1.A.3.b vi-vii - Road Transport: Automobile Tyre and Brake Wear and Road Abrasion

This overview chapter provides information on emissions from automobile tyre and brake wear & road abrasion are reported reported in NFR sub-categories 1.A.3.b vi and 1.A.3.b vii. These sub-categories are important sources for a) particle emissions and b) emissions of heavy metals, POPs etc. included in these particles.

NFR-Code	Name of Category
1.A.3.b vi	Automobile Tyre and Brake Wear
1.A.3.b vii	Automobile Road Abrasion

Methodology

Activity data

Specific mileage data for all different types of road vehicles are generated within TREMOD [1)]. The following table provides an overview of annual mileages.

Table 1: Mileage data for road vehicles 1990-2019, in 10^^6^^ kilometers

	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MILEAGE: COMBUSTION ENGINES														
Passenger Cars														
Light Duty Vehicles														
Heavy Duty Vehicles														
thereof: Lorries & Trucks														
thereof: Buses														
Two-wheelers														
Σ from fuel combustion														
MILEAGE: ELECTRIC ENGINES														
Passenger Cars														
Light Duty Vehicles														
Heavy Duty Vehicles														

thereof: Lorries & Trucks														
thereof: Buses														
Two-wheelers														
Σ from electric energy														
TOTAL MILEAGE: COMBUSTION + ELECTRIC ENGINES														
Passenger Cars														
Light Duty Vehicles														
Heavy Duty Vehicles														
thereof: Lorries & Trucks														
thereof: Buses														
Two-wheelers														
Σ over-all														

source: TREMOD 6.02 [2)]

++ Images: Overview annual mileage for considered vehicle types gallery size="medium" : AD_Mileage.png : AD_Mileage_el.png gallery

Discussion of emission trends

> Please see sub-category chapters 1.A.3.b vi - Automobile Tyre and Brake Wear and 1.A.3.b vii - Automobile Road Abrasion .

Recalculations

Recalculations were carried out due to a fundamental revision of the TREMOD software.

Table 2: Revised mileage data , in 10^6 kilometers

	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018
Passenger Cars													
Submission 2021													
Submission 2020													
absolute change													
relative change													
Light Duty Vehicles													
Submission 2021													

Submission 2020													
absolute change													
relative change													
HDVs: Trucks													
Submission 2021													
Submission 2020													
absolute change													
relative change													
HDVs: Buses													
Submission 2021													
Submission 2020													
absolute change													
relative change													
Motorcycles & Mopeds													
Submission 2021													
Submission 2020													
absolute change													
relative change													
REVISED TOTAL MILEAGE													
Submission 2021													
Submission 2020													
absolute change													
relative change													

For changes in the **emission factors** applied, please refer to the sub-ordinate chapters on **tyre and brake wear** and **road abrasion**.

Emission estimates

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

Planned improvements

Besides the **routine revision of the TREMOD model**, no specific improvements are planned.

FAQs

bibliography : 1 : Knörr et al. (2019a): Knörr, W., Heidt, C., Gores, S., & Bergk, F.: ifeu Institute for Energy and Environmental Research (Institut für Energie- und Umweltforschung Heidelberg gGmbH, ifeu): Fortschreibung des Daten- und Rechenmodells: Energieverbrauch und Schadstoffemissionen des motorisierten Verkehrs in Deutschland 1960-2030, sowie TREMOD, im Auftrag des Umweltbundesamtes, Heidelberg & Berlin, 2019. : 2 : EMEP/EEA, 2019: EMEP/EEA air pollutant emission inventory guidebook – 2019 bibliography

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[1)] (bibcite 1)
[2)] (bibcite 1)