AS 2652—1983

Australian Standard®

LIQUID HYDROCARBONS—VOLUMETRIC MEASUREMENT BY DISPLACEMENT METER SYSTEMS OTHER THAN DISPENSING PUMPS

This Australian standard was prepared by Committee ME/49, Oil and Gas Measurement. It was approved on behalf of the Council of the Standards Association of Australia on 7 July 1983 and published on 5 September 1983.

The following interests are represented on Committee ME/49:

Australian Gas Association

Australian Institute of Petroleum Limited

Australian Institute of Physics

Australian Liquefied Petroleum Gas Association

Australian Petroleum Exploration Association Limited

CSIRO, Division of Applied Physics

Department of Industry and Commerce

Department of Mines and Energy, S.A.

Department of Minerals and Energy, Vic.

Department of Resources and Energy

Institution of Engineers Australia

National Standards Commission

The Pipeline Authority

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PREFACE

This standard was prepared by the Association's Committee on Oil and Gas Measurement.

The standard is based on International standard ISO 2714 — 1980 with which it is technically identical. Minor editorial changes have been made where required so that the standard is consistent with SAA format.

Displacement meters measure by separating a liquid into discrete volumes and counting the separated volumes. Such meters carry through their measuring elements a theoretical swept volume of liquid plus the slippage for each stroke, revolution, or cycle of the moving parts. The volume registered must be compared with a known volume by proving.

This standard has been prepared as a guide for persons concerned with the design, installation, operation, and maintenance of metering systems having one or more displacement meters. Its content is common to all displacement meters. A typical arrangement of a meter station with three displacement meters is shown in Appendix A.

Information on turbine meters appears in AS 2651, Liquid Hydrocarbons — Volumetric Measurement by Turbine Meter Systems. Future standards, both national and international, will deal with other types of meters, accessory equipment, provers and proving, the calculation of petroleum quantities, and specialized applications of metering assemblies containing displacement meters.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

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SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies the characteristics of displacement meters and gives requirements for their design and selection. It includes requirements for their installation in metering systems and describes how a system produces, or can be made to produce, accurate measurements.

This standard includes recommended operating and maintenance procedures for displacement meter systems.

NOTE: A typical arrangement of a meter station with three displacement meters is given in Appendix A.

1.2 APPLICATION. The field of application is any division of the petroleum industry in which measurement is required, but it does not necessarily apply to two-phase liquids.

Measurement tolerance or limits of error are usually set by regulation or by a mutual accord between parties. It is not the purpose of this standard to set tolerances or accuracy limits. However, these provisions should be adequate to achieve a degree of measurement accuracy acceptable for any metering requirement. The content of this standard is general and is intended as a guide. It can be applied to the metering of different hydrocarbon liquids, to the use of meters from any manufacturer and to the various applications encountered.

1.3 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1514 Glossary of Terms Used in Metrology
Part 1— General Terms and Definitions

AS 2430 Classification of Hazardous Areas
Part 1— Explosive Gas Atmospheres

AS 2520 Petroleum Measurement Tables

AS 3000 SAA Wiring Rules

ISO 4124 Petroleum Metering Systems — Measurement Control Charts and Statistical Methods*

1.4 DEFINITIONS. For the purpose of this standard, the following definition applies:

Approved — approved by the Operating Authority and includes obtaining the approval of the relevant Statutory Authority where this is legally required. Approval requires a concious act and is generally given in writing.

The definitions and terms applicable to metrology shall be in accordance with AS 1514, Part 1.

* In course of preparation.