

5.C.1.b v - Cremation

| Category Code | Method | | | | | AD | | | | | EF | | | | |
|---------------|-----------------|-----------------|-----------------|--------|-----|----|-----|-----|-----|------|-------|-----|-----|------------------|-------------------|
| 5.C.1.b.v | CS | | | | | AS | | | | | D, CS | | | | |
| Key Category | SO ₂ | NO _x | NH ₃ | NM VOC | CO | BC | Pb | Hg | Cd | Diox | PAH | HCB | TSP | PM ₁₀ | PM _{2.5} |
| 5.C.1.b.v | -/- | -/- | - | -/- | -/- | - | -/- | -/- | -/- | -/- | -/- | -/- | -/- | -/- | -/- |

| Method(s) applied | |
|---|--------------------------------------|
| D | Default |
| 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/EEA Emission Inventory Guidebook - 2019, in category chapters. | |
| (source for) Activity Data | |
| NS | National Statistics |
| RS | Regional Statistics |
| IS | International Statistics |
| PS | Plant Specific |
| As | Associations, business organisations |
| Q | specific Questionnaires (or surveys) |
| M | Model / Modelled |
| C | Confidential |
| (source for) Emission Factors | |
| D | Default (EMEP Guidebook) |
| CS | Country Specific |
| PS | Plant Specific |
| M | Model / Modelled |
| C | Confidential |

Method

Emissions from cremation are not a key source and of minor priority. Since March 1997, a national legal ordinance for cremation plants nationwide is in force (27. BImSchV).

Activity data

Activity data for this category are based on data from the statistics of the "Bundesverband Deutscher Bestatter e.V."¹⁾. For purposes of GHG reporting we specify cremations as masses, too. The cremation is a growing trend in funerals.

Emission factors

Emission factors used are default values from the EMEP/EEA air pollutant emission inventory guidebook 2016²⁾ as well as new national data for POPs from the research project "POP- und Hg-Emissionen aus abfallwirtschaftlichen Anlagen" - Teilvorhaben zum Globalvorhaben „Überprüfung des Standes der Technik der Emissionen prioritärer Schadstoffe für einzelne Industriebranchen (Kleinfeuerungsanlagen und abfallwirtschaftliche Anlagen)"³⁾.

In 2018 the TERT noted that the German Hg EF is 100 times smaller than the default value proposed in the 2016 EMEP/EEA Guidebook and the Cd and Pb EF are 1000 times smaller than the default values proposed in the 2016 EMEP/EEA Guidebook. However, the EF for Pb and Cd are based on national expert judgement: assumption that a) the emissions behave similarly to dust and b) the dust limit value of the air pollution control specification (27th BImSchV) is complied with (to be confirmed

on the basis of the new measurement data from 5 crematoria with different exhaust gas cleaning systems). The Hg EF was calculated on the basis of the German report on "OSPAR Recommendation 2003/4 on controlling the dispersal of mercury from crematoria", but is under evaluation.

Nevertheless a current analysis of measured data could decrease the country specific EF for POP further. After the done finalization of a research Project [FKZ 3716 53 3021 „Umweltrelevanz und Stand der Technik bei Einäscherungsanlagen“ (Environmental relevance and state of the art for cremation plants); URL:

<https://www.umweltbundesamt.de/publikationen/umweltrelevanz-stand-technik-einaescherungsanlagen>] the transparent explanation of this is still outstanding.

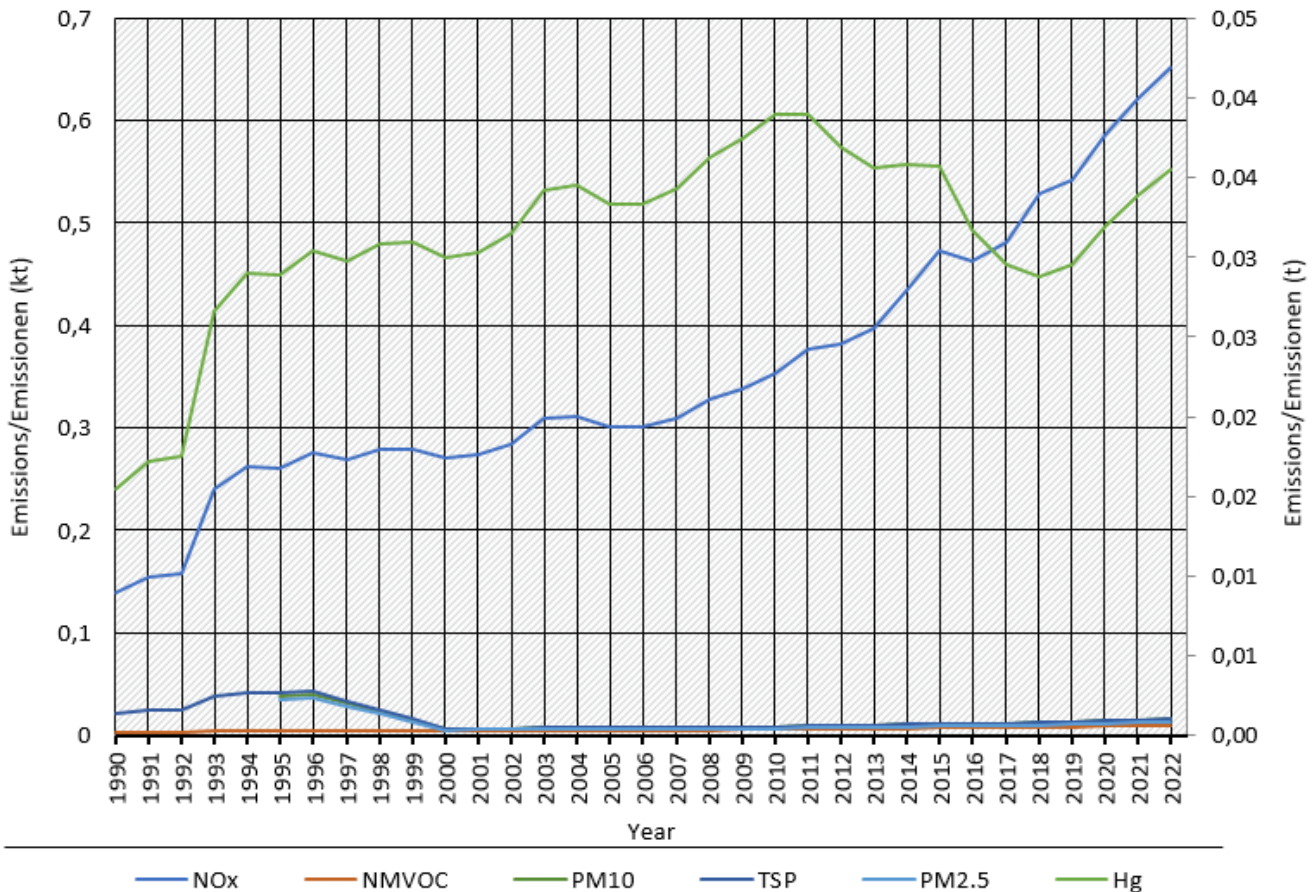
EF for TSP, PM10, and PM2.5 derive from the research study "Studie zur Korngrößenverteilung (PM10 und PM2.5) von Staubemissionen" ⁴⁾.

Trends in emissions

All emission trends are the result of the increasing trend of AD, partly with decreasing EF at the same time.

Trends of Emissions of Cremation

Emissions by pollutant / Emissionen nach Schadstoff

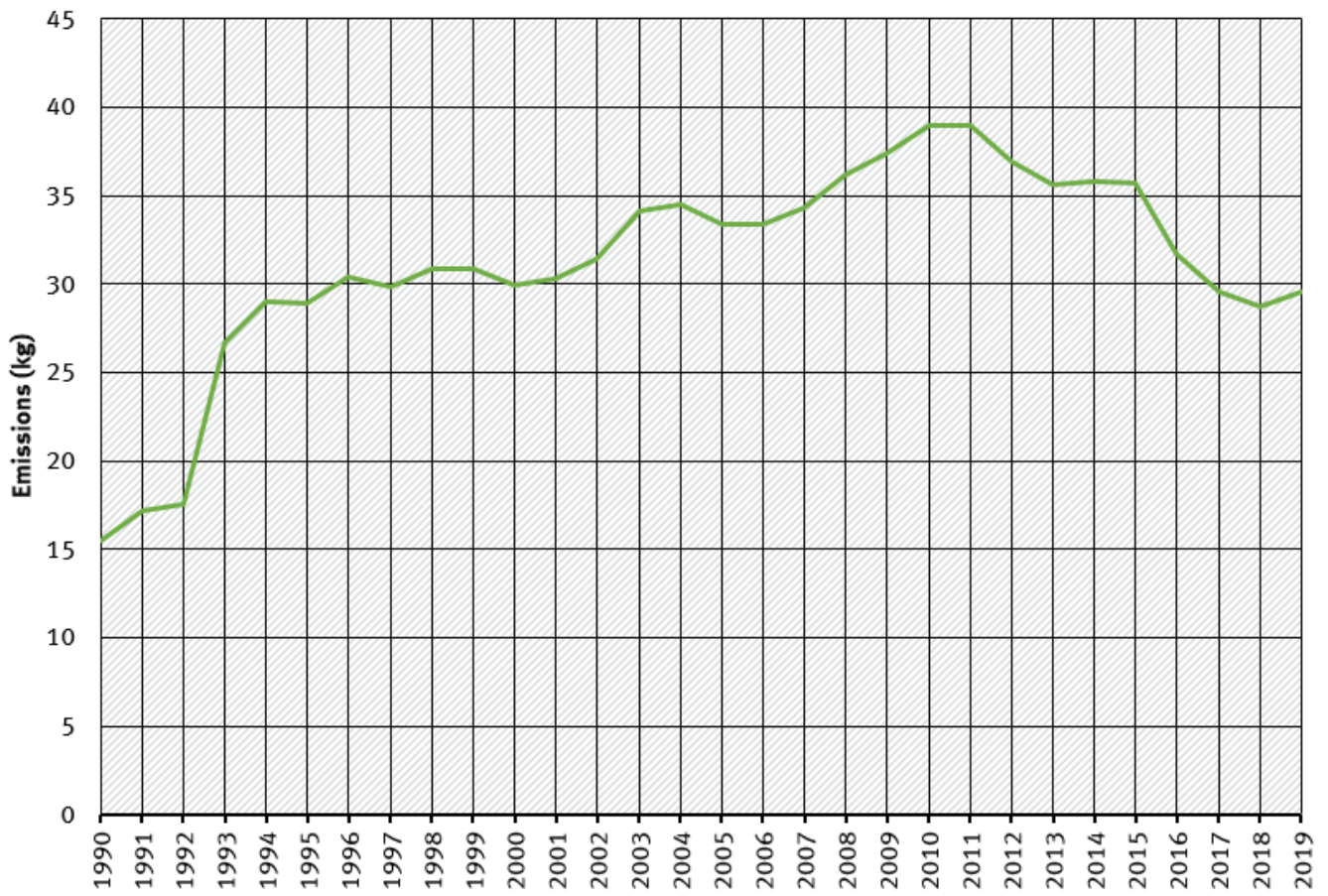


* Base Year for PM = 1995 / Basisjahr für Feinstäube (PM) ist 1995

Quelle: German Environment Agency, National inventory for the German reporting on atmospheric emissions since 1990, (01/2024)

Emission trends in NFR 5.C.1.b.v

trends of Hg-emissions as result from increasing cremations with decreasing EF since 2010



German Emission Inventory (12.02.2021)

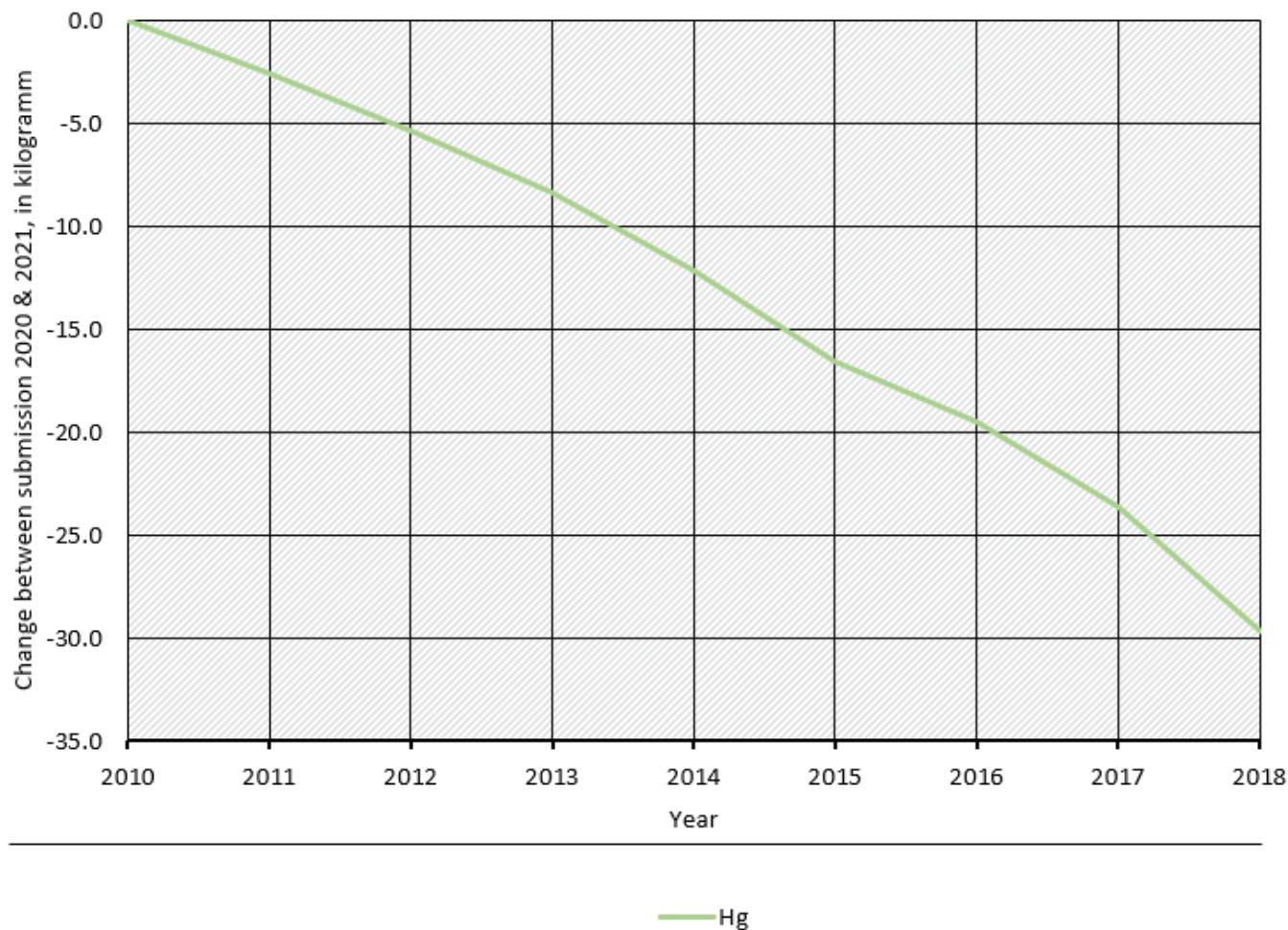
Emission trend of mercury

Recalculations

With emission factor of Mercury revised, a small recalculations has been carried out compared to last year's submission.

Pollutant emissions in Germany in NFR category 5.C.1.b.v

Absolute changes compared to last year's submission



Quelle: German Environment Agency, National inventory for the German reporting on atmospheric emissions since 1990 (11.02.2021)

Recalculations in NFR 5.C.1.b.v



For pollutant-specific information on recalculated emission estimates for Base Year and 2018, please see the pollutant specific recalculation tables following [chapter 8.1 - Recalculations](#).

¹⁾ annual personal message from Stephan Neuser (contact URL: <https://www.bestatter.de/verband/ansprechpartner/>)
²⁾ EMEP/EEA air pollutant emission inventory guidebook 2016, Copenhagen, 2016
³⁾ Stöcklein; Gass; Suritsch: "POP- und Hg-Emissionen aus abfallwirtschaftlichen Anlagen", Teilvorhaben zum Globalvorhaben „Überprüfung des Standes der Technik der Emissionen prioritärer Schadstoffe für einzelne Industriebranchen (Kleinfeuerungsanlagen und abfallwirtschaftliche Anlagen)“; URL: https://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/texte_38_2016_pop-und_hg-emissionen_aus_abfallwirtschaftlichen_anlagen.pdf; UBA-Texte 38/2016; im Auftrag des Umweltbundesamtes, April 2016
⁴⁾ Dreiseidler, A.; Baumbach, G.; Pregger, T.; Obermeier, A. (1999): Studie zur Korngrößenverteilung (< PM10 und < PM2,5) von Staubemissionen. UBA-Forschungsbericht 297 44 853, Umweltbundesamt Berlin (Study on particle size distribution (< PM10 and < PM2,5) of dust emissions)