INTERNATIONAL STANDARD ISO 3930

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Road vehicles — Carbon monoxide analyser equipment — Technical specifications

Véhicules routiers — Équipement d'analyseur de monoxyde de carbone — Spécifications techniques

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FOREWORD

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Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3930 was drawn up by Technical Committee ISO/TC 22, *Road vehicles*, and was circulated to the Member Bodies in May 1975.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	South Africa, Rep. of
Austria	Iran	Spain
Belgium	Ireland	Sweden
Bulgaria	Japan	Switzerland
Chile	Netherlands	Turkey
Czechoslovakia	New Zealand	United Kingdom
Finland	Poland	U.S.A.
France	Romania	Yugoslavia

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Germany
Italy

Printed in Switzerland

Road vehicles — Carbon monoxide analyser equipment — Technical specifications

1 SCOPE AND FIELD OF APPLICATION

This International Standard lays down technical specifications for the analyser equipment used for the determination of the concentration of exhaust carbon monoxide (CO) emissions from road vehicles equipped with spark-ignition engines.

2 REFERENCE

ISO 3929, *Road vehicles — Determination of exhaust carbon monoxide concentration at idle speed.*

3 GENERAL

The carbon monoxide analyser shall be compatible with all types of motor vehicle operating environments and shall operate under the conditions and performance requirements listed in clauses 4 and 5.

4 PERFORMANCE CRITERIA

4.1 Analyser accuracy

The carbon monoxide analyser shall have an accuracy of ± 3 % of full scale, as determined by analysing known standard gases.

4.2 Interference effects

The sum of the individual effects on the reading of the analyser from other gases and particulates in concentration close to those existing in the engine exhaust gas shall be less than 0,2 unit.

4.3 System response time

The analyser concentration indication shall reach 90 % of the final stabilized reading within 10 s after a step change in concentration level is initiated at the sample probe inlet.

4.4 Drift

Zero and span drift of a warmed-up instrument shall not be greater than ± 3 % of full scale during 1 h of operation.

4.5 Repeatability

Analyser repeatability shall be within ± 2 % of full scale during five successive samples of the same gas source.

4.6 Warm-up time

Unless otherwise indicated on the instrument, the analyser shall reach stabilized operation within 30 min from "power on".

4.7 Span

The instrument shall have the capability of being spanned using both calibration gas bottles and electro-mechanical or electronic methods.

Instrument operation shall be as specified herein using either or both methods.

4.8 Sample handling system

The sample handling materials that are in contact with the gas sample shall not contaminate or change the character of the gases to be analysed.

All sampling system internal surfaces shall be corrosion-resistant to motor vehicle exhaust gases.

The sample handling system shall provide for particulate and water removal as required to prevent these contaminants from affecting gas analysis. The filtering and water removal components shall be designed for easy maintenance.

4.9 Safety requirements

The construction, materials, and electrical systems used in the instrument system shall comply with local provisions. Each analyser system shall be constructed and shall incorporate safety devices for the protection of personnel and nearby equipment.

4.10 Temperature sensitivity

The instrument shall be suitable for ambient temperatures between + 5 °C and + 40 °C. Between these two limits, the result of the measurement shall not differ from that obtained at a temperature of 20 °C (± 2 °C) by more than 0,2 unit.