

INFINEUM SUSTAINABILITY:

H2ICE Lubricants

Optimised additive solutions



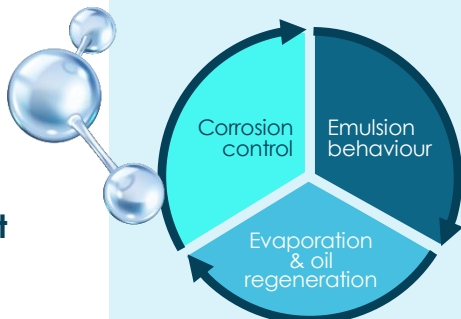
Formulating
tomorrow
together

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Hydrogen Internal Combustion (H2ICE) is one of a number of a viable technologies that will enable the heavy-duty transportation segment to reach net zero

Performance challenges associated with H2ICE mean **optimised or bespoke lubricant solutions will be required**



Water management:

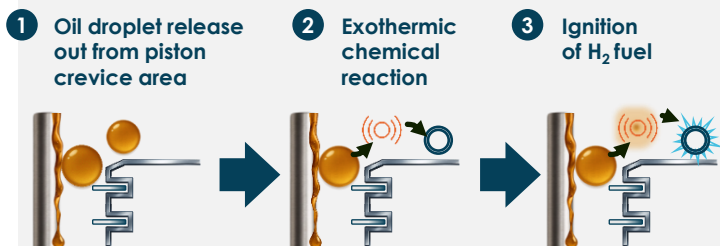
Combustion of H₂ generates > 4 x the amount of water compared to diesel.

The lubricant must be capable of effectively managing this water and mitigating the harms associated with high levels of aqueous contamination

Hydrogen pre-ignition:

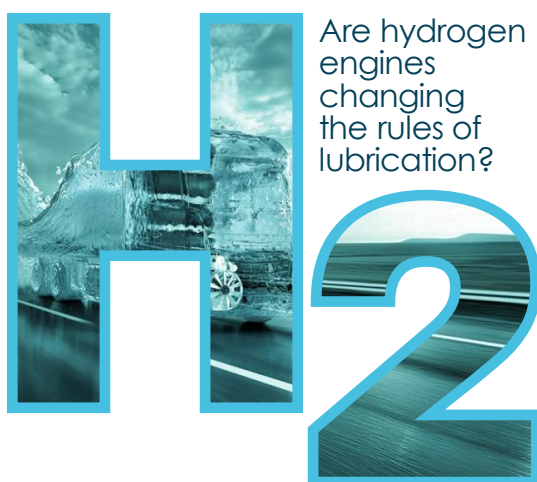
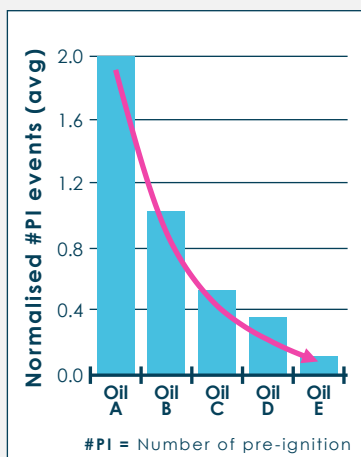
Extensive pre-ignition evaluation of lubricants has enabled Infineum to define optimised additive solutions

Stages of pre-ignition



Impact of pre-ignition

- Reduces engine power
- Decreases fuel economy
- Damages pistons and head gaskets



Are hydrogen engines changing the rules of lubrication?



Lubricant pathways

BESPOKE:

Delivering targeted H2ICE performance

ADAPTED FOR HYDROGEN:

Enhanced PI and water handling while retaining multi-fuel capability

SUITABLE FOR USE:

Deploy existing products giving flexibility



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