

Category		Title
NFR:	2.A.7.b	Construction and demolition
SNAP:	040624	Public works and building sites
ISIC:	4510	Site preparation
	4520	Building of complete constructions or parts thereof; civil engineering
	4530	Building installation
	4540	Building completion
Version	Guidebook 2009	

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1 Overview

The present chapter discusses emissions from construction and demolition works. This activity mainly results in emissions of particulates but other pollutants may also be emitted, depending on the materials used in the work.

Although significant at a local level, at a national level emissions are comparatively small and only relevant for the relatively coarse fractions of particulate matter. This chapter will therefore only provide a Tier 1 default emission estimation method and a brief process description.

2 Description of sources

2.1 Process description

At construction sites, construction materials are used to construct items including buildings and infrastructure. At demolition sites, a building, infrastructure or other constructions are pulled down, resulting in a lot of rubbish.

The present chapter does not include any emissions from combustion activities.

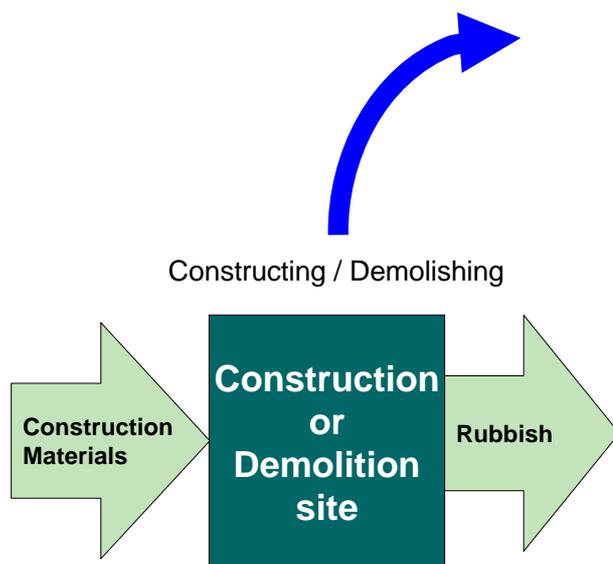


Figure 2.1 Simplified process scheme for source category 2.A.7.b Construction and demolition

2.2 Techniques

Standard techniques are assumed for this source.

2.3 Emissions and controls

In the process, quite some dust emissions occur and potentially NMVOCs may also be emitted when using some materials. Also, depending on the materials and construction/demolition site, other pollutants may be emitted. However, this chapter only provides guidance on estimating emissions of particulates.

3 Methods

3.1 Choice of method

Since only a Tier 1 default approach for this chapter is presented, the description of choice of method and the decision tree normally presented in this subsection are omitted.

3.2 Tier 1 default approach

The present subsection provides default emission factors for this source category. Since it is only a minor source of emissions and not a key category, only Tier 1 default emission factors are provided.

3.2.1 Algorithm

The Tier 1 approach uses the general equation:

$$E_{\text{pollutant}} = AR_{\text{production}} \times EF_{\text{pollutant}} \quad (1)$$

Where:

- $E_{\text{pollutant}}$ = the emission of the specified pollutant
- $AR_{\text{production}}$ = the floor area of the building constructed
- $EF_{\text{pollutant}}$ = the emission factor for this pollutant

The Tier 1 emission factors assume an averaged or typical technology and abatement implementation in the country and integrate all sub-processes.

3.2.2 Default emission factors

Default emission factors for particulate matter (PM) emissions from construction and demolition are provided in Table 3.1. The emission factors are derived from the Coordinated European Particulate Matter Emission Inventory Program (CEPMEIP) study (Visschedijk *et al.*, 2004).

Table 3.1 Tier 1 emission factors for source category 2.A.7.b Construction and demolition

Tier 1 default emission factors					
NFR Source Category	Code	Name			
	2.A.7.b	Construction and demolition			
Fuel	NA				
Not applicable	NO _x , CO, SO _x , NH ₃ , Pb, Cd, Hg, As, Cr, Cu, Ni, Se, Zn, Aldrin, Chlordane, Chlordecone, Dieldrin, Endrin, Heptachlor, Heptabromo-biphenyl, Mirex, Toxaphene, HCH, DDT, PCB, PCDD/F, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Total 4 PAHs, HCB, PCP, SCCP				
Not estimated	NMVOC				
Pollutant	Value	Unit	95% confidence interval		Reference
			Lower	Upper	
TSP	0.162	kg/m ² /year	0.0123	2.15	Visschedijk et al. (2004)
PM10	0.0812	kg/m ² /year	0.0123	0.538	Visschedijk et al. (2004)
PM2.5	0.00812	kg/m ² /year	0.00123	0.0538	Visschedijk et al. (2004)

3.2.3 Activity data

The emission factors in Table 3.1 are provided in kg / m² / year, where the area in m² refers to the floor area of the building constructed or demolished. Total annual statistics on this floor area are therefore necessary to calculate the emission from this source.

3.3 Tier 2 technology-specific approach

Not available for this source.

3.4 Tier 3 emission modelling and use of facility data

Not available for this source.

4 Data quality

There are no specific data quality issues for this source category.

5 Glossary

AR _{production}	the activity rate for construction and demolition (floor area of building constructed)
E _{pollutant}	the emission of the specified pollutant
EF _{pollutant}	the emission factor for this pollutant

6 References

Visschedijk, A.J.H., Pacyna, J., Pulles, T., Zandveld, P. and Denier van der Gon, H., 2004. 'Coordinated European Particulate Matter Emission Inventory Program (CEPMEIP)'. I In: Dilara, P. et al. (eds.), *Proceedings of the PM emission inventories scientific workshop, Lago Maggiore, Italy, 18 October 2004*. EUR 21302 EN, JRC, pp. 163–174.

7 Point of enquiry

Enquiries concerning this chapter should be directed to the relevant leader(s) of the Task Force on Emission Inventories and Projection's expert panel on combustion and industry. Please refer to the TFEIP website (www.tfeip-secretariat.org/) for the contact details of the current expert panel leaders.