



the literature, in an approach that distinguished between results from test-bench studies and field measurements. Transfer factors were used to take account of the fact that emissions in a test-bench environment tend to be considerably lower than those of corresponding installed systems. The description of the structure for installed combustion systems was prepared using statistics from the chimney-sweeping trade, as well as with the help of surveys conducted by the researchers themselves in selected chimney-sweep districts of Baden-Wuerttemberg, North-Rhine Westphalia and Saxony. These data were used to estimate the energy inputs for various system types, to make it possible to determine sectoral emission factors weighted by energy inputs.

The SO<sub>2</sub> emission factors for natural gas and lignite briquettes is calculated by the sulfur content of the fuel which is determined by measurements. In terms of light fuel oil the limit values were used. Since 2008 there are two qualities of light fuel oil available: fuel oil with a sulfur content of 1000 mg/kg and fuel oil with a sulfur content of 50 mg/kg. In small combustion plants nowadays almost exclusively low-sulfur fuel oil is used. The share of the different light fuel oil qualities is annually available from the oil statistic. Regarding lignite briquettes can be assumed that 10 % of the sulfur were stored in the ash while 90 % were emitted as SO<sub>2</sub>. Since the sulfur content of lignite briquettes depends on the region, a weighted average emission factor has been calculated.

Black carbon emission factors are given by the EMEP EEA Guidebook 2016.

More detailed information on emission factors for different pollutants are provided within the sub-chapters for [1.A.4.a.i](#) ], [1.A.4.b.i](#) ], and [1.A.4.c.i](#) ].

#### + Trend Discussion for Key Sources

More detailed information on key source emissions trends are provided within the sub-chapters for [1.A.4.a.i](#) ], [1.A.4.b.i](#) ], and [1.A.4.c.i](#) ].

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**bibliography** : 1 : National energy balance and Satellite balance for renewable energy:

\*<http://www.ag-energiebilanzen.de/7-1-Energy-Balance-2000-to-2015.html> : 2 : Struschka, 2008: Struschka, Dr. M., Kilgus, D., Springmann, M.; Baumbach, Prof. Dr. Günter: Effiziente Bereitstellung aktueller Emissionsdaten für die Luftreinhaltung; UBA Forschungsbericht 205 42 322; Dessau, 2008. URL:

\*<https://www.umweltbundesamt.de/en/publikationen/effiziente-bereitstellung-aktueller-emissionsdaten> : 3 : Tebert, 2016: Christian Tebert, Susanne Volz, Kevin Töfge, Christian Friedrich: Ermittlung und Aktualisierung von Emissionsfaktoren für das nationale Emissionsinventar bezüglich kleiner und mittlerer Feuerungsanlagen der Haushalte und Kleinverbraucher (unpublished) **bibliography**