BS 4250:2014

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Specification for commercial butane and commercial propane

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Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 12, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 November 2014. It was prepared by Technical Committee PTI/15, *Natural gas and gas analysis*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 4250:1997, which is withdrawn.

Information about this document

The changes in this edition of BS 4250 are intended to align, wherever possible, the requirements of this standard with BS EN 589:2008+A1:2012 to reflect the situation that some UK refineries manufacture liquefied petroleum gas (LPG) to meet both standards. A number of test methods required by the previous edition of this standard have now been withdrawn, so these have been replaced by up-to-date test methods. Annex A has been updated to align with BS EN 589:2008+A1:2012, Annex C, including the alignment of gauge vapour pressure factors. Flammability limits have been updated in line with latest guidance.

This British Standard calls for the use of substances and/or procedures that might be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage. Attention is drawn to the safety warnings given in the introduction to this standard.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Introduction

SAFETY WARNINGS. Attention is drawn to the risk of fire and explosion when handling commercial butane or commercial propane, and to the hazard to health which arises through inhalation of excessive amounts of commercial butane or commercial propane.

Commercial butane and commercial propane are highly volatile hydrocarbon liquids which are normally stored under pressure. If the pressure is released, large volumes of gas are produced which form flammable mixtures with air. For *n*-butane this is typically over the range 1.4% (v/v) to 9.4% (v/v), and for propane this is typically over the range 1.7% (v/v) to 10.8% (v/v). The procedures described in this British Standard involve the sampling, handling and testing of commercial butane or commercial propane. All such procedures should be conducted away from sources of ignition such as naked flames, unprotected electrical equipment and electrostatic hazards. Testing should be performed as far as practicable under an electrically-safe ventilation hood.

NOTE 1 The lower flammability limits for propane and n-butane are aligned with BS EN ISO 10156. The upper flammability limits for propane and n-butane are aligned with the latest European Industrial Gases Association (EIGA) [1)] *guidance at the time of publication of this standard.*

Commercial butane or commercial propane in liquid form can cause cold burns to the skin. Protective clothing such as gloves and goggles should be worn if contact with the skin is likely to occur.

Unnecessary inhalation of commercial butane or commercial propane vapour should be avoided. The operator should not be exposed to atmospheres containing more than 1 000 ppm (1 750 mg/m^3) over an 8 h time-weighted average reference period (long-term exposure limit), or greater than 1 250 ppm (2 180 mg/m^3) over a 15 min reference period (short-term exposure limit). One of the tests described in this standard involves the operator inhaling a mixture of air and commercial butane or commercial propane vapour, and particular attention is drawn to the cautionary statement in **5.3**.

NOTE 2 These exposure limits are taken from HSE publication EH 40/2005 [1]. The workplace exposure limits given in the latest edition should be observed.

[1)] See <https://www.eiga.eu> [last viewed 24 November 2014].

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1 Scope

This British Standard specifies requirements for commercial butane and commercial propane as supplied for general domestic and industrial fuel purposes. It applies to these products in cylinders and in bulk.

NOTE 1 The requirements apply at the point of custody transfer. Withdrawal or loss of product from the vapour phase changes the composition of the product remaining in the liquid phase. Hence the product might then cease to meet specified requirements.

It does not cover gases for testing gas appliances.

NOTE 2 For gases to test gas appliances, see BS EN 437.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM D2163, *Standard test method for determination of hydrocarbons in liquefied petroleum (LP) gases and propane/propene mixtures by gas chromatography*

ASTM D3246, *Standard test method for sulfur in petroleum gas by oxidative microcoulometry*

ASTM D6667, *Standard test method for determination of total volatile sulfur in gaseous hydrocarbons and liquefied petroleum gases by ultraviolet fluorescence*

BS 2000-272, *Methods of test for petroleum and its products – Determination of mercaptan sulfur and hydrogen sulfide content of liquefied petroleum gases (LPG) – Electrometric titration method*

BS 2000-317, *Methods of test for petroleum and its products – Determination of residues in liquefied petroleum gases – Low temperature evaporation method*

BS EN 1439, *LPG equipment and accessories – Procedure for checking LPG cylinders before filling and after filling*

BS EN 13086, *Transportable gas cylinders – Conditions for filling gases into receptacles – Single component gases*

BS EN 15469, *Petroleum products – Test method for free water in liquefied petroleum gas by visual inspection*

BS EN 27941, *Methods of test for petroleum and its products – Commercial propane and butane – Analysis by gas chromatography*

BS EN ISO 3696:1995, *Water for analytical laboratory use – Specification and test methods*

BS EN ISO 4256, *Liquid petroleum products – Determination of gauge vapour pressure – LPG method*

BS EN ISO 4257, *Methods of test for petroleum and its products – Liquefied petroleum gases – Method of sampling*

BS EN ISO 4259, *Petroleum products – Determination and application of precision data in relation to methods of test*

BS EN ISO 6251, *Liquefied petroleum gases – Corrosiveness to copper – Copper strip test*

BS EN ISO 13758, *Methods of test for petroleum and its products – Liquefied petroleum gases – Assessment of the dryness of propane – Valve freeze method*