

Loss Prevention Standards – Asset Class(es)

Alternative Fuels and Emergency Standby Equipment

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**This Loss Prevention Standard provides
guidance around the use of alternative fuels in
emergency standby equipment.**



Alternative Fuels and Emergency Standby Equipment



Introduction

Diesel fuelled engines are used by organisations and businesses. They are a prerequisite in most new, and many existing, sprinkler system installations, used to pump firefighting water through the sprinkler system to the seat of a fire. They are also used in standby generator equipment, to provide immediate electrical power in the event of mains power failure.

In recent times, alternative diesel fuels have been developed, which can help carbon emissions and support organisations Environmental, Sustainability and Governance (ESG) programmes.

This Loss Prevention Standard summarises the main considerations of using such alternative diesel fuels to power emergency standby equipment.

Note: This document relates to the use of alternative fuels in emergency standby equipment and focusses on Property loss prevention. It is not intended to address Liability exposures.



Background

Alternative diesel fuels, include:

- **Bio-Diesel.** Biodiesel is produced from new and used vegetable oils and animal fats and is typically blended with regular diesel to produce a fuel with lower carbon and hydrocarbon emissions.
- **Emulsified Diesel.** Emulsified diesels are a blend of diesel, water and other additives which can be used in diesel engines, albeit with reduced energy content and power output.
- **Gas-To-Liquids (GTL).** GTL is a refinery process which converts natural gas or other gaseous hydrocarbons into liquid fuels such as gasoline or diesel, as well as lubricants.

Such fuels are used as a replacement fuel to petroleum-derived diesel in the motor industry, however, are also promoted for use in emergency standby equipment.

Although alternative diesel fuels may be offered as conforming to, for example, **BS EN 15940 (Automotive Fuels - Paraffinic Diesel Fuel from Synthesis or Hydrotreatment - Requirements and Test Methods)**, suitability for use may be a general view in terms of engine application and does not necessarily take in to account specific field applications, for example standby generators or fire protection equipment such as diesel engine driven fire pumps.

Whilst offering sustainability advantages, there are a number of potential issues including:

- Lower power output.
- Higher fuel consumption.
- Engine 'wear and tear'.
- Degradation of components, seals, gaskets, hoses, etc.
- Degradation of the fuel itself.

However, the primary concerns are performance and reliability.

Use of Alternative Fuels in Emergency Standby Equipment

Alternative diesel fuels may have a lower energy value per litre than petroleum-derived diesel, however sprinkler pumps are sized specifically based on power output. The use of alternative diesel fuel may result in a sprinkler pump being unable to meet the designed power demand, potentially compromising performance.

The reliability of the equipment, and by extension the necessary service and maintenance regimes along with suitability of components, is a critical factor. It is important to note that Original Equipment Manufacturer (OEM) recommended service and maintenance schedules for such equipment are typically prescribed based on the use of petroleum-derived diesel. The use of an alternative diesel fuel may result in more onerous and/or more frequent service intervals, along with any necessary component upgrades, equipment design changes, etc.

Additionally, the use of an alternative diesel fuel could also potentially compromise any third-party listing / approval status for the equipment concerned, and/or any manufacturer's warranty in place.

Until the impact and scale of using alternative diesel fuel in existing emergency standby fire protection equipment is more widely understood, and definitive guidance on the use of such fuels is provided by the respective engine manufacturers (including end-to-end reviews of the equipment in terms of design, performance, and maintenance requirements), only petroleum-derived diesel should be used to fuel sprinkler pumps as per the original OEM design intent.

For general industrial applications, e.g. emergency standby generators, there may be little to no impact in transitioning to alternative fuels, however the OEM should be consulted to determine the suitability of any proposed changes, including a full review and update (as may be applicable) to service and maintenance schedules.

Key Action Steps

- Do not transition to alternative diesel fuels in sprinkler pumps.
- Any proposal to consider the use of such fuels in other emergency standby equipment should be discussed with your Property Insurer and Broker.
- In all instances, any planned changes should be thoroughly investigated with and agreed by the OEM concerned, including any necessary changes to service and maintenance schedules.

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Sources and Useful Links

- [BS EN 15940 Automotive fuels. Paraffinic diesel fuel from synthesis or hydrotreatment. Requirements and test methods](#)

Note: Whilst UK standards and legislation are referenced in this document, other international standards and legislation should be referenced where applicable.

Additional Information

Relevant Aviva Loss Prevention Standards include:

- **Sprinkler Systems - How They Operate**
- **Sprinkler Systems – Review of Hazards**
- **Flammable Liquids**

To find out more, please visit [Aviva Risk Management Solutions](#) or **speak to one of our advisors**.

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