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Exhaust emission tests for diesel traction engines

Contrôle de l'émission des gaz d'échappement des moteurs diesel de traction
Abgasemissionsprüfung für Traktionsdieselmotoren



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2nd edition, April 2003	Appendix G has been divided into G.1 and G.2, point 3.1 has been amended.
3rd edition, February 2006	Update of the exhaust emission limits, of the record of pollutants in exhaust gas and of the standard engines.
4th edition, February 2012	Update of exhaust gas limit values.

The person responsible for this leaflet is named in the UIC Code

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Summary

This leaflet specifies limit values for exhaust gas emissions for diesel traction engines and describes the method used to determine them. It is applicable to engines to be built and used either on new tractive units or when re-engining existing tractive units.

1 - Scope

1.1 - The purpose of these international regulations is to define general limit values for the exhaust emissions of diesel traction engines and specify the method by which these emissions are to be determined.

1.2 - These regulations shall apply to diesel engines for railway traction, with the exception of engines for special locomotives (e.g. refinery or mine locomotives) and traction engines with an output of less than 130 kW.

1.3 - These regulations shall apply to all new engines used from the moment the leaflet is published in new vehicles or existing tractive units being re-engined.

2 - General

2.1 - The test method in question shall be used to check whether a given engine meets the exhaust emission limits laid down by UIC for diesel traction engines and whether it may therefore be used without restriction in new locomotives or for re-engining existing locomotives.

2.2 - Every engine to go through the exhaust emission test must be of standard design. The main engine components, in particular, must not differ from the standard design in any way that is liable to affect the technical value of the test.

2.3 - UIC is the official body mandated by engine manufacturers to carry out the tasks involved in organising and verifying the validity of tests and to approve the conformity of the product.

3 - Test conditions

3.1 - The exhaust emission test shall be conducted on the test rig of the engine manufacturer in accordance with *ISO standard 8178* (see Bibliography - page 19), using the F cycle and if need be cycle C1 also of part 4 of this standard. All the emission components indicated in Appendix A - page 10 shall be measured and the specific fuel consumption shall also be determined at each measurement point. The test shall be performed with a reference fuel as per *ISO standard 8178-5*.

3.2 - The test shall be conducted under the official supervision of the UIC or the managing RU if the body proposed by the engine manufacturer is not recognised by the UIC.

3.3 - For UIC member railways limits according to UIC IIIA are compulsory for new engines.

3.4 - Within the EC, engines must comply with the requirements of *European Directive 97/68 in its version of 2004/26/EC* (see Bibliography - page 19), as well as with any national requirements, like the dates of receipt and the start of service (Details are specified in Appendix A - page 10).

3.5 - In addition compliance with any other emission limits can be certified upon request of the Manufacturer or the managing RU.

3.6 - The engine shall be emission-tested at its nominal output/engine speed.

3.7 - If the same engine is used subsequently at a reduced nominal output or engine speed, no new test is required if the reduction in nominal output/engine speed does not exceed 10%.

3.8 - If a reduction of nominal output/engine speed results in the engine falling into a different power category, compliance with the limit values for the new power category must be verified.