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New developments in global aviation fuel handling equipment standards

Effective 1 July 2010, the Energy Institute (EI) will take over as the sole provider of a portfolio of equipment standards and operational recommended practices to facilitate the safe and efficient handling of aviation fuel worldwide.

For over 50 years the EI has provided publications for use by the international aviation fuel handling industry. Over the last decade, 15 of these titles have been produced and published jointly with the American Petroleum Institute (with a further six titles published by EI only, and two by API only).

After an organisational review, API has confirmed the responsibility for the aviation fuel handling portfolio will be transferred to the EI.

The jointly branded titles will be superseded by technically identical EI reprints (document reference numbers and edition numbers will remain the same), made available through the EI only.

The EI is committed to continue to provide the global forum for the standardisation of aviation fuel handling equipment, and operational recommended practices, ensuring that they reflect the consensus agreement of international technical specialists and stakeholders.

The equipment standards in particular are followed worldwide by manufacturers, and adopted by international airlines, major and national oil companies, into-plane companies and aviation fuel hydrant operators.

The use of equipment that meet the standards is mandated in operational documents such as those provided by the Air Transport Association of America (ATA) and the Joint Inspection Group (JIG), and referenced in the International Air Transport Association (IATA) *Guidance materials for aviation turbine fuels specifications*.

The EI is committed to maintaining and developing the standards, and all users of the documents are encouraged to visit **www.energypublishing.org** for details of latest editions, reaffirmations, withdrawals and addenda.

For further information on the EI aviation fuel handling portfolio please contact Martin Hunnybun **mh@energyinst.org**

Frequently Asked Questions

Q1: What will be the difference between API/EI 15xx and EI 15xx (of the same edition)?

A: API branding will have been removed. The technical content will remain identical.

Q2: If I have already purchased API/EI 15xx do I need to purchase the EI rebranded version?

A: No. The technical content will be identical, unless a new edition has been produced (e.g. EI 1583 6th edition (laboratory testing of filter monitors) and EI 1582 2nd edition (similarity for filter/water separators)).

Q3: If an operational document (e.g. ATA 103, JIG 1, 2, 3) references the use of equipment that meets API 15xx, or API/EI 15xx (e.g. 1581), does that document require revision to update the reference to EI 15xx?

A: The reference in the operational document will be incorrect from 1 July 2010. It is recommended that as documents that reference the former API/EI portfolio are updated, the references should be updated to EI 15xx.

Q4: Will EI publications remain relevant and valid in North America?

A: EI will continue to fully engage with international stakeholders, including those in the US, producing publications that are applicable globally.

Q5: Will EI publications be as technically robust as API/EI publications?

A: The same industry specialists/stakeholders will continue to provide input to the EI publication development process, which is open to any technical specialists wishing to contribute.

Q6: Is the way the EI produces publications different to API?

A: No. For the aviation fuel handling documents, stakeholder input to the content has been in accordance with API procedures, and this will continue.

Q7: If I am a North American operator will I have to follow EI publications/use equipment tested in accordance with EI laboratory testing publications in future?

A: The use of any EI (or API) publication is optional. Their use only becomes mandatory (anywhere in the World) if they are referenced in another publication that has to be complied with under contract (e.g. ATA 103, JIG 1,2,3), or in regulation/legislation. If you are contracted to follow ATA 103, and that document mandates the use of filter/water separators that meet EI 1581 5th edition, then only that equipment can be used.

Q8: If I have equipment in operations that is marked as being compliant with an API/EI or API publication does the equipment marking need to be changed?

A: No. Inspectors (e.g. from JIG, airlines) have been briefed on the transition to EI publications. It is understood that API markings on equipment will continue to be seen in the field for many years. Over time it is expected that API branding of equipment will diminish.

Q9: API used to operate a scheme for the witnessing of filter qualification tests. What has happened to that?

A: The scheme is no longer being offered by API. The EI is implementing a similar scheme to provide witnesses for filter qualification tests.

Notes to editors: The Energy Institute (EI) is the leading chartered professional membership body for the international energy industry, responsible for the development and dissemination of knowledge, skills and good practice, working towards a safe, secure and sustainable energy system. Supporting all those studying and working in energy, and with over 14,000 individuals and 300 companies in membership, it offers learning and networking opportunities to support career development. Delivering professionalism and good practice, the EI addresses the depth and breadth of energy in all its forms and applications, providing a scientific and technical bank of knowledge for industry. For more information, please visit www.energyinst.org

Aviation Fuel Handling Titles

General

- EI 1540 *Design, construction, operation and maintenance of aviation fuelling facilities*, 4th edition
- EI 1541 *Performance requirements for protective coating systems used in aviation fuel storage tanks and piping*, 1st edition
- EI 1542 *Identification markings for dedicated aviation fuel manufacturing and distribution facilities, airport storage and mobile fuelling equipment*, 8th edition
- EI 1585 *Guidance in the cleaning of aviation fuel hydrant systems at airports*, 2nd edition
- EI 1594 *Initial pressure strength testing of airport fuel hydrant systems with water*, 2nd edition
- EI 1597 *Procedures for overwing fuelling to ensure delivery of the correct fuel grade to an aircraft*, 1st edition
- EI HM 20 *Meter proving: Aviation fuelling positive displacement meters*, 1st edition

Equipment (excluding filtration)

- EI 1529 *Aviation fuelling hose and hose assemblies*, 6th edition
- EI 1584 *Four-inch hydrant system components and arrangements (hydrant pit valves and intake couplers)*, 3rd edition
- EI 1598 *Considerations for electronic sensors to monitor free water and/or particulate matter in aviation fuel*, 1st edition
- EI Research Report: *Review of methods of bonding a hydrant dispenser (servicer) to an aircraft for refuelling*

Filtration equipment

- EI 1550 *Handbook on equipment used for the maintenance and delivery of clean aviation fuel*, 1st edition
- EI 1581 *Specification and qualification procedures for aviation jet fuel filter/separators*, 5th edition
- EI 1582 *Specification for similarity for EI 1581 aviation jet fuel filter/separators*, 1st edition
- EI 1583 *Laboratory tests and minimum performance levels for aviation fuel filter monitors*, 6th edition
- EI 1590 *Specifications and qualification procedures for aviation fuel microfilters*, 2nd edition
- EI 1596 *Design and construction of aviation fuel filter vessels*, 1st edition
- EI 1599 *Laboratory tests and minimum performance levels for aviation fuel dirt defence filters*, 1st edition
- EI Research Report: *Electrostatic discharges in 2-inch fuel filter monitors*
- EI Research Report: *Electrostatic discharges in 2-inch aviation fuel filter monitors Phase 2: Properties needed to control discharges*
- EI Research Report: *Investigation into the effects of lubricity additives on the performance of filter/water separators*

North American fuel handling

- API 1543 *Documentation, monitoring and laboratory testing of aviation fuel during shipment from refinery to airport*, 1st edition
- API 1595 *Design, construction, operation, maintenance, and inspection of aviation pre-airfield storage terminals*, 1st edition

El Standard 1541

Performance requirements for
protective coating systems used in
aviation fuel storage tanks and piping

PERFORMANCE REQUIREMENTS FOR PROTECTIVE COATING SYSTEMS
USED IN AVIATION FUEL STORAGE TANKS AND PIPING

EI STANDARD 1541

First edition

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The Energy Institute (EI) is the leading chartered professional membership body supporting individuals and organisations across the energy industry. With a combined membership of over 13 500 individuals and 300 companies in 100 countries, it provides an independent focal point for the energy community and a powerful voice to engage business and industry, government, academia and the public internationally.

As a Royal Charter organisation, the EI offers professional recognition and sustains personal career development through the accreditation and delivery of training courses, conferences and publications and networking opportunities. It also runs a highly valued technical work programme, comprising original independent research and investigations, and the provision of EI technical publications to provide the international industry with information and guidance on key current and future issues.

The EI promotes the safe, environmentally responsible and efficient supply and use of energy in all its forms and applications. In fulfilling this purpose the EI addresses the depth and breadth of energy and the energy system, from upstream and downstream hydrocarbons and other primary fuels and renewables, to power generation, transmission and distribution to sustainable development, demand side management and energy efficiency. Offering learning and networking opportunities to support career development, the EI provides a home to all those working in energy, and a scientific and technical reservoir of knowledge for industry.

This publication has been produced as a result of work carried out within the Technical Team of the EI, funded by the EI's Technical Partners. 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 internationally.

For further information, please visit <http://www.energyinst.org>

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FOREWORD

This publication has been prepared by the EI Aviation Committee. It is intended to provide guidance on performance requirements for protective coating systems that may be used in aviation fuel storage tanks and piping.

Users of this publication shall be aware that due consideration shall be given to the effect of any unusual or abnormal circumstance, on which it is not possible to generalise within the scope of this publication. Specialist advice shall be sought in these cases.

In addition, in some areas local or national statutory regulations also apply (e.g. German Institute of Building Technology requirement for tank coatings which result in a grey colour). This publication is intended to be complementary to these established controls and practices.

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

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Shell Oil Products

1 INTRODUCTION AND SCOPE

1.1 INTRODUCTION

The use of protective coating systems for the coating of interior metal¹ surfaces of aviation fuel (jet fuel and aviation gasoline) storage tanks and piping is an important tool in the prevention of corrosion on these metal surfaces, to ensure the integrity of containment as well as protecting aviation fuel from contamination by rust during storage and distribution. There are many issues to consider when planning to use a protective coating system such as:

- determination of the effect of the coating on the aviation fuel;
- determination of the effect of aviation fuel on the coating;
- selection of the appropriate coating system;
- surface preparation, and
- correct application.

1.2 SCOPE

This publication is intended to apply to:

- performance requirements for protective coating systems;
- coating manufacturer's test procedures, and
- coatings used on aviation fuel storage tanks and piping.

1.3 RETROACTIVITY

The provisions of this standard are intended for application to new storage tanks and piping or existing storage tanks that are undergoing coating replacement.

¹It should be noted that the use of stainless steel or aluminium may preclude the need for the use of a protective coating.
