Quick guide for

PRTR SQLite Database

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Table of Contents

1 Introduction

The data from the Pollutant Release and Transfer Register (PRTR) can be accessed individually via the website thru.de. For users interested in the complete PRTR dataset or in comprehensive, complex analyses (e.g., by industry sector or regional criteria), the complete PRTR dataset is available as an SQLite database. This dataset contains PRTR data for the reporting years 2007 to 2024. The SQLite database was chosen because it is relatively easy to use and well-suited for this purpose. Furthermore, the PRTR project is committed to the principles of open source and publishes all documentation and applications under open licenses.

This quick guide provides assistance with using the SQLite database and includes pre-built SQL statements. These SQL statements are relatively easy to modify and extend for database users, enabling them to answer even complex queries.

If you need help modifying existing queries or formulating new ones, please seek assistance in relevant online forums.

2 Data model

2.1 General

SQLite only recognizes very simple data types, namely:

- INTEGER – corresponds to whole numbers
- REAL – corresponds to floating-point numbers
- TEXT – corresponds to any form of text

BOOL values (yes/no values or true/false values) are represented by 1 (yes or true) and 0 (no or false).

Non-existent values are marked by the value NULL.

When we refer to entries in the following, we always mean a row in a table.

2.2 Facilities

The table **facilities** is the central table. It contains the describing data for each facility reported annually in accordance with the EPRTR Regulation (EC) No 166/2006. A facility's industrial activities (referred to as "activities"), releases of pollutants into the environment, transfer of pollutants in wastewater, and transfer of waste are stored in separate tables. Each row in these separate tables corresponds to an entry in the facilities table, i.e., to a specific facility in a specific reporting year.

Column name	Type	Remarks
id	INTEGER	Unique identifier for each entry
Inspire_id	TEXT	Unique identifier for each facility
year	INTEGER	reporting year
name	TEXT	name of facility
administrativ_number	TEXT	Unique identifier for each facility (old system)
ETRS89_x	REAL	X-coordinate (longitude) of the location of the facility in the ETRS89 coordinate system
ETRS89_y	REAL	Y-coordinate (latitude) of the location of the facility in the ETRS89 coordinate system
street	TEXT	Postal address of the facility
house_number	TEXT	Postal address of the facility
postcode	TEXT	Postal address of the facility
city	TEXT	Postal address of the facility
federal_state	TEXT	Federal state in which the facility is located
river_basin_district	TEXT	river basin district in which the facility is located
parent_company	TEXT	parent company of the facility
operating_hours	INTEGER	number of operating hours in the reporting year
prtr_info	TEXT	Operator information for the public
nace_code	TEXT	Code in the NACE classification
nace_text	TEXT	Name of the NACE acitivity

2.3 Activities

The table lists the **activities** reported by a facility in accordance with the PRTR Regulation. The facility's (exactly one) main PRTR activity is assigned to the activity with the greatest environmental impact.

Column name	Type	Remarks
id	INTEGER	Unique identifier for each entry
facility_id	INTEGER	Reference to the id of the facility to which this activity belongs
Inspire_id	TEXT	Unique identifier for each facility
year	INTEGER	reporting year
main_activity	BOOL	Is this activity the main activity of the associated facility in the reporting year? A main activity is the activity with the greatest environmental impact. 1 = Main activity 0 = Other activity
prtr_key	TEXT	Key to the activity in the PRTR Regulation
prtr_description	TEXT	Description of activity according to the PRTR Regulation
ippc_key	TEXT	Key to the activity in the IPPC Directive
ippc_description	TEXT	Description of activity according to the IPPC Directive
industry_sector	TEXT	Industry sector to which the activity belongs

2.4 Releases

The table **releases** contains the releases reported by a facility according to the PRTR Regulation, per pollutant and environmental compartment.

Column name	Type	Remarks
id	INTEGER	Unique identifier for each entry
facility_id	INTEGER	Reference to the id of the facility to which this activity belongs
Inspire_id	TEXT	Unique identifier for each facility
year	INTEGER	reporting year
compartment	TEXT	The environmental compartment (water, air or land) into which the pollutant was released
annual_load	REAL	Amount of the pollutant released this year [kg/a]
annual_load_accident	REAL	Proportion of annual load accidentally released [kg/a]
pollutant_name	TEXT	name of released pollutant
pollutant_group	TEXT	Name of the pollutant group to which the released pollutant belongs
pollutant_casnummer	TEXT	CAS number of the released pollutant
pollutant_threshold	TEXT	minimum value above which the released pollutant must be reported and above which the facility is subject to PRTR reporting requirements.
determination_method	TEXT	method for determining the quantity of the released pollutant
determination_procedure	TEXT	procedures for determining the quantity of the released pollutant

2.5 Transfer of pollutant in wastewater

The table **wastewater_transfers** contains the annual loads of pollutants transferred with wastewater reported by a facility in accordance with the PRTR Regulation.

Column name	Type	Remarks
id	INTEGER	Unique identifier for each entry
facility_id	INTEGER	Reference to the id of the facility to which this activity belongs
Inspire_id	TEXT	Unique identifier for each facility
year	INTEGER	reporting year
annual load	REAL	amount of the pollutant transferred with wastewater this year [kg/a]
pollutant_name	TEXT	name of transferred pollutant
pollutant_group	TEXT	name of the pollutant group to which the transferred pollutant belongs
pollutant_casnummer	TEXT	CAS number of the transferred pollutant
pollutant_threshold	TEXT	Minimum value above which the transferred pollutant must be reported and above which the facility is subject to PRTR reporting requirements.
determination_method	TEXT	method for determining the quantity of the transferred pollutant
determination_procedure	TEXT	procedures for determining the quantity of the transferred pollutant

2.6 Transfer of waste

The table **waste_transfers** contains the waste transfers reported by a facility in accordance with the PRTR Regulation.

Column name	Type	Remarks
id	INTEGER	Unique identifier for each entry
facility_id	INTEGER	Reference to the id of the facility to which this activity belongs
Inspire_id	TEXT	Unique identifier for each facility
year	INTEGER	reporting year
quantity	REAL	quantity of the transferred waste in this year [t/a]
hazardous	BOOL	Is it hazardous waste? 1 = hazardous waste 0 = non-hazardous waste
foreign_country	BOOL	Was there transboundary movement of the hazardous waste? 1 = Hazardous waste was transferred abroad 0 = Hazardous waste was transferred inland
disposition	TEXT	was the waste destined for recovery or for disposal operations
determination_method	TEXT	method for determining the quantity of the waste
determination_procedure	TEXT	procedures for determining the quantity of the waste
waste_handler_party	TEXT	For transfer abroad: Name and address of the receiver which carried out the recovery or disposal operations
site_adress	TEXT	For transfer abroad: Actual city of the receiver which carried out the recovery or disposal operations

2.7 Reasons for confidentiality

For each of the tables named **tablename** above, there exists a corresponding table **tablename_pdcc** containing any reasons for confidentiality. If data are confidential, the corresponding reason (or reasons) for confidentiality exists in the **tablename_pdcc** table.

Column name	Type	Remarks
tablename_id	INTEGER	Reference to the id of the associated data from tablename
reason	INTEGER	reason for confidentiality

3 SQL-Queries

3.1 Examples

3.1.1 Facilities and their main activities for the year 2024

```
SELECT
        b.inspire_id as InspireID,
        b.year as year,
        b.name as "facility name ",
        t.prtr_key  as a_nr,
        t.prtr_description as activity,
        t.industry_sector as sector,
        case when t.main_activity then 'Yes' else 'No' end as "main activity ",
        t.main_activity,
        b.federal_state
FROM
        facilities b,
        activities t
WHERE
        b.id = t.facility_id
        AND t.main_activity = 1
        AND b.year = '2024'
GROUP BY t.industry_sector, b.year, b.inspire_id;
```

3.1.2 Facilities and release of dioxine by media, industry sector for all years

```
SELECT
        b.inspire_id,
        b.name,
        b.wgs84_x,
        b.wgs84_y,
        t.industry_sector,
        t.prtr_key  as a_nr,
        t.prtr_description as activity,
        t.main_activity as "main activity ",
        f.annual_load,
        f.annual_load_accident,
        f.determination_method,
        f.compartment as "environmental compartment",
        f.pollutant_name,
        f.year
FROM facilities b
JOIN releases f ON b.id = f.facility_id
JOIN activities t ON b.id = t.facility_id AND t.main_activity = 1
WHERE f.pollutant_name = 'PCDD + PCDF (Dioxins + Furans) (as Teq)'
ORDER BY f.annual_load DESC;
```

3.1.3 Facilities of the chemical industry with pollutant releases by media for all years

```
SELECT
        b.inspire_id as InspireID,
        b.name as "facility name",
        t.industry_sector as sector,
        t.prtr_key  as a_nr,
        t.prtr_description as activity,
        t.main_activity as "main activity",
        f.annual_load,
        f.annual_load_accident,
        f.determination_method,
        f.compartment as "environmental compartment",
        f.pollutant_name as pollutant,
        f.year as "reporting year"
FROM facilities b
JOIN releases f ON b.id = f.facility_id
JOIN activities t ON b.id = t.facility_id
WHERE
        t.main_activity = 1
        AND t.industry_sector = 'Chemical industry';
```

3.1.4 Aggregation of pollutant flows from releases by media for all years

```
SELECT
        f.pollutant_name as pollutant,
        f.year as year,
        sum(f.annual_load) as "annual load",
        f.compartment
FROM
        releases f
WHERE f.pollutant_name is not null
GROUP BY f.pollutant_name, f.year, f.compartment
ORDER BY "annual load" DESC;
```

3.1.5 Aggregation of transferred pollutant in waste water by industry sectors for year 2023

```
SELECT
        v.pollutant_name as pollutant,
        v.year as year,
        sum(v.annual_load) as "annual load",
        t.industry_sector as sector
FROM
        facilities b,
        activities t,
        wastewater_transfers v
WHERE
        b.id = v.facility_id
        AND b.id = t.facility_id
        AND t.main_activity = 1
        AND v.pollutant_name is not null
        AND b.year = 2023
GROUP BY v.pollutant_name, v.year, t.industry_sector
ORDER BY "annual load" DESC;
```

3.1.6 Facilities with transfer of hazardous waste by main industrial activities, inner/foreign country and recovery/disposal for year 2022

```
SELECT
        b.inspire_id as InspireID,
        b.name as name,
        t.industry_sector as sector,
        t.prtr_key  as a_nr,
        t.prtr_description as activity,
        t.main_activity as "main activity",
        va.quantity as quantity,
        case when va.hazardous then 'hazardous' else 'nonhazardous' end AS "waste type",
        case when va.foreign_country then 'yes' else 'no' end AS "transboundary",
        va.disposition as disposition,
        va.year
FROM
        facilities b
JOIN waste_transfers va ON b.id = va.facility_id
        AND va.hazardous
JOIN activities t ON b.id = t.facility_id AND t.main_activity
        AND va.year = '2022'
ORDER BY quantity DESC;
```

3.1.7 Aggregation of hazardous waste by main industrial activities for all years

```
SELECT
        av.year as year,
        t.industry_sector as sector,
        sum(av.quantity) as "amount of waste"
FROM
        facilities b,
        activities t,
        waste_transfers av
WHERE
        b.id = av.facility_id
        AND b.id = t.facility_id
        AND t.main_activity = 1
        AND av.hazardous = 1
GROUP BY av.year, t.industry_sector
ORDER BY year DESC, "amount of waste" DESC;
```

3.1.8 Facilities with confidential releases and reasons for confidentiality in the year 2020

```
SELECT b.federal_state, b.inspire_id, b.name, pdcc.reason as "proprietary data, company
confidential"
FROM facilities b
JOIN releases f
        ON b.id = f.facility_id
JOIN releases_pdcc pdcc
        ON f.id = pdcc.release_id
WHERE b.year = 2020;
```