

# **TDK Foil Iceland**

## **Pollutant Release and Transfer Register 2023 – Report**

30.04.2024

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## Introduction

The following regulations address the pollutant release and transfer register:

- Icelandic regulation no. 990/2008 on pollutant release and transfer register.
- Regulation (EC) no. 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC.

Industries that fall under Appendix I of reg. (EC) no. 166/2006 are according to Regulation no. 990/2008 required to:

- a) Submit to the Icelandic Environmental Agency (EA) information on all releases of pollutants to air, water and land from each operational unit of the industry, where pollutant releases exceed threshold values specified in Appendix II of the regulation (EC).
- b) Industries are required to submit information on the off-site transfers of hazardous waste exceeding 2 tonnes per year, or of non-hazardous waste exceeding 2.000 tonnes per year, for any operations of recovery or disposal. Waste shall be indicated with „R“ if the waste is intended for recovery and with „D“ if it is intended for disposal. If hazardous waste is to be transported across country borders, the name and address of the recycler or disposer of the waste shall be disclosed, as well as the actual site of recovery or disposal.
- c) Provide information on the off-site transport of pollutants in wastewater. As in paragraph a), this is valid for pollutants specified in Appendix II of the EC regulation.

The above information shall be submitted before May 1st of each year. TDK Foil Iceland ehf. falls under category 2 of Appendix I, Production and processing of metals, and subcategory f), Installations for surface treatment of metals and plastic materials using an electrolytic or chemical process where the volume of the treatment vats equals 30 m<sup>3</sup>.

In this report, the quantity and fate of possibly polluting substances used in the production process at TDK Foil Iceland ehf., as specified in the EC regulation, is addressed. The release of pollutants from TDK Foil Iceland ehf. that must be reported is submitted to the Icelandic Environmental Agency electronically in a specified excel sheet.

## Pollutants

In Appendix II of the EC regulation, 91 pollutants are listed, including threshold values (kg/year) for their release to air, water and to land, if it applies. If the release exceeds the threshold value in Appendix II, it must be registered in a format according to Appendix III in the EC regulation. A guidance document has been issued for the EC regulation, „Guidance Document for the implementation of the European PRTR“ (May 2006). Sector-specific air pollutants and water pollutants are tabulated in Appendices 4 and 5 of the guidance document, respectively. Pollutants from Appendix 4 are compiled in Table 1 and pollutants from Appendix 5 in Table 2. The tables include threshold values from the EC regulation, which indicate whether the pollutant is to be reported to the Environmental Agency in an appropriate format.

**Table 1** Air pollutants and threshold values for release (reportable threshold values) according to Annex 4, including identification of pollutants whose release was reviewed or estimated at TDK Foil Iceland ehf.

No.	Pollutant, name	Threshold value for release kg/year	Release reviewed/estimated See table 3
1	Methane (CH <sub>4</sub> )	100,000	
2	Carbon monoxide (CO)	500,000	
3	Carbon dioxide (CO <sub>2</sub> )	100,000,000	Yes
4	Hydro-fluorocarbons (HFCs)	100	Yes
5	Nitrous oxide (N <sub>2</sub> O)	10,000	Yes
6	Ammonia (NH <sub>3</sub> )	10,000	Yes
7	Non-methane volatile organic compounds (NMVOC)	100,000	
8	Nitrogen oxides (NO <sub>x</sub> /NO <sub>2</sub> )	100,000	
9	Perfluorocarbons (PFCs)	100	
10	Sulphur hexafluoride (SF <sub>6</sub> )	50	
11	Sulphur oxides (SO <sub>x</sub> /SO <sub>2</sub> )	150,000	
14	Hydrochlorofluorocarbons (HCFCs)	1	
15	Chlorofluorocarbons (CFCs)	1	
16	Halons	1	
17	Arsenic and compounds (as As)	20	
18	Cadmium and compounds (as Cd)	10	
19	Chromium and compounds(as Cr)	100	
20	Copper and compounds (as Cu)	100	
21	Mercury and compounds (as Hg)	10	Yes
22	Nickel and compounds (as Ni)	50	
23	Lead and compounds (as Pb)	200	
24	Zinc and compounds (as Zn)	200	
35	Dichloromethane (DCM)	1,000	
42	Hexachlorobenzene (HCB)	10	
47	PCDD + PCDF (dioxins + furans) (as Teq)	0.0001	
48	Pentachlorobenzene	1	
49	Pentachlorophenol (PCP)	10	
50	Polychlorinated biphenyls (PCBs)	0.10	
52	Tetrachloroethylene (PER)	2,000	
57	Trichloroethylene	2,000	
62	Benzene	1,000	
70	Di-(2-ethyl hexyl) phthalate (DEHP)	10	
72	Polycyclic aromatic hydrocarbons (PAHs)	50	
80	Chlorine and inorganic compounds (as HCl)	10,000	Yes
84	Fluorine and inorganic compounds (as HF)	5,000	
85	Hydrogen cyanide (HCN)	200	
86	Particulate matter (PM <sub>10</sub> )	50,000	

**Table 2** Water pollutants and threshold and reportable values for release according to Annex 5, including identification of pollutants whose release was reviewed or estimated at TDK Foil Iceland ehf.

<i>No.</i>	<i>Pollutant, name</i>	<i>Threshold value for release kg/year</i>	<i>Release reviewed/estimated See table 3</i>
12	Total nitrogen	50,000	Yes
13	Total phosphorus	5,000	Yes
17	Arsenic and compounds (as As)	5	
18	Cadmium and compounds (as Cd)	5	
19	Chromium and compounds (as Cr)	50	
20	Copper and compounds (as Cu)	50	
21	Mercury and compounds (as Hg)	1	Yes
22	Nickel and compounds (as Ni)	20	Yes
23	Lead and compounds (as Pb)	20	
24	Zinc and compounds (as Zn)	100	
40	Halogenated organic compounds (as AOX)	1,000	
70	Di-(2-ethyl hexyl) phthalate (DEHP)	1	
71	Phenols (as total C)	20	
72	Polycyclic aromatic hydrocarbons (PAHs)	5	
76	Total organic carbon (TOC) (as total C or COD/3)	50,000	Yes
79	Chlorides (as total Cl)	2,000,000	Yes
82	Cyanides (as total CN)	50	
83	Fluorides (as total F)	2,000	
88	Fluoranthene	1	
91	Benzo(g,h,i)perylene	1	

**Table 3** Chemical substances used at TDK Foil Iceland ehf. that could be released to air or water to a certain extent in kg and litres.

	Amount (kg)	Substance	Receiver	Substance nr.	Name of pollutant	Reference value (kg/y)	Method M/C/E	Estimation of release	Quantity, if over threshold kg/year
Organic acid	26.761	CO <sub>2</sub>	Air	3	Carbon dioxide	100.000.000		Total use of acid (26.761) and total fuel oil (diesel: 2.983 litres, approx. 2.536 kg). Total 29.297 kg, always below ref. value.	<
Fuel oil	2.983	CO <sub>2</sub>	Air						
Phosphoric acid, 75 %	766.286	PO <sub>4</sub>	Water (Air)	13	Total phosphorus	5.000	M	Average values of monitoring: 16,9 mg/l and flux 1.674 m <sup>3</sup> /day or 10.327 kg/year	10.327
P3 - Ultrasil 60A	4.704	PO <sub>4</sub>	Water						
		N <sub>2</sub> O	Air	5	Nitrous oxide	10.000		Use of P3 – Ultrasil 60A 4.704 kg	<
Aqueous Ammonia, 24,5%	38.757	NH <sub>3</sub>	Air	6	Ammonia	10.000	E	24,5% of 38.757 kg is 9.495 kg	<
		NH <sub>3</sub>	Water	12	Total nitrogen	50.000	E/M	Small amount of NH <sub>3</sub> from backwash, NO <sub>3</sub> from Ultrasil 78 and nitric acid. Total amount below reference value. Monitoring of N, 3,4 mg/l of 1.674 m <sup>3</sup> /day or 2.084 kg.	<
P3 - Ultrasil 78	1.564	NO <sub>3</sub>	Water						
Nitric acid, 65 % 1 ltr	50	NO <sub>3</sub>	Water						
Mercury, 99,99%, 1 kg	0	Hg	Air/Water	21	Mercury and compounds (as Hg)	Air:10 / Water: 1	E/M	Mercury no longer used in production since April 2018. Single point measurement March 2023: Not detectable	<
Hydrochloric acid, 30 %	20.077	Cl	Water (Air)	79	Chlorides (as total Cl)	2.000.000		Use 20.077 kg	<
P3 - Ultrasil 110	253	SO <sub>3</sub>	Water						
Sodium hydroxide, 33%	118.415								
Motor oil	184								
Cooling agent (R407 C)	0	HFC	Air	4	Hydro-fluorocarbons (HFCs)	100		No release in 2023	<
Boric acid powder	650								
Antifreeze	0							No release in 2023	
Ethanol (Red Spirit),	132								
Nickel	0		Water	22	Nickel and comp. (as Ni)	20	E/M	Single point measurement March 2023; 57,6 µg/l** Estimated discharge of 0,0968 kg/day or 35,3 kg kg/year	35,3
Total organic carbon (TOC)	-		Water	76	Total organic carbon (TOC) (as total C or COD/3)	50.000	E/M	Conc. COD 18,6 mg/l. Flow 1.674 m <sup>3</sup> /day. Total COD 11.366 kg. Ratio COD/TOC ~ 3,1-3.3. Estimated TOC: 7419 kg.	<
Waste (total)	371.420					2.000.000		Below reference value. Total waste means general waste, hazardous waste and waste for recycling	<
Hazardous waste	492					2.000		Oil sent for disposal. Release estim. 7 kg (8 litres, density 0,864 kg/L). Other: 485 kg.	<

\*: “ < ” Below reference value

\*\* Not used in production, possible contamination from machines.

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## **Waste**

### *Hazardous waste*

As presented in table 3, 492 kg of hazardous waste was collected in 2023 and delivered to an authorized waste management service. The highest single amount was 183 kg of packaging containing oil residues. The quantity is below the reference value for hazardous waste, which is 2.000 kg.

### *Other waste*

In 2023, a total of 271.420 kg of waste and waste for recycling was transported to an authorized waste management service. Out of the total waste, 17.369 kg was unsorted general waste for disposal, 9.943 kg sorted plastic deemed unrecyclable, and 343.347 kg went to recycling. The quantity of waste was under the reference value for waste, which is 2.000 tonnes.

## **Summary**

According to the above review of pollutant release in table 1 and table 2, the release of phosphorus and nickel in water in 2023 were above the threshold values, see description in table 3. The release of these substances is reported to the Environmental Agency in an Excel format, according to Appendix III in the EC regulation.

The off-site transport of general waste and of non-hazardous waste from the plant was under the reference values in 2023, as well as hazardous waste.

- TDK Foil Iceland ehf. aims to use the provided information in this accounting on the release of pollutants to reduce the release of substances if it is possible and feasible with regards to the manufacturing process, environment and cost.
- TDK Foil Iceland ehf. has used the most pragmatic methods to estimate the release of pollutants, such as purchase inventories, the balance of chemical substances, (emission factors) and calculations. TDK Foil Iceland ehf. aims to improve its estimation methods in the future in terms of added experience and new methods that will be presented in relevant guidance documents.

## **Attachment:**

**2023 Register for pollutant release exceeding threshold values, in Excel format.**