

El Research report

Investigation into the possible risks arising from the presence and operation of lithium-ion (rechargeable) button cell energised devices in potentially flammable atmospheres associated with transport fuels

EI RESEARCH REPORT

INVESTIGATION INTO THE POSSIBLE RISKS ARISING FROM
THE PRESENCE AND OPERATION OF LITHIUM-ION (RECHARGEABLE)
BUTTON CELL ENERGISED DEVICES IN POTENTIALLY FLAMMABLE
ATMOSPHERES ASSOCIATED WITH TRANSPORT FUELS

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FOREWORD

This Energy Institute (EI) Research Report has been prepared under the direction of the EI's Distribution and Marketing Committee and Electrical Committee. It is an EI-funded study by Mr T. Hedgeland that has been undertaken to assess the possible ignition risks posed by rechargeable lithium-ion button cell energised devices in potentially explosive atmospheres associated with transport fuels. The findings of this EI Research Report have been technically endorsed by the EI's Distribution & Marketing Committee and Electrical Committee.

The potential hazards arising from the presence and operation of devices energised by a single primary non-rechargeable button cell were previously investigated and reported upon in EI Research Report: *Investigation into the possible risks arising from the presence and operation of button cell energised devices in potentially flammable atmospheres associated with transport fuels*, 2014.

The information provided in this publication is intended to be of use to operators of petroleum distribution installations in their assessments of button cell energised devices. It may also be of use to operators of petroleum road tankers. It is hoped and anticipated that this publication will also be of assistance to those responsible for designing, constructing, commissioning, operating and maintaining aviation fuel handling systems.

It is likely that publication will have a wider scope of usage and will encompass differing operating practices and safety and environmental legislation to those that apply in the UK. Therefore, this publication should be read in conjunction with any statutory operating requirements that apply at the point of intended use. It is recommended that if procedures defined in this publication are more stringent than those at the point of intended use, then those in this publication should be followed.

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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, UK (e: technical@energyinst.org).

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- Oil and pipelines
- Phillips66
- Shell
- Tank Storage Association
- Total
- UKPIA
- Valero

The project coordination was undertaken by Toni Needham (EI).

1 SCOPE

To provide the EI with a risk-based assessment framework/process that is suitable for the assessment of the ignition risk posed by energised devices that embody a single lithium-ion (rechargeable) button cell, that may be worn or carried by persons in a 'hazardous area', and a report providing the justification/description of the steps included in the process. The purpose of this investigation is to establish criteria to assist Duty Holders in fulfilling their duty under UK legislation.