STANDARD **4124**

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Liquid hydrocarbons — Dynamic measurement — Statistical control of volumetric metering systems

Hydrocarbures liquides — Mesurage dynamique — Contrôle statistique des systèmes de mesurage volumétrique

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Contents

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 4124 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, Subcommittee SC 2, *Dynamic petroleum measurement*.

Annexes A, B, C, D, E and F of this International Standard are for information only.

Liquid hydrocarbons — Dynamic measurement — Statistical control of volumetric metering systems

Section 1: General

1.1 Scope

In dynamic measuring systems the performance of meters for liquid hydrocarbons will vary with changes in flow conditions, viz. flowrate, viscosity, temperature, pressure, density of product, and with mechanical wear.

This International Standard has been prepared as a guide for establishing and monitoring the performance of such meters, using appropriate statistical control procedures for both central and on-line proving. These procedures may be applied to measurements made by any type of volumetric or mass metering system.

The procedures to be followed for collecting data, on which the control limits are based, are described. An alternative method for establishing the reliability of these data is described in ISO 7278-3.

Methods are described for calculating the warning and action control limits for the charts covering the selected performance characteristics, the application of these control charts to subsequent routine measurements, and their interpretation. Worked examples are given in the appropriate central and on-line proving sections.

1.2 Definitions

For the purposes of this International Standard, the following definitions apply.

1.2.1 proving; proof; calibration: Determination of the meter performance via the relationship between the volume of liquid actually passing through a meter and the reference volume of the pipe prover.

1.2.2 K-factor: Relationship between the number of pulses (N) generated by the meter during the proving run and the volume of liquid (V) displaced by the sphere or piston in the pipe prover between detectors.

Normally, $K = N/V$; it is recommended that this value be corrected by the pulse interpolation technique described in ISO 7278-3.

1.2.3 meter factor: Ratio of the actual volume passed through a meter, as derived from the pipe prover, to the volume indicated by the meter totalizer.