# 5.D.2 - Industrial Wastewater Handling

# **Short description**

<b>Category Code</b>		Me	AD						EF						
5.D.2		-	NS					D							
	NO <sub>x</sub>	NMVOC	SO <sub>2</sub>	NH <sub>3</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	TSP	вс	СО	Pb	Cd	Hg	Diox	PAH	нсв
Key Category:	-	-/-	-	-	-	-	-	-	-	-	-	-	-	-	-

ney caregory:	<u> </u>							$\overline{}$						
Method(s) applied														
D		Defa	ult											
T1		Tier :	1 / Si	mple	Metho	dology	*							
T2		Tier 2	2*											
Т3		Tier 3	3 / D	etailed	d Meth	nodolog	ју *							
С		CORI	NAIR											
CS		Coun	try S	pecifi	С									
М		Mode	el											
* as described in the	EMEP/E	EA En	nissic	n Inve	entory	Guide	book	- 20	19, i	n cat	ego	ry cł	napter	´S.
(source for) Activit	ty Data													
NS		Natio	nal S	Statist	ics									
RS		Regio	onal	Statist	ics									
IS		Inter	natio	nal St	atistic	CS								
PS		Plant	Spe	cific										
As		Asso	ciatio	ns, bu	usines	s orgai	nisati	ons						
Q		speci	ific Q	uestic	nnair	es (or s	urve	ys)						
M		Mode	el / M	odelle	d									
С		Confi	ident	ial										
(source for) Emissi	ion Fact	tors												
D		Defa	ult (E	MEP (	Guidel	book)								
CS		Coun	try S	pecifi	С									
PS		Plant	Spe	cific										
M		Mode	el / M	odelle	ed									
С		Confi	ident	ial										

In category **5.D.2**, <u>NMVOC emissions</u> 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 2019, where the emission factor (EF) is 15 mg/m $^3$  wastewater (Part B, 5.D, chap. 3.2.2, Table 3-1, p. 7  $^1$ ). This EF is multiplied with the total amount of wastewater (AD) treated in industrial wwt-plants, following the equation:

**Emissions**  $_{NMVOC}$  = **AD** x **EF** (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

#### **Emisson 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/m³), is -70 / +210 % and the distribution lognormal.

## **Recalculations**

Recalculations were not necessary.



For **pollutant-specific information on recalculated emission estimates for Base Year and 2019**, please see the pollutant specific recalculation tables following chapter 8.1 - Recalculations.

# **Planned improvements**

Currently no improvements are planned.

<sup>&</sup>lt;sup>1)</sup> EMEP/EEA, 2019: EMEP/EEA air pollutant emission inventory guidebook 2019, Copenhagen, 2019

<sup>&</sup>lt;sup>2)</sup> Statistisches Bundesamt, Umweltnutzung und Wirtschaft. Tabellen zu den Umweltökonomischen Gesamtrechnungen. Teil 4: Wassereinsatz. Abwasser. Table 7.7