

## 5.D.2 - Industrial Wastewater Handling

### Short description

NFR-Code	Name of Category	Method	AD	EF	Key Category <sup>1</sup>
5.D.2	Industrial Wastewater Handling	T1	NS	D	no key categor

In category **5.D.2**, NM VOC emissions from industrial wastewater handling are reported. The industrial section is covered by wastewaters from industrial processes. Main sectors are chemical industries, iron & steel industries, power generation, Food sector and Paper & Cardboard-production.

### Method

Emissions reported under this category are calculated using the Tier 1 approach of the EMEP/EEA Guidebook 2016, where the emission factor (EF) is 15 mg/m<sup>3</sup> wastewater (Part B, 5.D, chap. 3.2.2, Table 3-1, p. 7 <sup>1)</sup>). This EF is multiplied with the total amount of wastewater (AD) treated in industrial wwt-plants, following the equation:

$$\text{Emissions}_{\text{NM VOC}} = \text{AD} \times \text{EF} \text{ (ibid., chap. 3.2.1)}$$

### Activity data

Total volumes of treated industrial wastewater are derived by the German statistical agency (Statistisches Bundesamt, Umweltnutzung und Wirtschaft. Tabellen zu den Umweltökonomischen Gesamtrechnungen. Teil 4: Wassereinsatz, Abwasser. Table 7.7 <sup>2)</sup>). The availability of the data starts in 1991 with new data for every following year, until 2001. Until then the data source is published on a three-year basis with new data only for the respective year of the update. Missing data are inter- or extrapolated

### Emission factors

See method.

It should be noted that the described default emission factor was collected in Turkey for municipal wastewater treatment plants under specific climatic conditions in developing countries. The wastewater characteristics of the considered industries sometimes differ significantly from municipal wastewater.

### Uncertainties

The AD from Statistisches Bundesamt have an uncertainty of  $\pm 3\%$  (normal distribution) whereas the uncertainty for the EF, due to its range (5/50 mg/m<sup>3</sup>), is -70 / +210 % and the distribution lognormal.

### Recalculations

Recalculations were not necessary

### Planned improvements

Currently no improvements are planned.

<sup>1)</sup>

EMEP/EEA Guidebook 2016; Part B, 5.D, chap. 3.2.2

<sup>2)</sup>

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Statistisches Bundesamt, Umweltnutzung und Wirtschaft. Tabellen zu den Umweltökonomischen Gesamtrechnungen. Teil 4: Wassereinsatz, Abwasser. Table 7.7