

## 2.C.6 - Zinc Production

### Short description

Within this NFR subcategory, SO<sub>2</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, As, Cd, Hg, Pb, Zn, PCDD/F, and PCB emissions from the production of zinc are reported.

| Category Code | Method          |        |                 |                 |                   | AD               |     |    |    |     | EF   |     |      |     |     |
|---------------|-----------------|--------|-----------------|-----------------|-------------------|------------------|-----|----|----|-----|------|-----|------|-----|-----|
| 2.C.6         | T1              |        |                 |                 |                   | AS               |     |    |    |     | D,CS |     |      |     |     |
|               | NO <sub>x</sub> | NM VOC | SO <sub>2</sub> | NH <sub>3</sub> | PM <sub>2.5</sub> | PM <sub>10</sub> | TSP | BC | CO | Pb  | Cd   | Hg  | Diox | PAH | HCB |
| Key Category: | -               | -      | -/-             | -               | -/-               | -/-              | -/- | -  | -  | -/- | -/-  | -/- | -/-  | -   | -   |

### Method

#### Activity data

The yearly production figures were taken from the annual statistical report of the German association for non-ferrous metals [\[Lit. 1\]](#).

#### Emission factors

The emission factors are either default values according to the 2019 EMEP/EEA air pollutant emission inventory guidebook [\[Lit. 2\]](#) or determined in several research projects. The EF for the heavy metals (HM) are taken from a research project [\[Lit. 3\]](#).

Table 1: Tier 2 emission factors applied for primary zinc production

|                   | EF      | Unit |
|-------------------|---------|------|
| SO <sub>2</sub>   | 1.35    | kg/t |
| PM <sub>2.5</sub> | 0.0385  | kg/t |
| PM <sub>10</sub>  | 0.0613  | kg/t |
| TSP               | 0.100   | kg/t |
| As                | 123.882 | mg/t |
| Cd                | 1,085   | mg/t |
| Hg                | 0.5     | g/t  |
| Pb                | 19,605  | mg/t |
| Zn                | 51.968  | mg/t |
| PCDD/F            | 0.15    | µg/t |
| PCB               | 1.0     | mg/t |

Table 2: Tier 2 emission factors applied for secondary zinc production

| Pollutant         | EF     | Unit |
|-------------------|--------|------|
| SO <sub>2</sub>   | 1.35   | kg/t |
| PM <sub>2.5</sub> | 0.0385 | kg/t |
| PM <sub>10</sub>  | 0.0613 | kg/t |
| TSP               | 0.100  | kg/t |
| As                | 0.03   | g/t  |
| Cd                | 0.23   | g/t  |
| Hg                | 1.5    | mg/t |
| Pb                | 0.95   | g/t  |
| Zn                | 9      | g/t  |
| PCDD/F            | 0.15   | µg/t |
| PCB               | 1.0    | mg/t |

## Recalculations

No recalculations were necessary.



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

## Planned improvements

No category specific improvements are planned.

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## Bibliography

**Lit. 1:** German association for non-ferrous metals (WirtschaftsVereinigung Metalle): Annual statistical report:

<https://www.wvmetalle.de>

**Lit. 2:** EMEP/EEA, 2019: EMEP/EEA air pollutant emission inventory guidebook 2019, Copenhagen, 2019.

<https://www.eea.europa.eu/publications/emep-eea-guidebook-2019/part-b-sectoral-guidance-chapters/2-industrial-processes/2-c-metal-production/2-c-6-zinc-production-2016/view>

**Lit. 3:** Ökopol, IER, IZT, IfG: Bereitstellung einer qualitätsgesicherten Datengrundlage für die Emissionsberichterstattung zur Umsetzung von internationalen Luftreinhalte- und Klimaschutzvereinbarungen für ausgewählte Industriebranchen  
Teilvorhaben 2: NE-Metallindustrie, Kalkindustrie, Gießereien.