

## BUNKER FLASH

### Update On Houston Bunker Fuel Problem

Issued on 03 Oct, 2023

In recent times, there have been notable machinery issues affecting vessels bunkering from the United States, particularly in the Houston area. These problems include failures in Main Engine startup, loss of power from auxiliary engines resulting in the loss of propulsion, and fuel pump malfunctions, among others. These concerns have been widely reported in the news.

CTI-Maritec, an independent fuel testing laboratory, has undertaken an investigation into fuel samples collected from this region. The analysis has revealed elevated levels of specific compounds, which have raised concerns about the stability of the fuel being used in these vessels.

Over the past few months, our testing has identified three vessel fuel samples with significantly high levels of two compounds:

- Dihydro-dicyclopentadiene (ranging from 1200 ppm to 6000 ppm) and
- Tetrahydro-dicyclopentadiene (ranging from 2500 ppm to 5500 ppm).

These samples exhibited a poor reserve stability, measured using manual P-value by SMS1600 test method. This suggests a lack of homogeneity in the fuel sample, which could potentially pinpoint to similar conditions in the supplied fuel.

Table 1 shows our finding for one of the samples upon progressive dilution with cetane, a paraffinic solvent prescribed for SMS1600 test method.

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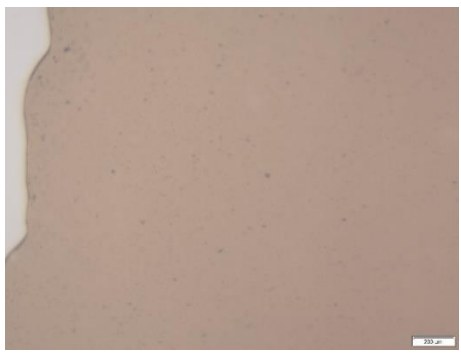
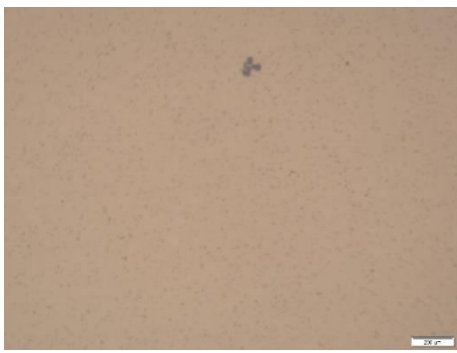
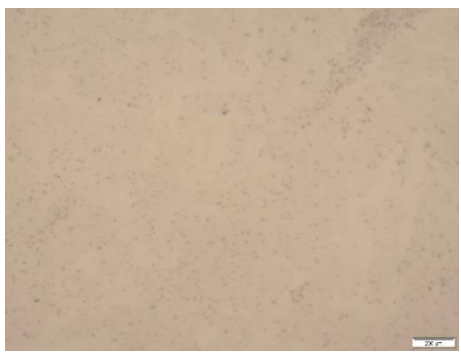

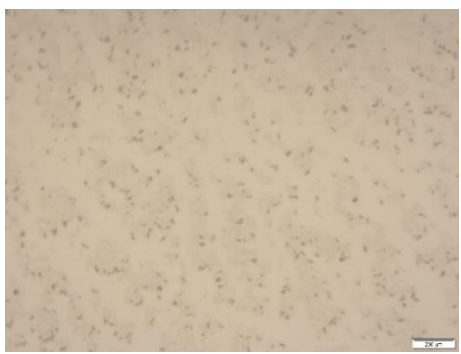
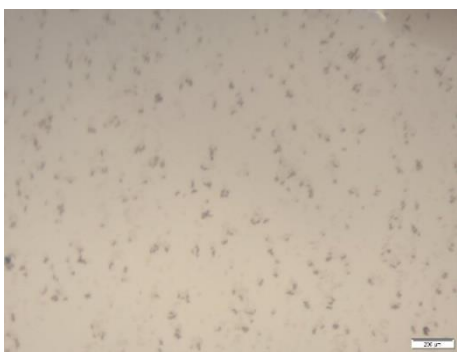
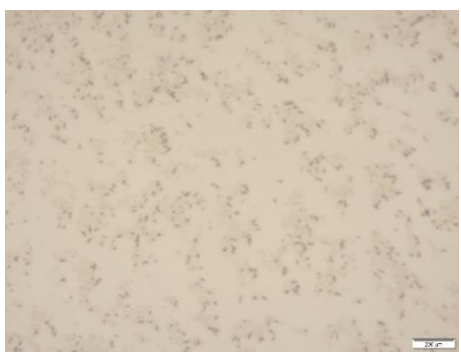
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Table 1: Progressive cetane dilution and microscopic observation

Cetane dilution level	Microscopic observation of asphaltene flocculation	Cetane dilution level	Microscopic observation of asphaltene flocculation
0%		10%	
20%		30%	
40%		50%	
60%			

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### Recommendation by CTI-Maritec

For acceptable fuel stability asphaltene flocculation generally does not occur upon cetane dilution up to 30%, and fuels that are able to withstand dilution up to 50% are considered as stable fuels for strategic long-term storage.

For the sample tested, asphaltene flocculation was detected prior to cetane dilution and gradual increase of cetane % increased the observed flocculation levels which indicates the fuel has poor stability reserve.

The presence of the compounds detected at elevated levels for the fuels tested increases the risk of unmanageable sludge deposition in the fuel oil system. This, in turn, can result in complications related to fuel treatment processes and engine operation.

It is worth noting that while these compounds are commonly found in marine bunker fuels, their current prevalence in this region is unusually high. This may indicate inadequate quality control measures within the production and supply chain.

Based on the above findings, it can be argued that these fuels represented by the tested samples may not meet the general requirements outlined in clause 5 of ISO8217. Therefore, if your vessel is bunkering in this area, we strongly advise you to request the fuel supplier to provide a Certificate of Quality from an accredited laboratory. This certificate should, at a minimum, confirm the absence of the aforementioned compounds using accredited GC-MS methods. This precautionary measure is crucial to ensure the safe and reliable operation of your vessel's machinery.

This document however does not reflect on the overall quality of fuel being supplied in the Houston region.

**Maritec Pte Ltd** can assist you in with further information on quality of bunkers tested in different regions. If you require any other information or assistance do not hesitate to [contact us](#)

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