Hydrocarbon management

HM 1 Part 2

Calculation of petroleum quantitites – Dynamic

energy institute

HM 1 PART 2

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FOREWORD

Measurement accuracy is essential in the sale, purchase and handling of petroleum products. It reduces the likelihood of disputes between buyer and seller, and facilitates control of losses. Accurate measurement demands the use of standard equipment and procedures that are traceable to national reference standards.

The Energy Institute's (EI) Hydrocarbon Management Committee (HMC) is responsible for the production and maintenance of standards and guidelines covering various aspects of static and dynamic measurement of petroleum. This publication has been instigated and managed by the EI's Cargo Inspection Committee (HMC-3), which deals with measurement applicable to the cargo inspection sector of the industry and includes calculation of petroleum quantities and sampling. The EI maintains liaison with parallel working groups of the American Petroleum Institute's (API) Committee on Petroleum Measurement, and other organisations concerned with quantitative measurement in other countries and in other industries. The EI Hydrocarbon Management (HM) guidelines (formerly Petroleum Measurement Manual and Petroleum Measurement Papers) are widely used by the petroleum industry and have received recognition in many countries by consumers and the authorities. In order to promote international good practice, the EI works via the British Standards Institute (BSI) to develop standards through the International Standards Organization's (ISO) technical committee TC-28 Petroleum Products and related products of synthetic or biological origin and its sub-committee TC28/SC2 Measurement of petroleum and related products.

A full list of HM guidelines is available on request from the EI.

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Although it is believed that adoption of the recommendations of this guideline will assist the user, the EI cannot accept any responsibility, of whatsoever kind, for damage or alleged damage arising or otherwise occurring where this publication has been applied. Attention is also drawn to the fact that some of the equipment mentioned in the publication is protected by patents throughout the world. The mention of any proprietary information in this publication does not imply its endorsement by the EI for any particular application; neither does omission imply rejection.

Users of these guidelines are invited to send comments, suggestions, or details of relevant experience to:

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INTRODUCTION AND SCOPE

These procedures are intended to encourage a uniform approach to volumetric and mass calculation of crude oil, petroleum products, and petrochemicals when measured by meters. This publication will also address calculation sequences, rounding, and significant digits, with the aim that different operators can produce identical results from the same observed data.

This document provides standardised calculation methods for the quantification of liquids, regardless of the point of origin or destination or the units of measure required by governmental customs or statute. The criteria contained in this document allow different entities using various computer languages on different computer hardware (or manual calculations) to arrive at output results within a defined tolerance within this document, using the same input data.

This standard applies to fluids that, for all practical purposes, are considered to be Newtonian, single-phase, and homogeneous at metering conditions. Most fluids and dense phase fluids associated with the petroleum and petrochemical industries are considered to be Newtonian.

The application of this standard is limited to fluids that utilise appropriate density and volume correlations. If multiple parties are involved in the measurement, the method for determining the densities of the liquid shall be mutually agreed upon by all concerned.