2.B.10.a - Other Chemicals

Short description

In sub-category *2.B.10.a - Other Chemicals*, emissions from the production of organic chemicals, titanium dioxide, sulphuric acid, carbon black, fertilizers and from the chlor-alkali industry are reported. Relevant pollutants are NMVOC, CO, PCDD/F, SO_x, NH_3, $PM_{2.5}$, PM_{10}, TSP and Hg.

Table 1: Overview of emission sources covered

Emission sources	Pollutants	Method	AD	EF	Key Category
Organic products	NMVOC (PCDD/F $_{\text{only for Ethylene Dichloride}}$)	T2	NS	CS	
Carbon Black	CO, SO_2, TSP, PM_{10}, $PM_{2.5}$	T2	NS	D, CS	
Fertilizers	TSP, PM_{10}, $PM_{2.5}$, NH_3	T2	-	D, CS	
Sulphuric acid	SO_2	T2	NS	CS	L & T
Chlor-alkali industry	Hg	T3	PS	-	T

T = key source by Trend **L** = key source by Level

Methods	
D	Default
RA	Reference Approach
T1	Tier 1 / Simple Methodology *
T2	Tier 2*
T3	Tier 3 / Detailed Methodology *
C	CORINAIR
CS	Country Specific
M	Model

* as described in the EMEP/CORINAIR Emission Inventory Guidebook - 2007, in the group specific chapters.

AD - Data Source for Activity Data	
NS	National Statistics
RS	Regional Statistics
IS	International Statistics
PS	Plant Specific data
AS	Associations, business organisations
Q	specific questionnaires, surveys

EF - Emission Factors	
D	Default (EMEP Guidebook)
C	Confidential
CS	Country Specific
PS	Plant Specific data

Methodology

Organic products: activity data and emission factors

The annual production volumes for all organic products are extracted from national production statistics [1)]) by the Federal Statistical Office.

Organic products comprise:

- Acrylonitrile
- Ethylene
- Ethylbenzene
- Ethylene Dichloride
- Ethylene Oxide
- Formaldehyde (Methanal)
- Methanol
- Phthalic Anhydride
- Propene
- Styrene
- Vinyl Chloride
- Polyethylene (LD/HD)
- Polypropylene
- Polystyrene
- Polyvinyl Chloride
- Styrene Copolymeres

The emission factors for the production of organic products as shown in table 2 and 3 are derived from best reference documents polymers and LVOC mostly for the early years. For later years, plant-specific data on an aggregated level were used.

Table 2: national NMVOC emission factors for producing organic chemicals, in kg/t

Product	Acrylonitrile	Ethylbenzene	Ethylene	Ethylene Dichloride	Ethylene Oxide	Formaldehyde (Methanal)	Methanol	Phthalic Anhydride	Propene	Styrene	Vinyl Chloride
from 1990-1994	5	0.6	5	C	5	5	0.04	5	2.5	0.02	0.2
1995	0.07	0.02	0.4	C	0.06	0.02	0.04	0.2	0.2	0.02	0.2
1996	0.05	0.015	0.3	C	0.045	0.015	0.04	0.15	0.15	0.02	0.15
1997	0.05	0.015	0.3	C	0.045	0.015	0.04	0.15	0.15	0.02	0.15
1998	0.04	0.012	0.25	C	0.04	0.012	0.04	0.12	0.12	0.02	0.12
1999	0.04	0.012	0.25	C	0.04	0.012	0.04	0.12	0.12	0.02	0.12
from 2000	0.035	0.01	0.2	C	0.03	0.01	0.04	0.1	0.1	0.02	0.1

Table 3: national NMVOC emission factors for producing polymers, in kg/t

products	Polyethylene		Polypropylen (PP)	Polystyrene (PS)	Polyvinyl Chloride (PVC)	Styrene Copolymeres
	Low density	High density				
from 1990-1994						
1995						

1996						
1997						
1998						
1999						
from 2000						

Carbon Black

The figures for carbon black production in the new German Länder in 1990 were taken from the Statistical Yearbook (Statistisches Jahrbuch) for the Federal Republic of Germany [2)]; the figures for 1991 and 1992 were estimated, due to confidentiality requirements. The other data for carbon-black production as of 1990 were obtained from national production statistics [3)]).
From 2005 onwards, Germany uses activity data calculated from the CO2 emissions of the Emission Trading System (ETS), delivered from the German emission trading authority (DEHSt), and the default CO_2 emission factor from the IPCC Guidelines 2006 for carbon black production. A comparison of the statistical data and the emission trading data leads to the result, that the statistical data is most probably overestimated.

Fertilizers

Sulphuric acid

The activity data for sulphuric acid production are from the statistical office of Germany.

Chlor-alkali industry

For the mercury losses from the Chlor-alkali industry Germany uses the yearly published data from OSPAR on the plant specific production capacity for the AD and the plant specific emissions from the chlor-alkali industry. Because of the BAT conclusion for the Chlor-alkali industry the production has stopped in 2017. But the emissions of Hg are still continuing, because two plants are producing alcoholates and dithionite and are not regulated by the BAT conclusions for Chlor-alkali production.

[1)] , [3)]
DESTATIS, Fachserie 4, Reihe 3.1, Produzierendes Gewerbe, Produktion im Produzierenden Gewerbe (“manufacturing industry; production in the manufacturing industry”
[2)]
TODO: David bitte vervollständigen DESTATIS, 1992: p. 234