

## SAMPLE ANALYSIS REPORT

Sample Analysis Details			
Job Number:	Foc Visit	Site:	
Sample Date	20/10/2021	Asset Number:	Bulk Tank 1
Report Date:	21/10/2021	Serial Number:	-
Tank Capacity:	18,750Ltrs	Tank Volume:	Est 7,000Ltrs

### Tank Information:

The above ground bulk tank is located within the basement of .



Sample Details	
Tank Identification	Bulk Tank 1
Sample Location	Bottom of the Tank

Clear & Bright	Pass <input type="checkbox"/>		Fail <input checked="" type="checkbox"/>
Visual Particulates	Clear <input type="checkbox"/>		Present <input checked="" type="checkbox"/>
ISO Code	20/17/15	Moisture PPM	110
Patch Test	5	Bacteria Count	1
Overall Condition	Pass <input type="checkbox"/>	Caution <input type="checkbox"/>	Fail <input checked="" type="checkbox"/>



Sample Description
The sample is a hazy red colour, there are particulates present within the sample.

Recommended Actions
<ul style="list-style-type: none"> <li>The fuel stored within the tank should be polished and returned to safe, clean state.</li> <li>To sample the tank at 6 monthly intervals to analyse the quality of the fuel.</li> <li>The stored fuel should be dosed with Diesel Defender fuel additive to prolong the life of the fuel and reduce any waxing due to cold weather.</li> </ul>

For any support on remedial actions or further testing, please contact your sales representative.

## Summary of sampling procedure and test specification

### Clear and Bright Test – visual inspection

Visual inspection is carried out consistent with ASTM D4176-04 (2009) procedure 1 methodology, note however: a smaller sample size is used (100ml). Sample is held to light and inspected visually for haze or discoloration. The sample is swirled and inspected for free water and particulate matter. The visual inspection is pass/fail, failure occurring if there is water/particulate, or the fuel is not visually clear.

ASTM D1476-04 (2009) procedure 2 is not typically used due to its qualitative nature, the absolute requirement for 900ml samples, and overlap of the test methodology with more prescriptive tests for water and filterability described below.

**DEFINITION - A good sample of fuel would be very clear in appearance and brightly coloured when held up to natural light.** See summary table and sample image for results.

### Water Content Test

Water content is tested using a calcium hydride method. Specifically, we use the Sandy Brae Laboratories Digital Test vessel, which allows field testing to a resolution of 1ppm and accuracy of +/-15ppm for concentrations of up to 1500ppm water. The results are compared to WWFC specifications to identify level of risk.

**DEFINITION – below 200PPM for EN590 fuels is a pass.** See table for results.

### Iso Code

ISO4406:2017 is the internationally recognised cleanliness code for measuring the solid particulate content of fuel samples and hydraulic fluid. It is also referred to as the ISO cleanliness code. For engines designed to achieve Euro 2, 3, 4 and 5 emission standards, clean fuel is important. For diesel to be recognised as 'clean' the fuel must contain less than 200ppm of dissolved water (as indicated by EN 590) and a particulate cleanliness level of 18/16/13 (as stated by ISO4406:2017).

### Patch Filter Test

Particulates are tested for using a qualitative patch filter test, based upon analogous principles to those identified in MIL-S-53201A Test Method 1 and the Millipore Patch Test. 15ml product is passed through a 37mm test monitor containing a 0.8micron filter patch. The resultant patch filter is then compared to a proprietary scale.

### DISCLAIMER

All testing is undertaken in good faith and every effort is made to ensure a representative result from the installation sampled or samples provided. All test results are confidential between IPU Group and the client. Collected samples are taken from identified locations, correctly labelled, and placed in sterile containers. It cannot be responsible for any consequential matters due to removing samples for analysis. Where samples are provided directly by the customer IPU Group does not accept any liability for any results that could have been caused by cross-contamination, inaccurate or incorrect sampling methods or delays in submitting samples for analysis, including effects of temperature, humidity, and atmosphere. The results apply to the specific time the test was taken and cannot be used to accurately quantify the levels of contamination post or prior to this time

Microbial contamination can form in clusters within a storage tank at different levels in the fuel and different positions along the longitudinal and lateral axes of the tank.

The reported levels of contamination apply only to the specific location from where the sample was withdrawn and cannot be used to predict any other areas of lesser or greater contamination levels in other parts of the storage tank. Where samples are taken from the dispenser nozzle it should be recognised that the sample will be representative of fuel drawn from close to the tank bottom. This can under certain circumstances give a misleading result. Any nozzle sample that identifies a cautionary or failure level of contamination should be followed by more detailed study of the tank contents before conclusions are drawn. The test process applied does not make any claim to determine the type of microbial contamination (e.g., Bacterial, Fungal, Yeasts)