste gas flow and its characteristics
Flow	Nm^3/h	2020	Yearly	1	1 hour		18842,00			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/004) gebaseerd op NBN EN ISO 16911-1
		2021	Yearly	1	1 hour		20216,00			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/004) gebaseerd op NBN EN ISO 16911-1
		2022	Yearly	1	1 hour		18787,00			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/004) gebaseerd op NBN EN ISO 16911-1
Temperature	°C	2020	Yearly	1	1 hour		25,90			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/002) gebaseerd op NBN EN ISO 16911-1
		2021	Yearly	1	1 hour		27,30			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/002) gebaseerd op NBN EN ISO 16911-1
		2022	Yearly	1	1 hour		25,50			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/002) gebaseerd op NBN EN ISO 16911-1
Humidity	%	2020	Yearly	1	1 hour		2			EN14790	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/003) gebaseerd op EN ISO 14790
		2021	Yearly	1	1 hour		1			EN14790	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/003) gebaseerd op EN ISO 14790
		2022	Yearly	1	1 hour		2			EN14790	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/003) gebaseerd op EN ISO 14790
O2 content during measurement	vol-%										

4.3.1	Specify the reference conditions as set in the permit if they differ from the following conditions: dry gas, temperature of 273.15 K, a pressure of 101.3 kPa	

4,4 Emissions of pollutants to air

KEI	Unit (if different please indicate in additional information)	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported (individual values of all measurments can be reported in Additionnal information)	Sampling period (h)	Minimum value of the measurements taken during the reference year (or indicate if not applicable)	Average value of the measurements taken during the reference year (or indicate if not applicable)	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year (or indicate if not applicable)	Average removal efficiency (%)	O2 reference level (vol-%) for the reported emission levels	Contextual monitoring information								Load			Additional information/Comments
												Standard monitoring method ▼	Measurement uncertainty (expressed in the same unit as the measured value)	Has the uncertainty already been taken into account (added/subtracted)? ▼	Limit of detection	Limit of quantification	Emission limit value (ELV) in the permit (in mg/Nm3)	Averaging period for ELVs ▼	Purpose of monitoring ▼	Emission load (kg/h)	How the emission load is calculated?	Emission limit value (ELV) in the permit as load (in kg/h)	
TVOC	C mg/Nm^3	2020	Yearly	1	1		3,93				3	EN 12619											(Nm^3 dry gas/hour): (compendium VITO, LUC/II/001),
		2021	Yearly	1	1		14,60				3	EN 12619											(Nm^3 dry gas/hour): (compendium VITO, LUC/II/001),
		2022	Yearly	1	1		18,90				3	EN 12619											(Nm^3 dry gas/hour): (compendium VITO, LUC/II/001),
TVOC containing CMR1	C mg/Nm^3																						
TVOC containing CMR2	C mg/Nm^3																						
Tetrachloroethylene	mg/Nm^3																						
HCN	mg/Nm^3																						
NO_X	mg/Nm^3																						
CO	mg/Nm^3																						
SO_X	mg/Nm^3																						
Dust	mg/Nm^3																						
Gaseous chlorides (as HCl)	mg/Nm^3																						
HCl (stand alone)	mg/Nm^3																						
Gaseous fluorides (as HF)	mg/Nm^3																						
Zn	mg/Nm^3																						
Ni	mg/Nm^3																						
Cr	mg/Nm^3																						
Cu	mg/Nm^3																						
Cd	mg/Nm^3																						
Pb	mg/Nm^3																						
Cr(VI)	mg/Nm^3																						
NH_3	mg/Nm^3																						
Sulphuric acid	mg/Nm^3																						
Alkaline emissions (OH^-)	mg/Nm^3																						
Acidic emissions (H^+)	mg/Nm^3																						
Formaldehyde	mg/Nm^3																						
Other	mg/Nm^3																						

4.4.1	Comments on the emissions of pollutants to air	

4,5 Other information to be collected

	Remaining uses	Quantity used (kg) per reference year ▼			Substituted by:	Additional information/comments
HCFCs						
HFC						

	Dichloromethane						
4,6	Any other comments						

4 Emissions to air - Outlet

4,1 Monitored point of release (for STM processes)

Name (as reported in worksheet 3)	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Number of associated processes connected to this point of release (1-20) ▼	Additional information on this emission point and its associated processes
PA6	Air Emission Afterbruner Electrocoat oven	2	Two oven for one point of release

4.1.1

		Contextual information on the processes associated with this point of release											
Process number	Associated processes with this point of release ▼ (in the event that more than 1 vat is associated to each process: please repeat the same process using several rows (e.g. process number #1, #2 and #3 = anodising) so that each vat related to anodising is reported individually using a single row)	Associated line with this point of release ▼	Vat volume (m^3)	Vat temperature (°C)	Type of acid / alkali used ? ▼	Acid / alkali concentration (g/l)	pH	Spray used (Yes/No) ▼	Type of air extraction ▼	Fuel type ▼ (only for direct heating or indirect through a solid wall without intermediary heat transfer fluid)	Associated process to fuel use ▼	Off-gas flow rate (Nm3/h) from each process	Additional information/Comments (e.g. configurations associated with this point of release)
1	Drying	Line 2							Full enclosure with extraction	Natural gas	Off-gas abatement	29681,00	Flame temperature 695°C - Flow rate: dray Nm^3
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
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38													
39													
40													

4,2 Air emissions abatement techniques in use during the reference years:

The techniques applied should be clearly presented in the attached flow diagram (see sheet 3), laying out the flow of waste gas streams through the waste gas treatment system (e.g. the sequence of treatments).

4.2.1

	Abatement technique ▼	Targeted pollutants/parameters, justification/rationale for using this technique or combination of techniques	Additional information on the abatement technique
Technique 1	Regenerated thermal oxidation	VOC	RTO on gas - afterburner
Technique 2			
Technique 3			
Technique 4			
Technique 5			
Technique 6			
Technique 7			
Technique 8			
Technique 9			
Technique 10			

4.2.2 **What are the main factors which influence the design/operation of the abatement system?**

4.2.3 **If there is no waste gas treatment system or the generic techniques cannot be applied, please explain why:**

4,3 Waste gas characteristics

Please report all emission data at standard conditions (dry gas, temperature of 273.15 K, pressure 101.3 kPa) and indicate the O_2 reference level. The data reported here should refer only to normal operating conditions; data refering to other-than-normal operating conditions (OTNOC), as well as periods when the plant was not operational, should be excluded. Normal operation of the plant excludes conditions such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations. If the measured value is below the detection limit, please report the detection limit of the measurement method and explain under Additional information (last column).

Waste gas characteristics	Unit	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported	Sampling period	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurement s made during the reference year	95th percentile of the measurements taken during the reference year	Standard monitoring method	Additional information/Comments on the waste gas flow and its characteristics
Flow	Nm^3/h	2020	Yearly	1	3,5		31211,00			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/004) gebaseerd op NBN EN ISO 16911-1
		2021	Yearly	1	4		32565,00			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/004) gebaseerd op NBN EN ISO 16911-1
		2022	Yearly	1	3,5		29681,00			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/004) gebaseerd op NBN EN ISO 16911-1
Temperature	°C	2020	Yearly	1	0,3		108,50			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/002) gebaseerd op NBN EN ISO 16911-1
		2021	Yearly	1	0,25		102,20			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/002) gebaseerd op NBN EN ISO 16911-1
		2022	Yearly	1	0,25		103,80			ISO16911-1	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/002) gebaseerd op NBN EN ISO 16911-1
Humidity	%	2020	Yearly	1	0,5		4			EN14790	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/003) gebaseerd op EN ISO 14790
		2021	Yearly	1	0,3		8			EN14790	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/003) gebaseerd op EN ISO 14790
		2022	Yearly	1	0,25		8			EN14790	(Nm^3 dry gas/hour) : (compendium VITO, LUC/0/003) gebaseerd op EN ISO 14790
O2 content during measurement	vol-%										

4.3.1	**Specify the reference conditions as set in the permit if they differ from the following conditions: dry gas, temperature of 273.15 K, a pressure of 101.3 kPa**	

4,4 Emissions of pollutants to air

KEI	Unit (if different please indicate in additional information)	Reference year ▼	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported (individual values of all measurments can be reported in Additionnal information)	Sampling period (h)	Minimum value of the measurements taken during the reference year (or indicate if not applicable)	Average value of the measurements taken during the reference year (or indicate if not applicable)	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year (or indicate if not applicable)	Average removal efficiency (%)	O2 reference level (vol-%) for the reported emission levels	Contextual monitoring information								Load			Additional information/Comments
												Standard monitoring method ▼	Measurement uncertainty (expressed in the same unit as the measured value)	Has the uncertainty already been taken into account (added/subtracted)? ▼	Limit of detection	Limit of quantification	Emission limit value (ELV) in the permit (in mg/Nm3)	Averaging period for ELVs ▼	Purpose of monitoring ▼	Emission load (kg/h)	How the emission load is calculated?	Emission limit value (ELV) in the permit as load (in kg/h)	
TVOC	**C mg/Nm³**	2020	Yearly	1	3,5		1,57				18	EN 12619											(Nm³ dry gas/hour)
		2021	Yearly	1	4		3,30				18	EN 12619											(Nm³ dry gas/hour)
		2022	Yearly	1	3,5		3,70				18	EN 12619											(Nm³ dry gas/hour)
TVOC containing CMR1	**C mg/Nm³**																						
TVOC containing CMR2	**C mg/Nm³**																						
Tetrachloroethylene	**mg/Nm³**																						
HCN	**mg/Nm³**																						
NO_X	**mg/Nm³**	2020	Yearly	1	3,5		51,60				18	Other (please											ISO10849
		2021	Yearly	1	4		80,00				18	Other (please											ISO10849
		2022	Yearly	1	3,5		60,10				18	Other (please											ISO10849
CO	**mg/Nm³**	2020	Yearly	1	3,5		291,00				18	Other (please											NBN EN 15058
		2021	Yearly	1	4		354,00				18	Other (please											NBN EN 15058
		2022	Yearly	1	3,5		327,00				18	Other (please											NBN EN 15058
SO_X	**mg/Nm³**	2020	Yearly	1	3,5		2,90				18	Other (please											ISO 7935
		2021	Yearly	1	4		8,00				18	Other (please											ISO 7935
		2022	Yearly	1	3,5		5,60				18	Other (please											ISO 7935
Dust	**mg/Nm³**																						
Gaseous chlorides (as HCl)	**mg/Nm³**																						
HCl (stand alone)	**mg/Nm³**																						
Gaseous fluorides (as HF)	**mg/Nm³**																						
Zn	**mg/Nm³**																						
Ni	**mg/Nm³**																						
Cr	**mg/Nm³**																						
Cu	**mg/Nm³**																						
Cd	**mg/Nm³**																						
Pb	**mg/Nm³**																						
Cr(VI)	**mg/Nm³**																						
NH_3	**mg/Nm³**																						
Sulphuric acid	**mg/Nm³**																						
Alkaline emissions (OH^-)	**mg/Nm³**																						
Acidic emissions (H+)	**mg/Nm³**																						
Formaldehyde	**mg/Nm³**																						
Other	**mg/Nm³**																						

4.4.1	**Comments on the emissions of pollutants to air**	

4,5 Other information to be collected

	Remaining uses	Quantity used (kg) per reference year ▼			Substituted by:	Additional information/comments
HCFCs						
HFC						

	Dichloromethane						
4,6	Any other comments						

6 Emission to water - Outlet

6,1 Information on the monitored point of release

Name (as reported in worksheet 3)	Name of the point of release (as mentioned in the permit, flow diagrams etc.)	Type of waste water treatment plant ▼	In the event of combined treatment, proportion of waste water from the STM processes (%)	In the event of combined treatment, origin of other (non-STM) waste water streams ▼	Type of waste water effluents ▼	Type of discharge ▼	Additional information (e.g. in the event of on-site combined waste water treatment, please list flow volumes and main pollutants of the other (non-STM) waste water streams)
PW1	Discharge point: LP2	Combined waste water treatment with other non-STM activity	25,26018598	Surface treatment using organic	Continuous	Direct discharge to the environment	

6.1.1

Associated processes with this point of release ▼	Associated line (in case that more than 1 line is associated for each process, please report each line individually using a single row) ▼	Additional information (e.g. configurations associated with this point of release)
Degreasing	Line 1	
Rinsing	Line 1	
Phosphating	Line 1	
Rinsing	Line 1	
Other (please specify in additional information)	Line 2	Electrocoating
Rinsing	Line 2	

6,2 Information on waste water treatment techniques

The techniques implemented should be clearly presented in the attached flow diagram (see sheet 3), laying out the flow of waste water streams through the waste water treatment system.

	Abatement technique ▼	Targeted pollutants/parameters, justification/rationale for using this technique or combination of techniques	Can waste water be reused after this treatment? Yes/No ▼	Additional information/comment on the abatement technique
Technique 1	Coagulation and flocculation	Heavy metals	No	
Technique 2	Neutralisation	Heavy metals / pH	No	
Technique 3	Biological treatement - Activated sludge process	Organic parameters	No	
Technique 4	Filtration (e.g. gravel filter, sand filter)	Recuperation of water: removing of suspended solids	Yes	
Technique 5	Ion exchange resins	Recuperation of water: removing of ions	Yes	
Technique 6	Nitrification/denitrification	Removing of nitrogen	No	
Technique 7	Reverse osmosis	Recuperation of water: removing of consentrate (ions)	Yes	
Technique 8	Precipitation	Separation of clear water and sludge	No	
Technique 9	Membrane micro/ultra/nano filtration	Removing of suspended solids	No	
Technique 10	Use of buffer tanks to reduce wastewater and emiisson load peaks	Reduce wastewater and emiisson load peaks	No	
Technique 11				
Technique 12				
Technique 13				
Technique 14				
Technique 15				
Technique 16				
Technique 17				
Technique 18				
Technique 19				
Technique 20				

6.2.1 **What are the main factors which influence the design/operation of the abatement system?** Composition and quantity of waste water.

6.2.2 **If there is no waste water treatment system or the generic techniques cannot be applied, please explain why:** Not applicable

6,3 Waste water discharge characteristics

The effluent data reported here should refer only to normal operating conditions; data referring to other than normal operating conditions, as well as periods when the plant was not operational, should be excluded.
If the measured value is below the detection and/or quantification limit, as a minimum, report the detection and/or quantification limit of the measurement method without using the symbol "<", and give information in the corresponding additional information cell (last column).

Waste water characteristics	Unit	Reference year ▼	Type of sampling ▼	Sampling period (h) if less than 24-h)	Frequency of measurement ▼	Number of measurement events during the year considered for the values reported (individual values of all measurements can be reported in Additional information)	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year	Standard monitoring method ▼	Additional information/Comments on the waste water flow and its characteristics
Flow	**Nm3/h**	2020	24-hour flow		Monthly	12	72,90	191,26	352,70	331,51	ISO16911-1	
		2021	24-hour flow		Monthly	12	75,00	187,28	256,00	254,90	ISO16911-1	
		2022	24-hour flow		Monthly	12	122,90	214,53	299,20	294,69	ISO16911-1	
Temperature	**°C**	2020	24-hour flow		Monthly	12	5,70	13,71	23,60	23,55	ISO16911-1	
		2021	24-hour flow		Monthly	12	6,80	12,51	20,30	19,09	ISO16911-1	
		2022	24-hour flow		Monthly	12	4,70	9,48	14,80	14,58	ISO16911-1	
pH	**-**	2020	24-hour flow		Monthly	12	7,72	8,04	8,49	8,41	Other (please	WAC/I/A/011
		2021	24-hour flow		Monthly	12	7,74	7,96	8,20	8,18	Other (please	WAC/I/A/011
		2022	24-hour flow		Monthly	12	7,64	8,00	8,31	8,27	Other (please	WAC/I/A/011
Sulphates	**vol-%**											
Conductivity	**µS/cm**	2020	24-hour flow		Monthly	12	4150,00	5199,17	6160,00	6127,00	ISO 7888	
		2021	24-hour flow		Monthly	12	4440,00	5340,83	6000,00	5829,50	ISO 7888	
		2022	24-hour flow		Monthly	12	3180,00	4865,83	6130,00	6003,50	ISO 7888	

6,4 Emissions of pollutants to water

KEI/Contextual parameter	Unit	Reference year ▼	Type of sampling ▼	Sampling period (h) if less than 24-h)	Frequency of measurement ▼	Number of measurement exercises during the year considered for the values reported (individual values of all measurments can be reported in Additional information)	Minimum value of the measurements taken during the reference year	Average value of the measurements taken during the reference year	Maximum value of the measurements taken during the reference year	95th percentile of the measurements taken during the reference year	Average removal efficiency (%)	contextual monitoring information								Load			Additional information/Comments
												Standard monitoring method ▼	Measurement unit+entity (expressed in the same unit as the measured value)	Has the uncertainty already been taken into account (added/subtracted)? ▼	Limit of detection	Limit of quantification	Emission limit value (ELV) in the permit (in mg/l)	Averaging period for ELVs ▼	Purpose of monitoring ▼	Emission load (g/day).	How is the specific emission load calculated (i.e. using production volumes)?	Emission limit value (ELV) in the permit (in kg/h)	
Per- and poly-fluoroalkyl substances (PFAS), including PFOS (please specify the measured compound(s) in additional information)	µg/l																						
Ethylenediaminetetraacetic acid (EDTA)	mg/l																						
Complexing agents (other than EDTA) (please specify the measured compound(s) in additional information)	mg/l																						

Trichloromethane	**µg/l**																					
Octylphenols and Octylphenol ethoxylates (OP/OPEOs) (please specify the measured compound(s) in additional information)	**µg/l**																					
Nonylphenols and Nonylphenol ethoxylates (NP/NPEOs) (please specify the measured compound(s) in additional information)	**µg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,00	0,00		WAC/IV/A/001	50%		0,00		0,30	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,00	0,00		WAC/IV/A/001	50%		0,00		0,30	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,00	0,00		WAC/IV/A/001	50%		0,00		0,30	daily	Compliance monitoring				
Any surfactants other than OP/OPEOs, NP/NPEOs and PFAS (please specify the ionic state (i.e. anionic, cationic, non-ionic) and the measured compound(s) in additional information)	**µg/l**																					
Toxicity (if other unit, please specify in additional information)	**EC50**	2020	Grab/spot																			NOT TOXIC
		2021	Grab/spot																			NOT TOXIC
		2022	Grab/spot																			NOT TOXIC
Aluminium (Al) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,15	0,20	0,26	0,25		EN ISO 17294-2	30%		0,10		1,00	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,08	0,24	0,42	0,40		EN ISO 17294-2	30%		0,10		1,00	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,08	0,18	0,33	0,29		EN ISO 17294-2	30%		0,10		1,00	daily	Compliance monitoring				
Antimony (Sb) and its compounds	**mg/l**																					
Arsenic (As) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		4 times per year	4	0,02	0,02	0,02	0,02		EN ISO 17294-2	30%		0,02		0,05	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		4 times per year	4	0,02	0,02	0,02	0,02		EN ISO 17294-2	30%		0,02		0,05	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		4 times per year	4	0,02	0,02	0,02	0,02		EN ISO 17294-2	30%		0,02		0,05	daily	Compliance monitoring				
Barium (Ba) and its compounds	**mg/l**																					
Boron (B) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,13	0,18	0,29	0,25		EN ISO 17294-2	30%		0,20		12,00	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,13	0,18	0,22	0,22		EN ISO 17294-2	30%		0,20		12,00	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,20	0,11	0,21	0,21		EN ISO 17294-2	30%		0,20		12,00	daily	Compliance monitoring				
Cadmium (Cd) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	4	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,02	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	4	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,02	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	4	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,02	daily	Compliance monitoring				
Cobalt (Co) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,01	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,01	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,01	daily	Compliance monitoring				
Chromium(VI) (Cr(VI)) and its compounds	**mg/l**	2023	24-hour flow proportional composite sample		4 times per year	4	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,10	daily	Compliance monitoring				
		2024	24-hour flow proportional composite sample		4 times per year	4	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,10	daily	Compliance monitoring				
		2025	24-hour flow proportional composite sample		4 times per year	4	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,10	daily	Compliance monitoring				
Chromium(total) (Cr)	**mg/l**	2020	24-hour flow proportional composite sample		4 times per year	4	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,50	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		4 times per year	4	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,50	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		4 times per year	4	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,50	daily	Compliance monitoring				
Copper (Cu) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		4 times per year	4	0,03	0,03	0,03	0,03		EN ISO 17294-2	30%		0,03		0,20	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		4 times per year	4	0,03	0,03	0,03	0,03		EN ISO 17294-2	30%		0,03		0,20	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		4 times per year	4	0,03	0,03	0,03	0,03		EN ISO 17294-2	30%		0,03		0,20	daily	Compliance monitoring				
		2020	24-hour flow proportional composite sample		Monthly	12	0,03	0,11	0,23	0,20		EN ISO 17294-2	30%		0,05		2,00	daily	Compliance monitoring				

Iron (Fe) and its compounds	**mg/l**	2021	24-hour flow proportional composite sample		Monthly	12	0,03	0,18	0,46	0,38		EN ISO 17294-2	30%		0,05		2,00	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,03	0,11	0,25	0,23		EN ISO 17294-2	30%		0,05		2,00	daily	Compliance monitoring				
Lead (Pb) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		4 times per year	4	0,03	0,03	0,03	0,03		EN ISO 17294-2	30%		0,03		0,50	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		4 times per year	4	0,03	0,03	0,03	0,03		EN ISO 17294-2	30%		0,03		0,50	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		4 times per year	4	0,03	0,03	0,03	0,03		EN ISO 17294-2	30%		0,03		0,50	daily	Compliance monitoring				
Nickel (Ni) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,05	0,09	0,15	0,14		EN ISO 17294-2	30%		0,01		0,30	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,06	0,08	0,12	0,11		EN ISO 17294-2	30%		0,01		0,30	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,03	0,07	0,11	0,10		EN ISO 17294-2	30%		0,01		0,30	daily	Compliance monitoring				
Selenium (Se) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,03	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,03	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,01	0,01	0,01	0,01		EN ISO 17294-2	30%		0,01		0,03	daily	Compliance monitoring				
Silver (Ag) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		4 times per year	4	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,01	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		4 times per year	4	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,01	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		4 times per year	4	0,00	0,00	0,00	0,00		EN ISO 17294-2	30%		0,00		0,01	daily	Compliance monitoring				
Tin (Sn) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,04	0,04	0,04	0,04		EN ISO 17294-2	30%		0,04		0,25	daily	Compliance monitoring				6x/year
		2021	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,04	0,04	0,04	0,04		EN ISO 17294-2	30%		0,04		0,25	daily	Compliance monitoring				6x/year
		2022	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,04	0,04	0,04	0,04		EN ISO 17294-2	30%		0,04		0,25	daily	Compliance monitoring				6x/year
Zinc (Zn) and its compounds	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,01	0,01	0,06	0,06		EN ISO 17294-2	30%		0,50		0,03	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,01	0,01	0,10	0,09		EN ISO 17294-2	30%		0,50		0,03	daily	Compliance monitoring				
		2022	24-hour flow proportional composite sample		Monthly	12	0,01	0,01	0,06	0,06		EN ISO 17294-2	30%		0,50		0,03	daily	Compliance monitoring				
Sulphides	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,20	0,39	4,65	2,09		Other (please specify in additional information)	30%		0,20		0,20	daily	Compliance monitoring				(WAC/III/C/040)
		2021	24-hour flow proportional composite sample		Monthly	12	0,20	0,20	0,20	0,20		Other (please specify in additional information)	30%		0,20		0,20	daily	Compliance monitoring				(WAC/III/C/040)
		2022	24-hour flow proportional composite sample		Monthly	12	0,20	0,02	0,27	0,12			30%		0,20		0,20	daily	Compliance monitoring				(WAC/III/C/040)
Organosulphides	**mg/l**																						
COD	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	34,00	42,00	51,00	50,45		Other (please specify in additional information)	40%		7,00		125,00	daily	Compliance monitoring				(WAC/III/D/020)
		2021	24-hour flow proportional composite sample		Monthly	12	32,00	48,50	84,00	76,30			40%		7,00		125,00	daily	Compliance monitoring				(WAC/III/D/020)
		2022	24-hour flow proportional composite sample		Monthly	12	26,00	40,08	50,00	48,35			40%		7,00		125,00	daily	Compliance monitoring				(WAC/III/D/020)
TOC	**mg/l**																						
Fluorides	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	4,44	5,65	8,05	7,45		Other (please specify in additional information)	40%		0,20		10,00	daily	Compliance monitoring				(CMA/2/I/C.1.2 and WAC/III/C/022)
		2021	24-hour flow proportional composite sample		Monthly	12	5,33	6,28	8,00	7,56		Other (please specify in additional information)	40%		0,20		10,00	daily	Compliance monitoring				(CMA/2/I/C.1.2 and WAC/III/C/022)
		2022	24-hour flow proportional composite sample		Monthly	12	4,30	6,22	8,60	8,38		Other (please specify in additional information)	40%		0,20		10,00	daily	Compliance monitoring				(CMA/2/I/C.1.2 and WAC/III/C/022)
Halogenated organic compounds (as AOX)	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,02	15,75	53,00	51,35		Other (please specify in additional information)	50%		0,02		400,00	daily	Compliance monitoring				(WAC/IV/B/011)
		2021	24-hour flow proportional composite sample		Monthly	12	0,02	0,02	0,02	0,00		Other (please specify in additional information)	50%		0,02		400,00	daily	Compliance monitoring				(WAC/IV/B/011)
		2022	24-hour flow proportional composite sample		Monthly	12	0,02	6,08	27,00	25,35		Other (please specify in additional information)	50%		0,02		400,00	daily	Compliance monitoring				(WAC/IV/B/011)
Phenols (as phenol index)	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,02	0,02		EN ISO 14402	50%		0,00		0,20	daily	Compliance monitoring				
		2021	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,00	0,00		EN ISO 14402	50%		0,00		0,20	daily	Compliance monitoring				

			2022	24-hour flow proportional composite sample		Monthly	12	0,00	0,00	0,01	0,01		EN ISO 14402	50%		0,00		0,20	daily	Compliance monitoring				
	Total phosphorus	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,15	0,35	1,32	0,94		Other (please specify in additional information)	30%		0,15		2,00	daily	Compliance monitoring				ICP-MS (ISO 17294, WAC/III/B011) - na destructie (WAC/III/B/002)
			2021	24-hour flow proportional composite sample		Monthly	12	0,15	0,55	1,26	1,18		Other (please specify in additional information)	30%		0,15		2,00	daily	Compliance monitoring				ICP-MS (ISO 17294, WAC/III/B011) - na destructie (WAC/III/B/002)
			2022	24-hour flow proportional composite sample		Monthly	12	0,20	0,43	0,72	0,70		Other (please specify in additional information)	30%		0,15		2,00	daily	Compliance monitoring				ICP-MS (ISO 17294, WAC/III/B011) - na destructie (WAC/III/B/002)
	Chlorides (as total Cl)	**mg/l**	2020	24-hour flow proportional composite sample		Other (please specify in additional information)	12	1180,00	1471,11	1750,00	1690,00		(WAC/I/A/011, CMA/2/I/A.2)	30%		25,00		4,00	daily	Compliance monitoring				ELV = 4000 mg/l but not accepted by excel 10x/year
			2021	24-hour flow proportional composite sample		Other (please specify in additional information)	12	1110,00	1304,00	1520,00	1470,50		(WAC/I/A/011, CMA/2/I/A.2)	30%		25,00		4,00	daily	Compliance monitoring				ELV = 4000 mg/l but not accepted by excel 10x/year
			2022	24-hour flow proportional composite sample		Other (please specify in additional information)	12	1000,00	1468,57	1720,00	1711,00		(WAC/I/A/011, CMA/2/I/A.2)	30%		25,00		4,00	daily	Compliance monitoring				ELV = 4000 mg/l but not accepted by excel 10x/year
	Cyanide	**mg/l**																						
	Free CN	**mg/l**																						
	Total nitrogen	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	3,20	4,50	7,00	6,18		Other (please specify in additional information)	30%		2,00		15,00	daily	Compliance monitoring				(WAC/III/D/033)
			2021	24-hour flow proportional composite sample		Monthly	12	3,50	4,87	7,10	6,94		Other (please specify in additional information)	30%		2,00		15,00	daily	Compliance monitoring				(WAC/III/D/033)
			2022	24-hour flow proportional composite sample		Monthly	12	2,10	4,60	8,00	8,00		Other (please specify in additional information)	30%		2,00		15,00	daily	Compliance monitoring				(WAC/III/D/033)
	TSS	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	2,00	2,82	6,20	5,71		Other (please specify in additional information)	40%		2,00		40,00	daily	Compliance monitoring				(WAC/III/D/003)
			2021	24-hour flow proportional composite sample		Monthly	12	2,00	5,43	14,00	11,80		Other (please specify in additional information)	40%		2,00		40,00	daily	Compliance monitoring				(WAC/III/D/003)
			2022	24-hour flow proportional composite sample		Monthly	12	2,00	4,95	9,90	9,02		Other (please specify in additional information)	40%		2,00		40,00	daily	Compliance monitoring				(WAC/III/D/003)
	Hydrocarbon oil index (HOI)	**mg/l**																						
Any other parameter		**mg/l**																						
		mg/l																						
		mg/l																						
In particular for semiconductors manufacturing	**Ammonium nitrate**	**mg/l**																						
	BOD5	**mg/l**																						
	Cerium	**mg/l**																						
	Germanium	**mg/l**																						
	Gold	**mg/l**																						
	Hafnium	**mg/l**																						
	Mercury	**mg/l**	2020	24-hour flow proportional composite sample		4 times per year	4	0,00	0,00	0,00	0,00		Please specify the monitoring standard used in additional information	40%		0,00		0,00	daily	Compliance monitoring				(ISO 17294, WAC/III/B011) - (WAC/III/B/002)
			2021	24-hour flow proportional composite sample		4 times per year	4	0,00	0,00	0,00	0,00		Please specify the monitoring standard used in additional information	40%		0,00		0,00	daily	Compliance monitoring				(ISO 17294, WAC/III/B011) - (WAC/III/B/002)
			2022	24-hour flow proportional composite sample		4 times per year	4	0,00	0,00	0,00	0,00		Please specify the monitoring standard used in additional information	40%		0,00		0,00	daily	Compliance monitoring				(ISO 17294, WAC/III/B011) - (WAC/III/B/002)
	Molybdenum	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,03	0,10	0,27	0,23		Please specify the monitoring standard used in additional information	30%		0,02		1,00	daily	Compliance monitoring				(ISO 17294, WAC/III/B011) - (WAC/III/B/002)
			2021	24-hour flow proportional composite sample		Monthly	12	0,03	0,15	0,60	0,45		Please specify the monitoring standard used in additional information	30%		0,02		1,00	daily	Compliance monitoring				(ISO 17294, WAC/III/B011) - (WAC/III/B/002)
			2022	24-hour flow proportional composite sample		Monthly	12	0,03	0,20	0,72	0,57		Please specify the monitoring standard used in additional information	30%		0,02		1,00	daily	Compliance monitoring				(ISO 17294, WAC/III/B011) - (WAC/III/B/002)
	Nitrite nitrogen	**mg/l**	2020	24-hour flow proportional composite sample		Monthly	12	0,03	0,03	0,03	0,03		Please specify the monitoring standard used in additional information	30%		0,03		0,40	daily	Compliance monitoring				(ISO 15923-1) (WAC/III/C, CMA/2/I/C)
			2021	24-hour flow proportional composite sample		Monthly	12	0,03	0,15	0,60	0,45		Please specify the monitoring standard used in additional information	30%		0,03		0,40	daily	Compliance monitoring				(ISO 15923-1) (WAC/III/C, CMA/2/I/C)
			2022	24-hour flow proportional composite sample		Monthly	12	0,03	0,03	0,08	0,07		Please specify the monitoring standard used in additional information	30%		0,03		0,40	daily	Compliance monitoring				(ISO 15923-1) (WAC/III/C, CMA/2/I/C)
	Palladium	**mg/l**																						
	Platinum	**mg/l**																						
	Praseodym	**mg/l**																						
	Ruthenium	**mg/l**																						

	Silicon	**mg/l**																				
	Thallium	**mg/l**																				
	Titanium	**mg/l**	2020	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,02	0,02	0,02	0,02			30%		0,02		0,20	daily	Compliance monitoring				(ISO 17294, WAC/III/B/011) (WAC/III/B/002)
			2021	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,02	0,02	0,02	0,02			30%		0,02		0,20	daily	Compliance monitoring				(ISO 17294, WAC/III/B/011) (WAC/III/B/002)
			2022	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,02	0,02	0,02	0,02			30%		0,02		0,20	daily	Compliance monitoring				(ISO 17294, WAC/III/B/011) (WAC/III/B/002)
	Tungsten	**mg/l**																				
	Zirconium	**mg/l**	2020	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,00	0,01	0,02	0,01			50%		0,00		0,20	daily	Compliance monitoring				(ISO 17294) (WAC/III/B/002)
			2021	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,00	0,02	0,10	0,08			50%		0,00		0,20	daily	Compliance monitoring				(ISO 17294) (WAC/III/B/002)
			2022	24-hour flow proportional composite sample		Other (please specify in additional information)	6	0,00	0,02	0,07	0,06			50%		0,00		0,20	daily	Compliance monitoring				(ISO 17294) (WAC/III/B/002)

6.4.1	**Comments on the emissions of pollutants to water**	

6,5 Other information to be collected

	Relevant information (e.g. short description of sources and origin, monitoring and measurements (if any) or any other information related to the presence of these substances in the installation)
Potential leaching PFOS emissions resulting from historical PFOS use in chromium baths (PFOS not used anymore in the installation)	
BPA emissions to water from PCB manufacturing	

6,6	**Any other comments**	

5,1 Noise emissions

5.1.1 Indicate the process which are considered the main noise sources

Processes/sources of noise ▼	Additional information/Comments on the processes
Air flow equipments (eg. ventilation)	Extractions on the roof

5.1.2 Noise monitoring

Noise monitoring scheme (please provide relevant information and indicate noise levels if available)
Only noise study on plant level

5.1.3 Noise emission prevention and/or reduction - applied techniques

Technique name ▼	Process to which the technique applies	Additional information/Comments on the techniques
Enclosure or partial enclosure of noisy operations	Diphos / electrocoat tunnel	

5.1.4 Additional information on noise

Additional information/Comments on noise

5,2 Odour emissions

5.2.1 Indicate the processes which are considered the main odour sources

Processes/sources of odour ▼	Additional information/Comments on the processes

5.2.2 Odour monitoring

Odour monitoring scheme (please provide relevant information and indicate odour levels if available)

5.2.3 Odour emission prevention and/or reduction - applied techniques

Technique name ▼	Process to which the technique applies	Additional information/Comments on the techniques

5.2.4 Additional information on odour

Additional information/Comments on odour

7 Water consumption and waste water discharge

7,1 Water consumption

The data reported in this sheet correspond to the net fresh water consumption of the installation (i.e. excluding recycled/reused water, once-through cooling water and water for domestic-type usage)

7.1.1 Overall water consumption at plant level

	Specific water consumption						
Reference year ▼	Specific net (fresh) water consumption (m^3/t)	Specific net (fresh) water consumption (m3/m2)	Specific net (fresh) water consumption (m^3/m^2 per rinsing cycle)	Sources of water ▼	Recycled/reused water in the total water consumed (%)	How is the water consumption monitored? ▼	Additional information/Comments on the overall water consumption at plant level
2020		0,01		Water supply network		Measured	
2021		0,01		Water supply network		Measured	
2022		0,01		Water supply network		Measured	

7.1.2 Techniques applied to reduce water consumption

Technique ▼	Processes associated with the technique / water stream the technique applies to ▼	Year of implementation	Additional information/Comments
Other (please specify in additional information)	Rinsing		Recuperation via small ion exchanger (Bath 22) on diphose installation
Reuse of water by using multiple rinsing steps	Rinsing		Bath 8/10, Bath 16/18 on diphose installation
Other (please specify in additional information)	Rinsing		RO installation (Bath 16, 18) on diphose installation
Other (please specify in additional information)	Degreasing		Demulsifing degreaser on bath 2, 4, 6 on diphose installation

7.1.3 Specific water consumption at production line level

	Process or process step	Reference year ▼	Specific net (fresh) water consumption (m^3/t)	Specific net (fresh) water consumption (m3/m2)	Specific net (fresh) water consumption (m^3/m^2 per rinsing cycle)	How is the water consumption monitored? ▼	Additional information/Comments on the specific water consumption
	Rinsing	2021		0,00	0,00	Measured	Rinsing DF (step8/10 & step16/18) - Rinsing electrocoat (DI (T50))
	Degreasing						
	Cleaning	2021		0,00	0,00	Measured	Cleaning electrocoat paint bath (1/yr) + cleaning and refreshment all stages in DF
	Pickling						
	Etching						
	Stripping						
	Plating						
	Lacquering						
	Oiling						
	Anodising						
	Phosphating						
Other specific process	**Electrocoating**	2021		0,00	0,00	Measured	Refreshment anolyte system electrocoat

7,2 Waste water discharge

7.2.1 Overall waste water discharge

Do you operate a closed-loop recycling system of process/waste waters (yes/no)? ▼	Please report here the main characteristics (e.g. related process steps, equipment used etc.):	Additional information/Comments on closed-loop system
Yes	- Recuperation via small ion exchanger on final rinse diphose installation - Reverse osmosis on rinses of phosphate - Demulsifying degreasing	

7.2.2 Waste water discharge leaving the plant

Specific waste water discharge					
Reference year ▼	Specific waste water discharge (m^3/t)	Specific waste water discharge (m^3/m^2)	Specific waste water discharge (m^3/m^2 per rinsing cycle)	How is the waste water discharge monitored ? ▼	Additional information/Comments on waste water discharge
2020		0,00		Measured	
2021		0,00		Measured	
2022		0,00		Measured	

7.2.3 Techniques applied to reduce waste water discharge

Technique ▼	Associated process ▼	Additional information/Comments
Recovery and/or re-use of water (e.g. from cooling,	Phosphating layer conversion coatings	Overflow rinsing baths
Other (please specify in additional information)	Phosphating layer conversion coatings	Demulsifying degreasing
Other (please specify in additional information)	Phosphating layer conversion coatings	Recuperation via small ion exchanger (Bath 22) on diphose installation

8 Energy consumption

8,1 Energy input

		Additional information
8.1.1	Type of energy input ▼	Combination of electricity and thermal power from fossil fuels	Electricity + heat from gas and/or biomass

8.1.2	In case of on-site energy production		Additional information/Comments
	Type of equipment? ▼	Other (please specify in additional information)	Solar panel + wind turbines
	Percentage of energy consumed at the plant level that is produced on site (%)?	15	

8,2 Fuel(s) used in the processes

	Fuel type ▼	Associated process ▼	Associated process ▼	Associated process ▼	Associated process ▼	Associated process ▼	Associated process ▼	Additional information/Comments on fuels
Fuel type 1 ▼	Electricity generated from non-fossil fuel	Electrochemical processes	Operating motors and pumps	Off-gas extraction	Air filtration and conditioning (including HVAC)	Drying		Green electricity + locally produced
Fuel type 2 ▼	Other type (please specify in additional information)	Firing ovens	Off-gas abatement	Air filtration and conditioning (including HVAC)				Mix of natural gas and biomass
Fuel type 3 ▼								

8.3.1 Specific energy consumption at plant level

Reference year ▼	Specific net energy consumption (kWh/t)	Specific net energy consumption (kWh/m²)	Specific net electricity consumption (kWh/t)	Specific net electricity consumption (kWh/m²)	Specific net heat (e.g. steam) consumption (kWh/t)	Specific net heat (e.g. steam) consumption (kWh/m²)	How is the energy consumption monitored? ▼	Proportion of energy recovered in the total net energy consumed (%)	How is the proportion of energy recovered monitored? ▼	Additional information/Comments on specific energy consupmtion at plant level
2020		1,42		0,55		0,88	Measured	38	Measured	
2021		1,40		0,58		0,82	Measured	34	Measured	
2022		1,39		0,53		0,86	Calculated	38	Calculated	Datagap from 18/11/2022-31/12/2022, the consumption during this

8.4.1 Specific energy consumption at production line level

Process	Reference year ▼	Specific net energy consumption (kWh/t)	Specific net energy consumption (kWh/m²)	Specific net electricity consumption (kWh/t)	Specific net electricity consumption (kWh/m²)	Specific net heat (e.g. steam) consumption (kWh/t)	Specific net heat (e.g. steam) consumption (kWh/m²)	How is the energy consumption monitored? ▼	Proportion of energy recovered in the total net energy consumed (%)	How is the proportion of energy recovered monitored? ▼	Additional information/Comments
Plating	2020		0,24		0,24			Measured	0		Electrocoating
	2021		0,25		0,25			Measured	0		
	2022		0,24		0,24			Calculated	0		
Cleaning - degreasing	2020		0,14		0,14		0,00	Measured	0		Dipfos
	2021		0,17		0,16		0,00	Measured	0		
	2022		0,15		0,15		0,00	Calculated	0		
Post-treatment	2020		1,04		0,16		0,88	Measured	38		EC oven
	2021		0,99		0,16		0,82	Measured	34		
	2022		1,01		0,14		0,86	Calculated	38		
Other specific processes											

8,5 Techniques to reduce energy consumption and/or increase energy efficiency

Technique ▼	Year of implementation	Additional information/Comments
Recovery of waste heat (e.g re-heat of rinsing water, evaporator,	2008	
Other (please specify in additional information)	2021	Passivation step stopped

8,6 Additional information related to energy consumption

Additional information/Comments related to energy consumption (e.g. district heating)

9 Consumption of raw materials and chemicals

9,1 Techniques to reduce raw materials consumption and losses

Raw material concerned	Applied technique ▼	Associated process ▼	Additional information/Comments
All chemicals used in phophate line	Automation of chemical dosage for baths	Phosphating	
Degreasing chemicals (cleaner, surfactant)	Cascade (multiple) use of degreasing solutions	Degreasing	
Degreasing chemicals (cleaner, surfactant)	High performance degreasing systems	Degreasing	High filtration level, low water footprint, maximum use of raw materials
Rinse water	Regeneration of process solution by the re-use of drag-out	Rinsing	Regeneration via ion exchanger
All chemicals used in electrocoat line	Automation of chemical dosage for baths	Electropainting or electrocoating (e-coating)	
Electrocoat paint	Other techniques (please specify in additional information)	Electropainting or electrocoating (e-coating)	Ultrafiltration on paint tank and final demin rinse for maximum use of electrocoat paint

9,2 Hazardous substances/chemicals

9.2.1 Consumption of hazardous substances/chemicals

	Chemical substance and/or compounds (as such or in mixtures)	In use (yes/no/not known) ▼	CAS number (exact substance or compound used)	Specific consumption of the hazardous substance/compound				Associated process ▼				Commercial name of the product(s)	Additional information (e.g. type of supply: salt/solution, concentrated/diluted, more than one CAS number...)
				Reference year ▼			Unit ▼						
				2020	2021	2022							
	Tetrachloroethylene (PER)	No											
	Formaldehyde	No											
	Trichloromethane/Chloroform	No											
	Ammonia	No											
	Ammonia, anhydrous	No											
	Cyanide	No											
	Methanol	No											
	Ethanol	No											
	Hydrochloric Acid/hydrogen chloride	No											
	Acetone	No											
	Arsine	No											
	Benzene	No											
	1,1,1-trichloroethane	No											
	Toluene	No											
	Trichloroethylene	No											
Metals & metalloids	Aluminium (Al) and it compounds	No											
	Antimony (Sb)	No											
	Arsenic (As)	No											
	Barium (Ba)	No											
	Boron (Bo)	No											
	Cadmium (Cd)	No											
	Chromium (Cr)	No											
	Cr (III)	No											
	Cr (VI)	No											
	Cobalt (Co)	No											
	Copper (Cu)	Yes	7758-99-8	9,42648E-07	9,86202E-07	1,16435E-06	kg/m2	Electropainting or				Parmetol A28	Biocide
	Iron (Fe)	Yes	10421-48-4	0,000338788	0,000326088	0,00033475	kg/m2	Phosphating				Gardobond Add H7104	Slam conditioner
	Lead (Pb)	No											
	Nickel (Ni)	Yes	18718-11-1	0,000403123	0,000326088	0,000722266	kg/m2	Phosphating				Gardobond R2600E27	Phosphate replenisher
	Selenium (Se)	No											
	Silver (Ag)	No											
	Tin (Sn)	No											
	Zinc (Zn)	Yes	1314-13-2	0,0017825	0,001770726	0,003197669	kg/m2	Phosphating				Various	Other CAS numbers: 7779-90-0 ; 13598-37-3 ; 16871-71-9
	Ethylenediaminetetraacetic acid (EDTA)	No											
Complexing agents (other than EDTA)													
PFAS													
Octylphenols and Octylphenol ethoxylates (OP/OPEOs)													
Nonylphenols and Nonylphenol ethoxylates (NP/NPEOs)													
Any surfactants other than OP/OPEOs, NP/NPEOs and PFAS (please specify the ionic state (i.e. anionic, cationic, non-ionic))	**Poly(oxy-1,2-ethanediyl),**	Yes	254106-35-9	0,0007388	0,000749514	0,000905016	kg/m2	Degreasing				Gardobond Add H7406	Non-ionic
	Sodium octanoate	Yes	1984-06-1	7,39036E-05	7,49514E-05	9,05016E-05	kg/m2	Degreasing				Gardobond Add H7406	Non-ionic
	Quaternary ammonium compounds, benzyl-C12-16-	Yes	68424-85-1	1,27257E-05	1,33137E-05	1,42897E-05	kg/m2	Degreasing				Gardobond Add H7367	Cationic
Any other substances	**Bronopol**	Yes	52-51-7	1,83816E-05	1,92309E-05	2,32869E-05	kg/m2	Electropainting or				Parmetol A28	Biocide

9,3 **Techniques to prevent or reduce the use of hazardous substances**

Technique ▼	Additional information/Comments
Chemical inventory and mapping	
Chemical management system	Chemsoft

9,4 **Techniques to substitute or reduce the use of certain hazardous substances**

Technique ▼	Chemical reduced/substituted ▼	Associated process ▼	Year of implementation ▼	Additional information/Comments
Other techniques (please specify in additional information)	Boron (Bo)	Degreasing	2015	Reduce the consumption of boron containing deegreaser by introducing closed cascade system
Other techniques (please specify in additional information)	Boron (Bo)	Degreasing	2019	Switch to a boron free degreaser
Other techniques (please specify in additional information)	Tin (Sn)	Electropainting or electrocoating (e-coating)	2014	Switch to a tin free electrocoat
Other techniques (please specify in additional information)	Other chemicals (please specify in additional information)	Passivation	2021	Stop passivation in phosphate process: chemical substituted is Zirconium

10 **Residues generated in the installation and waste**

10,1 Generation of residues at plant level

				Generation of residues (natural basis = not dried)						Rate (in % referring to the same unit as reported in the generation of residues)																
		Residues	**Main composition of the residue (e.g. main components, properties)**	**Specific amount generated (in g/m^2)**			**Specific amount generated (in g/kg)**			**Reuse (%)**			**Recycling (%)**			**Recovery (%)**			**Recovery for energy purposes (%)**			**Disposal (%)**			Process generating residues ▼	**Additional information/Comments (e.g. any available information on future use or information on the approval of by-product status)**
				Reference year ▼			**Reference year ▼**			**Reference year ▼**			**Reference year ▼**			**Reference year ▼**			**Reference year ▼**			**Reference year ▼**				
				2020	2021	2022							2020	2021	2022				2020	2021	2022					
Sludges	**Sludge 1 ▼**	11 01 08* phosphatising sludges	167: Phosphate filter cakes	2,29158	1,5296	2,62931													100	100	100				Phosphating	
	Sludge 2 ▼																									
	Sludge 3 ▼																									
	Sludge 4 ▼																									
	Sludge 5 ▼																									
	Sludge 6 ▼																									
	Sludge 7 ▼																									
Other residues	**Residue 1 ▼**	11 01 06* acids not otherwise specified	Flow 128: Acid Chemaical Cleaning Diphos (is processed internal)	17,1076	8,06812	4,54466							100	100	100										Phosphating	acid cleaning two times a year
	Residue 2 ▼	11 01 13* degreasing wastes containing hazardous substances	Flow 90: Waste oil separator	1,54029	0,64695	1,8836							100	100	100										Degreasing	
	Residue 3 ▼	11 01 99 wastes not otherwise specified	Flow 259: Contaminated disposable filters.			1,37393															100				Any other process (please specify)	Phosphate + electrocoat processes
	Residue 4 ▼																									
	Residue 5 ▼																									
	Residue 6 ▼																									
	Residue 7 ▼																									

10,2 **Techniques applied for the reduction of generated residues and for the promotion of circularity**

Type of residue concerned ▼	Applied technique 1 ▼	Applied technique 2 ▼	Applied technique 3 ▼	Applied technique 4 ▼	Applied technique 5 ▼	Applied technique 6 ▼	Applied technique 7 ▼	Applied technique 8 ▼	Additional information/Comments
Other techniques (please specify in additional information)	Other techniques (please specify in additional information)								Demulsifying degreasing
Other techniques (please specify in additional information)	Other techniques (please specify in additional information)								Dipphos: Acid cleaning water (2 / year) internal treated over waste water treatment.
Other techniques (please specify in additional information)	Other techniques (please specify in additional information)								Electrocoat: Solvent/acid cleaning (1 / year) internal treated over waste water treatement

11 Industrial symbiosis and Decarbonisation

11,1 Industrial symbiosis

11.1.1 Inputs (e.g. by-products/waste/energy) from other sites entering the STM plant

Inputs from other sites				
Inputs from other sites (e.g. energy/waste/by-product)	**Quality requirement**	**Which raw material is replaced?**	**Process using the input**	**Additional information/Comments**
Hot water net	One partner, use rest heat of other company, minimum of take of 80 GW /year.	Reduce use of gas	Secundary heat net to heat process baths	

11.1.2 Outputs (e.g. by-products/waste/energy) from the STM plant directed to other sites

Outputs to other sites				
Output type (e.g. energy/waste/by-product)	**Quality requirement**	**Which raw material is replaced?**	**Sector/Process using the output**	**Additional information/Comments**

11.1.3 Techniques to promote industrial symbiosis

Technique ▼	Additional information/Comments
Exchange of waste heat produced in a plant with another plant	

11,2 Decarbonisation

11.2.1 Greenhouse gas emissions (GHGs) at plant level (for Emissions Trading Scheme (ETS) plants, include same data as verified under the EU ETS)

ETS number	BE.VL.000000514

		Yes/No ▼	If yes, please specify ▼
11.2.2	Is there any activity carried out related to Annex I to Directive 2003/87/EC, as referred in Article 9.1. in Directive 2010/75/EU	No	

11.2.3 Emissions from combustion processes (related to STM activities carried out)

	Reference year ▼	Specific CO_2 emissions from combustion processes (t CO_2/m^2)	Specific CO_2 emissions from combustion processes (t CO_2/t)	Additional information/Comments
CO_2 from combustion processes (please specify in additional information)	2020	0,00		gasconsumption oven
	2021	0,00		gasconsumption oven
	2022	0,00		gasconsumption oven

11.2.4

Emissions from other processes				
	Reference year ▼	Specific CO_2 emissions from other processes (t CO_2/m^2)	Specific CO_2 emissions from other processes (t CO_2/t)	Additional information/Comments
CO_2 from other processes (please specify in additional information)				

11.2.5

Total CO2 emissions				
	Reference year ▼	Specific total (from combustion and other processes) CO_2 (t CO_2/m^2)	Specific CO_2 emissions (from combustion and other processes (t CO_2/t)	Additional information/Comments
Total CO_2 emissions (please specify in additional information)	2020	0,00		
	2021	0,00		
	2022	0,00		

11,3 Techniques for decarbonisation (e.g. process electrification)

Technique	Process	Realised/expected payback time period (years)	Cross-media effects	Additional information/Comments

ENDNOTES

	0. Introductory notes
Contact person (i.e. the person completing the questionnaire; will only be contacted if further information or clarification is needed)	Information on the person completing or checking the questionnaire. This person may be contacted if further information or clarification is needed. This will usually be an employee of the company that is the operator of the installation or a consultant working for the operator of the installation.

	1. Installation
Plant code number for the data collection (from the list of plants proposed to participate in the data collection available on BATIS)	This number is provided to the operator by the competent authority based on the list of participating plants that is available on BATIS.
Total permitted volume of treatment vats (m3)	Please report the permitted total volume of treatment vats. In addition to the main process vats, vats which are typically used for processes such as soak clean, pickling, degreasing, acid dip and passivation also fall under the definition of treatment vat as all these processes involve an alteration of the surface as a result of an electrolytic or chemical process. This does not apply for the rinsing process.
Total volume of rinsing vats (m3)	Please report the total volume of rinsing vats.
Total permitted production capacity in mass of treated objects per year (t/y)	Based on the permit data, please report the total production capacity in mass of treated objects per year (in t/y) if available.
Total permitted production capacity in number of treated objects per year (units/y)	Total permitted production capacity in number of treated objects per year (units/y).
Total permitted production capacity in total surface of treated objects per year (m2/y)	Based on the permit data, please report the total production capacity in surface of treated objects per year (in m2/y) if available.
Total permitted production capacity expressed in other unit(s) - please specify in Additional information	In the event that in the permit the production capacity is expressed in a different unit to those proposed in the cells on the left, please report it (with the corresponding unit).
Total volume of workspace (production area) heated (m3)	Please report the total volume of workspace heated (expressed in m3). This heating need may have an influence on the energy consumption of the installation.
Main process ▼	Please select from the drop-down menu the main process or processes. According to your selection, dedicated worksheet(s) will be made visible to fill in the specific information requested for the process description.
Other directly associated activity(ies) (IED or non-IED) carried out at the installation ▼	Select the activities from the drop-down menu and report any other relevant activity carried out at the plant (e.g. common waste water treatment, STS (surface treatment using organic solvents), etc.
Capacity utilisation (% of maximum capacity - annual average)	Please provide the annual average for the capacity utilisation of the installation as a percentage (100 % = full capacity, no idle time).
Other than normal operating conditions (OTNOC) situations and relevant techniques	Please report in this table information related to pollution originating from incidents and accidents, e.g. fires or explosions, leakages, development of toxic gases/emissions.
Techniques to reduce diffuse (unchannelled) air emissions at plant level	Techniques to reduce the non-channelled emissions to air. Diffuse emissions include fugitive and non- fugitive emissions. Fugitive emissions are non-channelled emissions to air caused by loss of tightness of equipment which is designed or assembled to be tight. Fugitive emissions can arise from: — moving equipment, such as agitators, compressors, pumps, valves (manual and automatic); — static equipment, such as flanges and other connections, open-ended lines, sampling points. Non-fugitive emissions are diffuse emissions other than fugitive emissions. Non-fugitive emissions may arise from, for example, atmospheric vents, bulk storage, loading/unloading systems, vessels and tanks (on opening), open gutters, sampling systems, tank venting, waste, sewers and water treatment plants.

	2A. Plating processes
Line 1	Line is to be understood as a series of vats (tanks) where one or several processes occur. The questionaire allows the submission of information for a maximum number of 10 lines. If more than 10 lines exist in the installation, please report the information for the 10 lines with the greatest environmental impact (in terms of emissions and/or consumption).
Type of core activity per line (1)▼	In case of doubt, please consult also the Glossary of the current BREF where you can find synonyms of the main terms used.
Number of treatment vats per line ▼	Please report the number of treatment vats per line. For more information and clarification of the term 'treatment vat' see the endnote in worksheet 1 on the 'total volume of treatment vats'
Total volume of treatment vats (m3) per line	Please report the total volume of treatment vats per line. In addition to the main process vats, vats which are typically used for processes such as soak clean, pickling, degreasing, acid dip and passivation also fall under the definition of treatment vat as all these processes involve an alteration of the surface as a result of an electrolytic or chemical process. This does not apply for the rinsing process.
Number of rinsing vats per line ▼	Please report the number of rinsing vats per line.
Total volume of rinsing vats (m3) per line	Please report the total volume of rinsing vats.
Number of rinsing steps ▼	Please report the number of rising steps of the line either for cases where one type of rinsing is carried out, or by adding all rinsing steps when several type of rinsing are carried out. Rinsing cascades should be considered as one single rinsing step.
Current density (A/m2) (annual average) ▼	Please report the value(s) for the workpiece(s) treated.
Current efficiency (%) (annual average) ▼	Please report the value(s) for the workpiece(s) treated.

Geometry of treated workpieces ▼	In general, the geometry of workpieces is a difficult parameter to qualifiy. Please select from the drop-down menu the option that you believe characterises best the complexity of workpiece shape treated at your installation. For example, lack of cavities, smooth edges and in general geometry that is unfavorable for solution retention may be considered as 'simple shape'. In case of a combination of workpieces with various geometries, please select the option 'various'.
Conductivity of workpiece (mS) - average value for all the core activities of the line	Please report the conductivity as an average value for all the core activities of the line, and specify whether this refers to the conductivity of the core metal or the metallic surface layer. Please specify the method used in additional information (e.g. Van der Pauw...)
Techniques for drag-in reduction	Techniques aiming to reduce the quantity of liquid (from a previous bath) carried into a bath by the workpieces or substrate introduced during treatment.
Techniques for drag-out reduction	Techniques aiming to reduce the quantity of liquid carried out of a bath by the workpieces or substrate during treatment.

	2B. Printed circuit boards
Total quantity of organic solvents used per year (t/y)	Please report the total quantity of organic solvents that are used in the installation per year expressed in t/y. If actual consumption data are not available, you may report the solvent consumption capacity per year as stated in your environmental permit (if applicable).
Type of PCBs produced ▼	In this and the subsequent cells please report the type(s) of PCB produced in the installation.
Production steps	Please select the production steps that are taking place in the installation.

	2C. Semiconductors
Type of plant ▼	Please select from the drop-down menu the type of plant based on the activities carried out. In general: Fab-lite: in-house semiconductor manufacturing that produces specific low-cost higher technology-nodes that are still in high demand in industries like aerospace, automotive, shipping, defence. Fab-less refers to the installations focussing only on the design of the semiconductor product.
Process node (technology node) produced (nm) ▼	Please select in the cells on the right the corresponding process node(s) for your installation.

	2D. Continuous steel coil
Electrolytic cell geometry (type)▼	Please select from the drop-down list the option that corresponds to the movement of the coil.
Vats temperature (i.e. over/under room temperature) ▼	Please consider the average ambiant temperature of the room.
Current density (A/m2) (annual average) ▼	Please report the value(s) for the workpiece(s) treated.
Current efficiency (%) (annual average) ▼	Please report the value(s) for the workpiece(s) treated.
Conductivity of workpiece (mS)	Please report the conductivity as average value for all the core activities of the line, and specify whether this refers to the conductivity of the core metal or the metallic surface layer. Please specify the method used in additional information (e.g. Van der Pauw...)
Techniques for drag-in reduction	Techniques aiming to reduce the quantity of liquid (from a previous bath) carried into a bath by the workpieces or substrate introduced during treatment.
Techniques for drag-out reduction	Techniques aiming to reduce the quantity of liquid carried out of a bath by the workpieces or substrate during treatment.

	2E. Vitreous enamelling
Type of product ▼	Please select from the drop-down menu the type(s) of product for each production line.
Type of process ▼	Please select from the drop-down menu the type(s) of process for each production line.

	3. Points of release
Name of the attached diagram	Please provide here the name of the supporting document (preferably an attached diagram), if available, where the configuration of points of release is shown/explained.
Name of the point of release (as mentioned in the permit, flow diagrams etc.)	The point where the emissions leave the installation and where the ELV applies.

	4. Emissions to air
Process number	In the event that several lines are associated with the same process, please report them by using 1 separate row in the table for each line (in column J) and repeating the process (in columns E to I). The same applies for the number of vats (in column K): in the event that more than 1 vat is associated for each process, please report each vat individually using a single row.
Acid / alkali concentration (g/l)	The concentration refers to the concentration in the process bath, as contextual information.
Associated process to fuel use ▼	According to the decision of the Kick off Meeting, please note that the following on-site combustion processes are covered: - generation of hot gases for direct contact heating, drying or any other treatment of objects or materials; or - where radiant and/or conductive heat is transferred to objects or feed material through a solid wall without using an intermediary heat transfer fluid.
Off-gas flow rate (Nm3/h) from each process	If available, please report here the off-gas flow rate for each individual process that discharges off-gases at this emission point. This cell is to be filled in in the event that more than one processes are associated with the same emission point (point of discharge). If there is only one associated process with this emission point, the off-gas flow rate will be reported in Table 4.2. below.
Additional information/Comments (e.g. configurations associated with this point of release)	The information to be reported in these columns is related to the worksheets 2A, 2B, 2C, 2D or 2E. Please report any relevant information related to the emissions to air.
Semiconductors manufacturing (SC)	Please note that the purpose of the table is to describe the process steps that are related to the corresponding emission point to air. Only relevant information for this sector should be reported in this table.
Gaseous chlorides (as HCl)	Please note that HCl should be excluded here and reported in the cell below.
Reference year ▼	Please select from the drop-down menu the reference year (from the period 2022-2012. Data should be provided for the most recent 3-year reporting period (e.g. concerning years 2022, 2020 and 2019 if available and if representative)). If values are not or not yet available for these years, data from other recent years may be reported. For the selection of the reporting year period, a drop-down menu is provided (which includes the period from 2022 to 2011). Please start reporting the requested data with the most recent year period. For example if data are available for the year periods 2022, 2019 and 2016 (monitoring once every three years), first report the data for 2022, followed by data for 2019 and then for 2016.

O2 content during measurement	The corresponding O2 content in the waste gas flow(s) measured during the reference years. In the event that the single emissions of parameters in Table 4.4 were monitored separately, please report the corrected O2 reference level for the measurment of the single parameter (see O2 reference level below).
Frequency of measurement ▼	Please specify by using the drop-down menu. The specified time intervals may be regular (e.g. once every month) or irregular. Measurements are usually made using portable equipment for typically less than 24 h. The data reported here should refer only to the normal operating conditions during the reference year. Although values obtained during other years may also be representative of the current plant operation, please provide only data obtained during the reference year. Since the purpose of this questionnaire is to collect information on plant performance and not on compliance with requirements imposed by the competent authority, please report the shortest term average type which is available at the plant level (e.g. if half hourly averages and daily averages are available, report only half hourly averages, regardless of what is actually reported to the competent authority).
Sampling period (h)	Indicate the duration of each sample related to the values reported for discontinuous measurements. For example if the reported value corresponds to the average value of three consecutive measurements of 30 minutes each, please report 1.5 hours.
Minimum value of the measurements taken during the reference year (or indicate if not applicable)	If the measured value is below the detection and/or quantification limit, report the detection and/or quantification limit of the measurement method (without using the symbol “<”) and give information in the corresponding additional information column (last column).
Average value of the measurements taken during the reference year (or indicate if not applicable)	Please indicate values derived as the arithmetic mean of all the values of short-term and long term averages obtained during the reference years (excluding, if possible, data referring to other than normal operating conditions, as well as periods when the plant was not operational).
Maximum value of the measurements taken during the reference year	If the measured value is below the detection and/or quantification limit, report the detection and/or quantification limit of the measurement method (without using the symbol “<”) and give information in the corresponding additional information column (last column).
95th percentile of the measurements taken during the reference year (or indicate if not applicable)	As part of the validation procedure, the outliers (defined as results which deviate significantly from the other values in a measurement series) should be excluded before reporting the 95th percentiles. Furthermore, since the data reported here should refer only to normal operating conditions, any data referring to other than normal operating conditions, as well as periods when the plant was not operational, should be excluded if possible. If the measured value is below the detection limit report the detection limit of the measurement method in the additional information cell.
Average removal efficiency (%)	For the given pollutant/parameter, please provide the overall removal efficiency of all combined waste gas treatment units (applied techniques as reported in Table 4.1.2 above). If the waste gas treatment system is only made up of one step (e.g. one technique applied), then report the efficiency of this step. Please specify in additional information how the removal efficiency has been obtained (e.g. desing value, measuremend, calculated or estimated).
O2 reference level (vol-%) for the reported emission levels	In the event of emissions from combustion processes, please report the Reference O2 percentage (dry basis) considered for the reported concentration values, i.e. if reported values have been corrected to a reference O2 level different to than this of the measurement (see O2 content above). Please, see also Section 3.5 of the User's Manual.
Standard monitoring method ▼	The published or documented procedure for using the monitoring approach and technique (i.e. analytical principle, such as infrared absorption, chemiluminescence, isokinetic sampling followed by gravimetry, sorbent tube followed by gas chromatography), so that comparable results can be obtained when the monitoring is carried out at different times or by different organisations. Please select, from a drop-down list, the appropriate CEN, ISO or other standard. For further information on monitoring methods see the JRC Reference Report on Monitoring of emissions from IED installations (the ROM) (Published version 07/2018) at eippcb.jrc.ec.europa.eu/reference. In the event of parameters with no EN standard available, no drop-down list is provided; please fill in the monitoring standard in use. It is highly recommended to report the standard monitoring method used.
Measurement uncertainty (expressed in the same unit as the measured value)	Standard uncertainty as specified in the measurement report. The standard uncertainty is the result of a measurement expressed as a standard deviation (see ISO 20988:2007).
Limit of detection	The limit of detection is the lowest concentration at which the presence of the substance can be confirmed. So if a substance is not detected it may be absent or it may be present at a concentration below the limit of detection. If the measured value is below the detection limit, then the detection limit of the monitoring method should be reported.
Limit of quantification	The limit of quantification is the lowest concentration at which the amount of a substance can be determined with an acceptable level of accuracy and precision. The limit of quantification will always be equal to or higher than the limit of detection. If the measured value is below the quantification limit, then the quantification limit of the monitoring method should be reported.
Emission limit value (ELV) in the permit (in mg/Nm3)	Please report the emission limit values (ELVs) as set in your permit. In this cell, please report the ELVs as a concentration. For ELVs expressed as mass flow please report them in the respective cell on the right.
Averaging period for ELVs ▼	Please select from the drop-down menu the averaging period for the emission limit value as stated in your permit.
Purpose of monitoring ▼	Please select the reason for monitoring the substance: e.g. compliance monitoring, operator self-monitoring, operational control, Other regulation (e.g. health and safety).
Emission load (kg/h)	Please provide data on the emission load (expressed in kg/h) for the given pollutant/parameter. The method of calculation of the emission load value reported would be reported in the cell on the right.
How the emission load is calculated	Please provide information on the methodology used for the emission load calculation. For example, which emission concentration value was taken into account (maximum, avergae, minimum), which off-gases flow rate was taken into account etc.
Emission limit value (ELV) in the permit as load (in kg/h)	In the event that there is in the IED permit an emission limit value (ELV) expressed as a load, please report this value. The associated averaging period may be reported in the cell for additional information on the right.
	5. Noise & Odour
Processes/sources of noise ▼	Any noise sources from inside or outside the building should be reported, as long as they are related to the STM activities and that their impact for the environment is considered significant (e.g permitting conditions or nuisance for the neighbourhood).
Processes/sources of odour ▼	Any odour sources should be reported, as long as they are related to the STM activities and that their impact for the environment is considered significant (e.g permitting conditions or nuisance for the neighbourhood).
	6. Emissions to water
In the event of combined treatment, proportion of waste water from the STM processes (%)	In the event of combined treatment of waste water coming from various processes, i.e. waste water resulting from the STM activity and other(s) non-STM activities, please report the origin of the other (non-STM) acitivities with special reference to the main pollutants/parameters present in those. More information can be also added in the cell for additional information on the right.

Type of discharge ▼	The two types of discharge/release are: i) direct (the treated effluent is released to the water body - surface or underground) ii) indirect (the pre-treated effluent is released to the sewage leading to the downstream waste water treatment plant which treats the effluent before releasing it to the water body - surface or underground) No discharge means no direct or indirect release into the environment (e.g. all the water is recycled).
Associated processes with this point of release ▼	Please provide information about all the associated processes related to the point of release.
Reference year ▼	Please select from the dropdown menu the reference year (from the period 2022-2012. Data should be provided for the most recent 3-year reporting period (e.g. concerning years 2022, 2020 and 2019 if available and if representative). If values are not or not yet available for these years, data from other recent years may be reported. For the selection of the reporting year period, a drop-down menu is provided (which includes the period from 2022 to 2011). Please start reporting the requested data with the most recent year period. For example if data are available for the year periods 2022, 2019 and 2016 (monitoring once every three years), first report the data for 2022, followed by data for 2019 and then for 2016.
Abatement technique ▼	Please list here the abatement techniques applied to the waste water stream.
Frequency of measurement ▼	Please specify by using the drop-down menu. The specified time intervals may be regular (e.g. once every month) or irregular. Measurements are usually made using portable equipment for typically less than 24 h. The data reported here should refer only to the normal operating conditions during the reference year. Although values obtained during other years may also be representative of the current plant operation, please provide only data obtained during the reference year. Since the purpose of this questionnaire is to collect information on plant performance and not on compliance with requirements imposed by the competent authority, please report the shortest term average type which is available at the plant level (e.g. if half hourly averages and daily averages are available, report only half hourly averages, regardless of what is actually reported to the competent authority).
Minimum value of the measurements taken during the reference year	If the measured value is below the detection and/or quantification limit, as a minimum, report the detection and/or quantification limit of the measurement method (without using the symbol “<”) and give information in the corresponding additional information column (last column).
Average value of the measurements taken during the reference year	Please indicate values derived as the arithmetic mean of all the values of short-term and long term averages obtained during the reference years (excluding, if possible, data referring to other than normal operating conditions, as well as periods when the plant was not operational).
Maximum value of the measurements taken during the reference year	If the measured value is below the detection and/or quantification limit, as a minimum, report the detection and/or quantification limit of the measurement method (without using the symbol “<”) and give information in the corresponding additional information column (last column).
95th percentile of the measurements taken during the reference year (or indicate if not applicable)	As part of the validation procedure, the outliers (defined as results which deviate significantly from the other values in a measurement series) should be excluded before reporting the 95th percentiles. Furthermore, since the data reported here should refer only to normal operating conditions, any data referring to other than normal operating conditions, as well as periods when the plant was not operational, should be excluded if possible. If the measured value is below the detection limit report the detection limit of the measurement method in the Additional Information cell.
Average removal efficiency (%)	For the given pollutant/parameter, please provide the overall removal efficiency of all combined waste gas treatment units (applied techniques as reported in Table 4.1.2 above). If the waste gas treatment system is only made up of one step (e.g. one technique applied), then report the efficiency of this step. Please specify in additional information how the removal efficiency has been obtained (e.g. desing value, measuremend, calculated or estimated).
Standard monitoring method ▼	Please select from the drop-down menu the appropriate EN, ISO or other standard. For parameters with no standard available, there is no drop-down list provided. Please indicate the monitoring standard used and explain under 'Additional information' for example the analytical principle (e.g. infrared absorption, chemiluminescence, isokinetic sampling followed by gravimetry, sorbent tube followed by gas chromatography). It is highly recommended to report a monitoring method. For further information on monitoring methods, see the JRC Reference Report on Monitoring of emissions from IED installations (ROM), available at: eippcb.jrc.ec.europa.eu/reference. For PFAS, please specify if a global measurement method is used, e.g. AOF (Adsorbable Organic Fluorine), EOF (Extractable Organic Fluorine) or TOP (Total Oxidizable Precursors).
Measurement uncertainty (expressed in the same unit as the measured value)	Standard uncertainty as specified in the measurement report.
Limit of detection	The limit of detection is the lowest concentration at which the presence of the substance can be confirmed. So if a substance is not detected it may be absent or it may be present at a concentration below the limit of detection. If the measured value is below the detection limit, then the detection limit of the monitoring method should be reported.
Limit of quantification	The limit of quantification is the lowest concentration at which the amount of a substance can be determined with an acceptable level of accuracy and precision. The limit of quantification will always be equal to or higher than the limit of detection. If the measured value is below the quantification limit, then the quantification limit of the monitoring method should be reported.
Emission limit value (ELV) in the permit (in mg/Nm3)	Please report the emission limit values (ELVs) as set in your permit. In this cell, please report the ELVs as concentration. For ELV expressed as mass flow please report it in the respective cell on the right.
Averaging period for ELVs ▼	Please select from the dropdown menu the averaging period for the emission limit value as stated into your permit.
Purpose of monitoring ▼	Please select the reason for monitoring the substance: e.g. compliance monitoring, operator self-monitoring, operational control, Other regulation (e.g. health and safety).
Emission load (kg/h)	Please provide data on the emission load (expressed in kg/h) for the given pollutant/parameter. The way of calculation of the emision load value reported would be reported in the cell on the right.
How is the specific emission load calculated (e.g. using average/max or min values)	If data on specific emission loads are reported, please provide information on how the emission load is calculated (e.g. using average, max or min values).

Per- and poly-fluoroalkyl substances (PFAS), including PFOS (please specify the measured compound(s) in additional information)	Per- and polyfluoroalkyl substances (PFASs) defined as: any substance that contains at least one fully fluorinated methyl (CF3) or methylene (CF2) carbon atom (without any H/Cl/Br/I attached to it). Among others: - 6:2 FTS (H4PFOS or 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctanesulphonic acid) - N,N,N,-triethylethanaminium 1,1,2,2,3,3,4,4,4- nonafluorobutane-1-sulfonate (derivate of PFBS) - Potassium 1,1,2,2-tetrafluoro-2-(perfluorohexyloxo)ethane sulfonate (F-53) - Potassium 2-(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6- dodecafluorohexyloxy)-1,1,2,2-tetrafluoroethane sulfonate (F-53B) - Perfluoroalkyl phosphinic acids - Perfluorohexanesulfonamides - 1-Alkanesulfonamide, N,N'-bis(2,3-dihydroxy propyl)-perfluoro- - Tridecafluoroheptanamide - Alkanamide, N,N-bis(2,3-dihydroxy propyl)-perfluoro - N-Alkyl perfluoroalkane sulfonamides - 1-Alkanesulfonamide, N,N'-[phosphonicobis(oxy- 2,1,ethanediyl)]bis[perfluoro-N-methyl)] - Fluorinated (meth)acrylate polymers - Potassium perfluorohexane-1-sulponate - Potassium undecafluorocyclohexanesulphonate - 1-Propanaminium, 3-[[(perfluoroalkyl)sulfonyl]amino]-N,N,N-trimethyl-, chloride (1:1) - 1-Propanaminium, N-ethyl-3-[[(perfluoroalkyl)sulfonyl]amino]- N,N-dimethyl-, ethyl sulfate (1:1) - N-[3-(Dimethylamino)propyl]-N-[(perfluoroalkyl)sulfonyl]-β- alanine - Cyclohexanecarboxamide, N-[3-(dimethyl amino)propyl]-1,2,2,3,3,4,4,5,5,6,6-undecafluoro- - 1-Propanaminium, N-(2-carboxyethyl)-N,N-dimethyl-3- [[(1,2,2,3,3,4,4,5,5,6,6 undecafluorocyclohexyl)carbonyl]amino]-, inner salt - 1-Propanaminium, N-(2-carboxyethyl)-3-[[[1,2,2,3,3,4,5,5,6, 6- decafluoro-4-(trifluoromethyl)cyclohexyl]carbonyl] amino]-N,N-dimethyl-, inner salt - Poly(oxy-1,2-ethanediyl), α-[2-[ethyl[(perfluoroalkyl) sulfonyl]amino]ethyl]-ω-hydroxy - N-(2,3-dihydro-2-oxo-1H-benzimidazol-5-yl)-3-oxo-2-[[2- (trifluoromethyl)phenyl]azo] butyramide - 3,3'-[(2-chloro-5-methyl-p-phenylene)bis[imino(1-acetyl-2- oxoethylene)azo]]bis[4-chloro-N-[2-(4-
Octylphenols and Octylphenol ethoxylates (OP/OPEOs) (please specify the measured compound(s) in additional information)	4-ter octylphenols (ramified) (CAS 140-66-9) ethoxylates OP1EO (CAS number= 2315-65-5)/ OP2EO. other
Nonylphenols and Nonylphenol ethoxylates (NP/NPEOs) (please specify the measured compound(s) in additional information)	4-Nonylphenols (ramified) (CAS: 104-40-5) ethoxylates NP1EO (CAS numbers= 27986-36-3 and 104-35-8), NP2EO (20427-84-3 4 and 27176-93-8 and 156609-10-8) other
Toxicity (if other unit, please specify in additional information)	Please specify the unit (if different) and report the combination of tests carried out, as toxicity can be measured trough different methods.
Any other parameter	Please report the exact CAS number for the substance/parameter in the additional information.

	7. Water consump. & discharge
The data reported in this sheet correspond to the net fresh water consumption of the installation (i.e. excluding recycled/reused water, once-through cooling water and water for domestic-type usage)	Option 1: Report the overall water consumption in the cell additional information and add a note that the reported data include water quantities used for domestic-type uses. Option 2: Make a calculation for the deduction of domestic-type usages of water from the overall quantity (there are various methodologies and studies available, a safe approximation could be the quantity of 60 litres per day per employee).
Reference year ▼	Data should be provided for the 3 most recent years (e.g. 2022, 2021 and 2020 if available and representative). If values are not yet available or representative for these years, data from other recent years may be reported. For the selection of the reporting year, a drop-down menu is provided (which includes the period 2012-2022). Please report data starting with the most recent year (e.g. first 2022, then 2021 and 2020).
Specific net (fresh) water consumption (m3/m2)	"Specific net (fresh) water consumption" is calculated as the ratio of the total net (fresh) water consumption (m^3) to the total amount (or surface, or volume) of product treated (or m^3/m^2 per gross final surface for PCBs manufacturing) in a reference year.
Sources of water ▼	Please provide information about all the waste water sources related to the point of release. Select multiple waste water sources if the discharge is connected to the same emission point.
Process or process step	In the event that data are available, please report the total specific net (fresh) water consumption together for the process steps listed. In the event that data are aggregated for an entire process line please report the data and specify the corresponding number of the line (as reported in worksheet 2) in additional information.
Do you operate a closed-loop recycling system of process/waste waters (yes/no) ▼	Closed loop minimises waste water discharge. It is not zero discharge: there may be small discharges from the treatment processes and process water circuits. Please describe the main characteristics of the system used e.g.: -flow-cycle description -tanks and equipment used -extraction or possibility of recirculation.
How is the waste water discharge monitored ▼	In case of combined discharge, please report only data relevant for STM processes, or indicate the type of activities contributing to the discharge.

	8. Energy consumption
In case of on-site energy production	Please note that steam produced on-site from natural gas should not be considered as on-site energy production.
Reference year ▼	Data should be provided for the 3 most recent years (e.g. 2022, 2021 and 2020 if available and representative). If values are not yet available or representative for these years, data from other recent years may be reported. For the selection of the reporting year, a drop-down menu is provided (which includes the period 2012-2022). Please report data starting with the most recent year (e.g. first 2022, then 2021 and 2020).
Specific net energy consumption (kWh/t)	The energy consumed by the STM process (including electricity and heat; kWh) divided by the amount (or surface, or volume) of product treated in a reference year. 'Net' energy means that energy which is generated on site but used elsewhere (e.g. heat sent to another installation) needs to be subtracted and energy which is generated elsewhere but used on site needs to be added. Please note that: Specific net energy consumption = Specific net electricity consumption + Specific net energy consumption from fuels.
Specific net electricity consumption (kWh/t)	The electricity consumed by the process (kWh) divided by the amount (or surface) of product treated during the reference year. Net electricity consumption includes auto-produced electricity.

Specific net heat (e.g. steam) consumption (kWh/t)	The heat consumed by the process (kWh) divided by the amount (or surface) of product treated during the reference year. Net heat consumption includes all kinds of heat (e.g. steam, hot water).
Process	In the event that data are available, please report the total specific net energy/electricity/heat consumption together for the process steps listed. In the event that the data are aggregated for an entire process line please report the data and specify the corresponding number of the line (as reported in worksheet 2) in additional information.

	9. Raw materials & Chemicals
Consumption of hazardous substances/chemicals	Report here any relevant chemicals used in the STM processes or any directly associated activities.
Specific consumption of the hazardous substance/compound	Consumption should be derived from the amount of product purchased multiplied by the concentration (or maximum concentration in case of a range of concentrations) of the chemical in the product and reported in the relevant unit. In the event that several products containing the same substance are used the consumption should be summed up.
CAS number (exact substance or compound used)	If there is more than one CAS, list all of them separated by ; (e.g. 91728-14-2; 7429-90-5; 1344-28-1).
Tetrachloroethylene (PER)	CAS Number(s): 127-18-4
Formaldehyde	CAS Number(s): 50-00-0
Trichloromethane/Chloroform	CAS Number(s): 67-66-3 865-49-6
Ammonia	CAS Number(s): 1336-21-6
Ammonia, anhydrous	CAS Number(s): 7664-41-7
Cyanide	CAS Number(s): 143-33-9 sodium cyanide 151-50-8 potassium cyanide Other alkaline cyanides and different metal cyanide complexes
Methanol	CAS Number(s): 67-56-1
Ethanol	CAS Number(s): 64-17-5
Hydrochloric Acid/hydrogen chloride	CAS Number(s): 7647-01-0
Acetone	CAS Number(s): 67-64-1
Arsine	CAS Number(s): 7784-42-1
Benzene	CAS Number(s): 71-43-2
1,1,1-trichloroethane	**CAS Number(s):** **71-55-6**
Toluene	CAS Number(s): 108-88-3
Trichloroethylene	**CAS Number(s):** **79-01-6**
Aluminium (Al) and it compounds	CAS Number(s): 91728-14-2 7429-90-5 1344-28-1 aluminium oxide
Antimony (Sb)	CAS Number(s): 7440-36-0
Arsenic (As)	CAS Number(s): 7440-38-2
Barium (Ba)	CAS Number(s): 7440-39-3
Boron (Bo)	CAS Number(s): 7440-42-8 1330-43-4 disodium tetraborate, anhydrous 1332-77-0 dipotassium tetraborate 7775-19-1 sodium metaborate, anhydrous 10043-35-3 boric acid 11128-29-3 potassium pentaborate 12007-92-0 pentaboron sodium octaoxide
Cadmium (Cd)	CAS Number(s): 7440-43-9
Chromium (Cr)	CAS Number(s): **7738-94-5 chromic acid** **7778-50-9 potassium dichromate** **1333-82-0 chromium trioxide** 10025-73-7 chromium trichloride 10101-53-8 dichromium tris(sulphate) 13548-38-4 chromium trinitrate 59178-46-0 dichromium tris(hydrogen phosphate) Reaction mass of water and chromium trichloride
Cr (III)	CAS Number(s): 16065-83-1
Cr (VI)	CAS Number(s): 18540-29-9
Cobalt (Co)	CAS Number(s): 7440-48-4 cobalt 71-48-7 cobalt di(acetate) 513-79-1 cobalt carbonate 7440-48-4 cobalt 7646-79-9 cobalt dichloride 10124-43-3 cobalt sulphate 10141-05-6 cobalt dinitrate 14017-41-5 cobalt(2+) disulphamate 21041-93-0 cobalt dihydroxide

Copper (Cu)	CAS Number(s): 7440-50-8 544-19-4 copper diformate 1317-38-0 copper oxide 1317-39-1 dicopper oxide 3251-23-8 copper dinitrate 7440-50-8 copper 7447-39-4 copper dichloride 7758-98-7 copper sulphate 12069-69-1 copper(II) carbonate--copper(II) hydroxide (1:1) 20427-59-2 copper dihydroxide N/A copper(II) methanesulfonate
Iron (Fe)	CAS Number(s): 7439-89-6 1309-37-1 diiron trioxide
Lead (Pb)	CAS Number(s): 7439-92-1 7439-92-1 lead 13814-96-5 lead bis(tetrafluoroborate) 17570-76-2 lead(II) bis(methanesulfonate)
Nickel (Ni)	CAS Number(s): 373-02-4 nickel di(acetate) 7440-02-0 nickel 7718-54-9 nickel dichloride 7786-81-4 nickel sulphate 10028-18-9 nickel difluoride 12607-70-4 [carbonato(2-)]tetrahydroxytrinickel 13138-45-9 nickel dinitrate 13770-89-3 nickel bis(sulphamidate)
Selenium (Se)	CAS Number(s): 7782-49-2 7789-52-8 selenium dioxide 10025-68-0 selenium chloride 12640-89-0 selenium oxide 7446-08-4 selenium dioxide 13768-86-0 selenium trioxide
Silver (Ag)	CAS Number(s): 506-64-9 silver cyanide 7440-22-4 silver
Tin (Sn)	CAS Number(s): 7440-31-5 7488-55-3 tin sulphate 7772-99-8 tin dichloride
Zinc (Zn)	CAS Number(s): 7440-66-6 1314-13-2 zinc oxide 8051-03-4 zinc oxide 7646-85-7 zinc chloride 7646-85-7 zinc (chloride)
Octylphenols and Octylphenol ethoxylates (OP/OPEOs)	4-ter octylphenols (ramified) Ethoxylates OP1EO/OP2EO **Ethoxylated octyl phenol (CAS 9036-19-5)** other
Nonylphenols and Nonylphenol ethoxylates (NP/NPEOs)	4-Nonylphenols (ramified) Ethoxylates NP1EO/NP2EO **Ethoxylated branched Nonylphenol (CAS 68412-54-4)** other
PFAS	Per- and polyfluoroalkyl substances (PFASs) defined as: any substance that contains at least one fully fluorinated methyl (CF3) or methylene (CF2) carbon atom (without any H/Cl/Br/I attached to it). Among others: - 6:2 FTS (H4PFOS or 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctanesulphonic acid) - **CAS 27619-97-2** - N,N,N,-triethylethanaminium 1,1,2,2,3,3,4,4,4- nonafluorobutane-1-sulfonate (derivate of PFBS) - Potassium 1,1,2,2-tetrafluoro-2-(perfluorohexyloxo)ethane sulfonate (F-53) - Potassium 2-(6-chloro-1,1,2,2,3,3,4,4,5,5,6,6- dodecafluorohexyloxy)-1,1,2,2-tetrafluoroethane sulfonate (F-53B) - Perfluoroalkyl phosphinic acids - Perfluorohexanesulfonamides - 1-Alkanesulfonamide, N,N'-bis(2,3-dihydroxy propyl)-perfluoro- - Tridecafluoroheptanamide - Alkanamide, N,N-bis(2,3-dihydroxy propyl)-perfluoro - N-Alkyl perfluoroalkane sulfonamides - 1-Alkanesulfonamide, N,N'-[phosphonicobis(oxy- 2,1,ethanediyl)]bis[perfluoro-N-methyl)] - Fluorinated (meth)acrylate polymers - Potassium perfluorohexane-1-sulponate - Potassium undecafluorocyclohexanesulphonate - 1-Propanaminium, 3-[[(perfluoroalkyl)sulfonyl]amino]-N,N,N-trimethyl-, chloride (1:1) - 1-Propanaminium, N-ethyl-3-[[(perfluoroalkyl)sulfonyl]amino]- N,N-dimethyl-, ethyl sulfate (1:1) - N-[3-(Dimethylamino)propyl]-N-[(perfluoroalkyl)sulfonyl]-β- alanine - Cyclohexanecarboxamide, N-[3-(dimethyl amino)propyl]-1,2,2,3,3,4,4,5,5,6,6-undecafluoro- - 1-Propanaminium, N-(2-carboxyethyl)-N,N-dimethyl-3- [[(1,2,2,3,3,4,4,5,5,6,6 undecafluorocyclohexyl)carbonyl]amino]-, inner salt - 1-Propanaminium, N-(2-carboxyethyl)-3-[[[1,2,2,3,3,4,5,5,6, 6- decafluoro-4-(trifluoromethyl)cyclohexyl]carbonyl] amino]-N,N-dimethyl-, inner salt - Poly(oxy-1,2-ethanediyl), α-[2-[ethyl[(perfluoroalkyl) sulfonyl]amino]ethyl]-ω-hydroxy - N-(2,3-dihydro-2-oxo-1H-benzimidazol-5-yl)-3-oxo-2-[[2- (trifluoromethyl)phenyl]azo] butyramide - 3,3'-[(2-chloro-5-methyl-p-phenylene)bis[imino(1-acetyl-2- oxoethylene)azo]]bis[4-chloro-N-[2-(4-

10. Residues & Circular eco.	
Generation of residues at plant level	Please report the 7 most relevant types of sludges and residues (hazardousness/quantity).
Generation of residues (natural basis = not dried)	Specific amount to be considered on a natural basis (not dry basis).

Rate (in % referring to the same unit as reported in the generation of residues)	Reuse: any operation by which products or components that are not waste are used again for the same purpose for which they were conceived. Recycling: any operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. Residue materials are reprocessed into products, materials or substances for other purposes. Residues used for the same purpose for which they were conceived should be considered under re-use. Recycling excludes energy recovery and the reprocessing of waste/residues into materials that are to be used as fuels or for backfilling operations. Recovery: any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Disposal: any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy.
Process generating waste/residues ▼	In the event that both STM and non-STM processes are carried out generally with a common treatment plant from which wastes are generated, please report only data relevant for STM processes, or indicate the type of activities contributing to the generation of residues.

	11. Ind. symbiosis & Decarbon.
Quality requirement	Please specify any criteria/particularities considered in order to use the input, e.g.: minimum available quantity, number of possible providers, maximum % of impurities, distance for transportation.
Is there any activity carried out related to Annex I to Directive 2003/87/EC, as referred in Article 9.1. in Directive 2010/75/EU	Article 9.1. in Directive 2010/75/EU states: "Where emissions of a greenhouse gas from an installation are specified in Annex I to Directive 2003/87/EC in relation to an activity carried out in that installation, the permit shall not include an emission limit value for direct emissions of that gas, unless necessary to ensure that no significant local pollution is caused." See drop-down menu for the activities specified in Annex I to Directive 2003/87/EC.