# 2.A.5.a - Quarrying & Mining - Other Than Coal

| Category Code | Method | | | | | AD | | | | | EF | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.A.5.a | T1 | | | | | NS | | | | | D | | | | |
| **Key Category** | **$SO_2$** | **$NO_x$** | **$NH_3$** | **NMVOC** | **CO** | **BC** | **Pb** | **Hg** | **Cd** | **Diox** | **PAH** | **HCB** | **TSP** | **$PM_{10}$** | **$PM_{2.5}$** |
| 2.A.5.a | - | - | - | - | - | - | - | - | - | - | - | - | L/- | L/T | L/- |

**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 |

In Germany we use two approaches - one for Sands and rocks, one for salts. Information about the current relevance is shown in 2.A - Mineral Industry.

## Short description - Sands and Rocks

The mining process emits relevant amounts of particles. Quarrying and mining of minerals other than coal is subsumed, in particular mining of limestone, hard rock and building Sands, with rising recycled materials.

## Methodology

With the use of the 2019 GB method [1)], a Tier 2 method is available that can reflect different national conditions.

As provided for in the GB model, we use AD in the split hard rock, sand and recycled material. These AD are taken from association information because the national statistics are not complete [2)]. The application of the method therefore resulted in higher AD. The calculation of emissions takes into account national circumstances and reduction measures.The calculations are available in a total more than ten Excel files (individual years since 1990, annually from 2010).

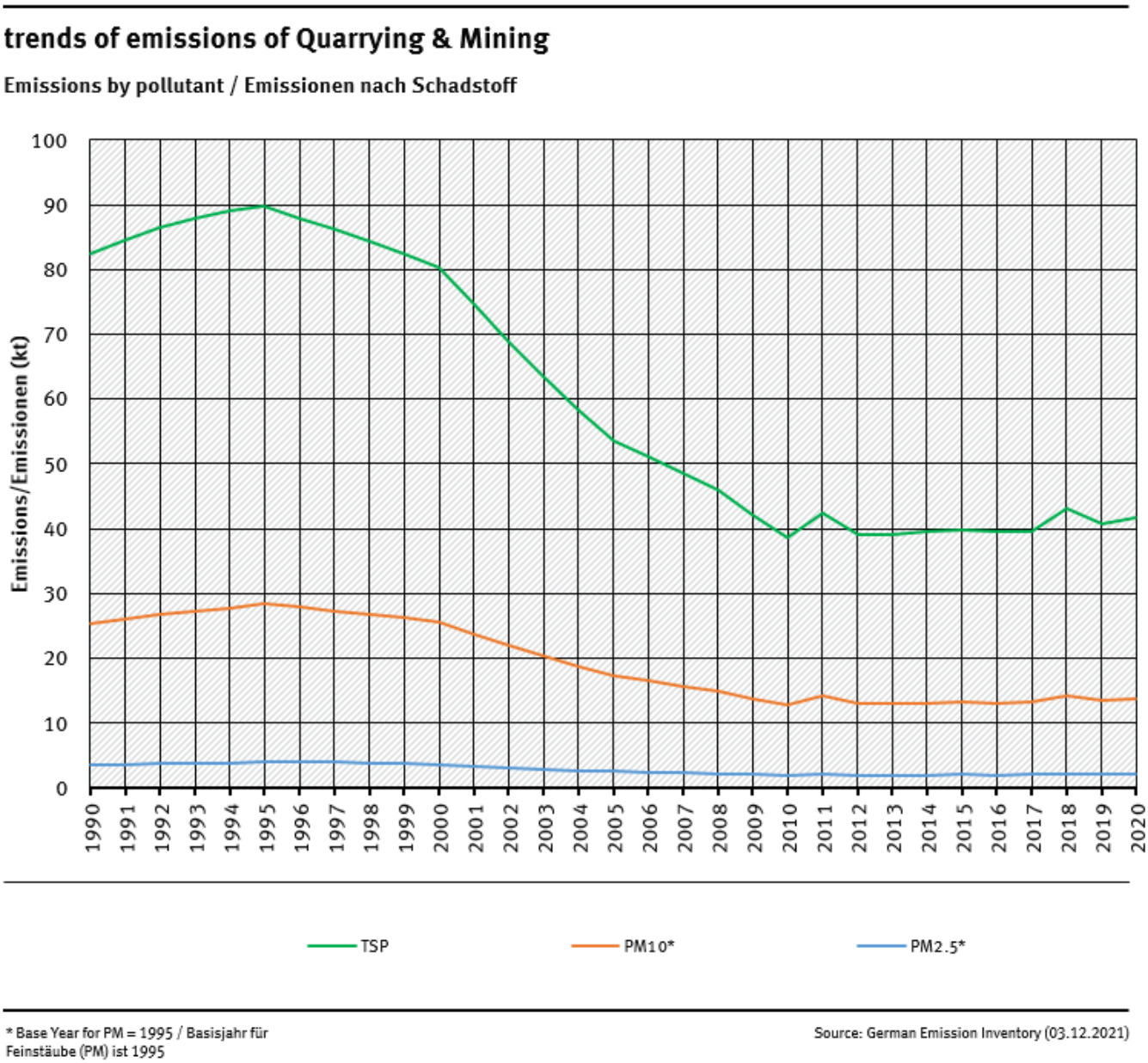
Since the GB tool in principle calculates emissions for exactly one year [3)], files must be available for exactly those years in which input data are available. Intermediate years are interpolated in case of data gaps.

With the help of the GB tools, IEFs are reported on an annual basis, which are used for the inventory method AR x EF. Thus the activity data are presented transparently and can be discussed with data suppliers. The emission factors can be modified

if further information on the parameters of the GB-tool is available.

## Trend discussion

Trends in emissions follow the shrinking mining activities.




Emission trends in NFR 2.A.5.a

## Recalculations

Recalculations were necessary due to minor revised AD for the last recent year.

## Planned improvements

At the moment, no category-specific improvements are planned.

# Short description - Salt Production

Salt production is a sub-category of the mining activities in respect of the country specific approach used. Currently, a Tier 1 method is used: information on production of salts are multiplied with emission factors for TSP and PM.

# Method

## Activity data

The data from national statistics includes production of potash and rock salt. Potash salt is dominating, nevertheless gaps of statistics are filled and emissions are modelled as potash salt only.

## Emission factors

The emission factors are based on analogy to bulk product handling by an expert judgements from UBA:

Table 2: Overview of applied emission factors, in kg/t salt

| Pollutant | EF value | EF trend |
|---|---|---|
| **TSP** | 0.031 | constant |
| **$PM_{10}$** | 0.016 | constant |
| **$PM_{2.5}$** | 0.003 | constant |

# Planned improvements

At the moment, no category-specific improvements are planned.

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[1)] EMEP/EEA, 2019: EEA Report No 13/2019 EMEP EEA air pollutant emission inventory guidebook 2019, Copenhagen, 2019; URL: https://www.eea.europa.eu/publications/emep-eea-guidebook-2019/part-b-sectoral-guidance-chapters/2-industrial-processes/2-a-mineral-products/2-a-5-a-quarrying/view

[2)] European Industry Association data are published annually at https://uepg.eu/pages/figures. Within the framework of technical consultations, historical data were confirmed by the National Association for Mineral Resources (https://www.bv-miro.org/).

[3)] EMEP/EEA, 2019: EEA Report No 13/2019 EMEP EEA air pollutant emission inventory guidebook 2019, Copenhagen, 2019; URL: https://www.eea.europa.eu/publications/emep-eea-guidebook-2019/part-b-sectoral-guidance-chapters/2-industrial-processes/2-a-mineral-products/2-a-5-a-quarrying-1/view