EI Standard 1542

Identification markings for dedicated aviation fuel manufacturing and distribution facilities, airport storage and mobile fuelling equipment

10th edition

energy institute

EI STANDARD 1542

IDENTIFICATION MARKINGS FOR DEDICATED AVIATION FUEL MANUFACTURING AND DISTRIBUTION FACILITIES, AIRPORT STORAGE AND MOBILE FUELLING EQUIPMENT

Tenth edition

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FOREWORD

An effective aviation fuel handling equipment marking system for product and grade identification can help to promote safe and efficient manufacturing and marketing operations in the petroleum industry.

The marking and colour-coding system described herein is suitable for worldwide adoption. It provides the recommendations of the international aviation fuel handling community.

This is the tenth edition of this publication which supersedes all earlier editions. With the publication of the tenth edition of EI 1542, the ninth edition is hereby formally withdrawn from publication.

The main changes in this edition are:

– The inclusion of recommendations for the marking of equipment to be used with aviation gasoline (avgas) grades UL91 (red banding) and UL94 (purple banding).
– The deletion of four grades of avgas that are no longer commercially produced.
– The inclusion of recommendations for the marking of equipment to be used with synthetic blending components (SBC) for jet fuel.
– The inclusion of recommendations for the marking of equipment to be used with fuel system icing inhibitor (FSII) for jet fuel and avgas.
– The inclusion of new figures illustrating examples of storage tank marking.
– Removal of reference to fuel 'type' in favour of consistent use of the terms 'product' and 'grade' only.

It should be noted that the recommendations given in this publication for the marking of different aviation fuel products and grades are additional to the markings that are required by national legislation concerning the transport of dangerous goods (e.g. ADR (Europe) and DOT (USA) regulations) which may also be applicable to mobile fuelling equipment addressed in this standard.

For the purposes of demonstrating compliance with this publication the words 'shall', 'should' and 'may' are used to qualify certain requirements or actions. The specific meaning of these words is as follows:

– 'shall' is used when the provision is mandatory (from which there is to be no deviation);
– 'should' is used when the provision is recommended as good practice, and
– 'may' is used where the provision is optional.

Companies/organisations wishing to claim compliance with this publication are required to meet all of the mandatory (i.e., 'shall') provisions of the relevant chapter(s). All companies/organisations are encouraged to follow the recommended provisions as good practice.

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Although it is hoped and anticipated that this publication will assist those responsible for designing, constructing, commissioning, operating and maintaining aviation fuel handling systems, the EI cannot accept any responsibility, of whatever kind, for damage or loss, or alleged damage or loss, arising or otherwise occurring as a result of the application of the guidance contained herein.

Suggested revisions are invited and should be submitted to the Technical Department, The Energy Institute, 61 New Cavendish Street, London, W1G 7AR or **email: technical@energyinst.org.**

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Project coordination and technical editing were undertaken by Martin Hunnybun (EI).

1 GENERAL

1.1 PURPOSE

This publication is intended to provide a system for marking aviation fuel products and grades on fuel-handling installations and equipment.

In addition to the requirements for proper marking and colour-coding, there is a need throughout the aviation industry, in general, for uniformity in product labels. The aviation gasoline (avgas) and turbine fuel (jet fuel) labelling system included herein for aviation use is recommended for worldwide use, not only for aviation fuel handling equipment at airport fuel storage facilities, but for all situations where it is desirable to identify avgas and jet fuel, as well as their grade. It is intended to apply to equipment that is in continuous use for a single grade of aviation fuel, e.g.:

– Airport depots.
– Airport fuel hydrant systems.
– Aircraft fuelling equipment.
– Dedicated grade aviation fuel storage tanks and piping within terminals or manufacturing facilities.
– Dedicated grade aviation fuel loading facilities at manufacturing facilities, terminals or airports, etc.

This publication also includes labelling systems for use with the aviation fuel additive, fuel system icing inhibitor (FSII) and synthetic blending components (SBCs for jet fuel). See annexes C and D respectively. Note that neither of these shall be regarded as products or grades of aviation fuel. No aircraft are certified to fly on SBC alone.

For further information on labelling systems for equipment used for non-aviation products see the latest edition of either API RP 1637 *Using the API color-symbol system to mark equipment and vehicles for product identification at service stations and distribution terminals*, or EI *Code of practice for a product identification system for petroleum products*.

1.2 REASONS FOR A MARKING CODE

The aviation industry requires a uniform and easily understood system for showing which product/grade of fuel is in each part of an aviation fuel handling system. This requirement is based on the need to handle fuels safely, to prevent mixing one grade with another, and to prevent delivery of the wrong product or grade of fuel into an aircraft, which may result in engine failure during flight. Further controls to prevent overwing delivery of the wrong product or grade of fuel into an aircraft are defined in EI 1597 *Procedures for overwing fuelling to ensure delivery of the correct fuel grade to an aircraft*. Emphasis is placed on a colour-code system to show avgas as a product different from jet fuel and then to separate the grades within each product.

A marking code is one element of protection against product/grade mixing and contamination. Good practice will dictate other protection measures including mechanical or electronic devices to achieve product selectivity. This standard does not address the general subject of equipment selectivity. For further information on that topic see EI 1540 *Design, construction, commissioning, maintenance and testing of aviation fuelling facilities*. Aviation fuel handling systems should be clearly marked wherever piping connections are made, valves turned, or product loaded or unloaded.

The marking code described herein permits rapid identification under normal daylight conditions and also during emergency, rainy, or night light conditions. The elements of the system are clearly visible whether the surface is black, green, or covered with snow.

This publication has been produced as a result of work carried out within the Technical Team of the Energy Institute (EI), funded by the EI's Technical Partners and other stakeholders. The EI's Technical Work Programme provides industry with cost effective, value adding knowledge on key current and future issues affecting those operating in the energy sector, both in the UK and beyond.

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