



Dirty fuel threatens your critical systems, your service levels and your patients.

FUEL CONDITIONING

Protection for your critical systems

Emergency power systems support more than operating theatres and other headline services. They protect the administrative and support services you rely on. Emergency power has to be reliable.

However, when diesel is bulk stored without treatment for longer than 6-12 months it can become contaminated. This is incredibly harmful to emergency generators. It can clog filters, damage fuel injectors or cause total power failure.

Fuel degradation is entirely preventable with a little help from IPU.

We offer a simple cost effective 4-step programme to keep your fuel clean and dry. It includes:

- DieselCheck diesel testing
- ClearTank diesel cleaning
- Diesel Defence diesel polishing
- ADV Fuel stabilisation

Water contamination

Water is the enemy of clean fuel. The quantity present when fuel is manufactured attracts more while it's stored. Water is a contaminant in its own right, it promotes microbial growth and accelerates contamination from solids such as rust.

Microbial contamination (diesel bug)

Diesel bug is a generic name for the microbial contamination that grows in fuel. It multiplies in a fuel tank by feeding on the water and the hydrocarbons found in diesel.

Solid particulate contamination

Of all the different forms of diesel contamination, solid particulate contamination carries the most obvious risk. Fuel contaminated with dust, grit and rust is clearly undesirable.

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Why should I care about fuel contamination?

Diesel engine technology has evolved to provide more efficient performance. But it's also caused engines to become more vulnerable to fuel contamination. Even low levels can cause excessive wear or blockage of sensitive fuel systems. If contamination is allowed to build up this will have serious consequences should the mains power fail, including:

- Loss of standby power.
- Impact upon normal service provision.
- Patient harm or loss of life.
- Damaged equipment and standby generator downtime.
- Environmental and financial cost of disposing of bad fuel.

What causes the fuel to become contaminated?

It is widely accepted that under normal conditions, fuel will remain in a usable state for just 6-12 months. Unfortunately due to the nature of back up generators, a hospital may store the same diesel for years if not decades.

The issues are caused by the biodiesel component Fatty Acid Methyl Ester (FAME). This substance is blended with petrochemical diesel to reduce the environmental impact of using the fuel. The current ratio is 7% FAME, 93% petrochemical diesel. The bad news is that FAME contains water and it attracts more while it's stored.

Water is the enemy of clean fuel:

- water is a contaminant in its own right.
- water promotes microbial growth, otherwise known as the 'diesel bug'.
- water accelerates contamination from solids like rust.

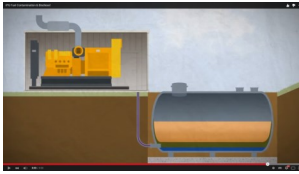
The good news is, the cure is simple and IPU can help...



Left: a diesel sample we took from a customer before treatment. You can clearly see a layer of water with solid particulate build up at the bottom.

Right: a sample from the same tank after IPU engineers had finished the ClearTank treatment. It has been returned to EN 590 and ISO 4406 standards for clean fuel.

FUEL CONDITIONING



VIDEO: Understanding fuel contamination

Our short video explains why fuel becomes contaminated and what can happen if the issue is ignored.

www.ipu.co.uk/video-understanding-fuel-contamination



VIDEO: Protection against fuel contamination

How you can protect your fuel against the threat of water, diesel bug and solid particulates.

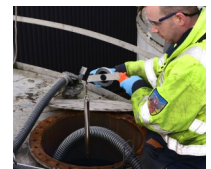
www.ipu.co.uk/video-protection-against-fuel-contamination

The solution to protecting your patients

IPU's Fuel Conditioning Programme

DieselCheck Fuel Testing

The prudent first step is to get your fuel tested. After all, you can't fix what you don't see. Regular testing alerts you to any issues such as contaminated deliveries or tank breaches. IPU's DieselCheck Fuel Testing Service gives you an accurate and reliable analysis of what's in your tank.



ClearTank Fuel Cleaning

If contamination is found your fuel and tank needs to be cleaned. Otherwise you risk the continuity of your critical systems. IPU's ClearTank Fuel and Tank Cleaning Service addresses the three main forms of fuel contamination (water, solid particulates and microbial growth), allows your generators stay online and requires no man-entry into hazardous areas.



Diesel Defence Fuel Polishing

Even clean fuel is under constant attack from water, microbial growth and solid particulates. There is a solution. Diesel Defence fuel polishing systems can preserve your stored fuel to EN590 standards. It gives you the peace of mind that your fuel is clean, dry and dependable.



ADV Fuel Stabilisation

While fuel polishing units remove bacteria that have grown to a significant size, IPU's fuel additives work directly to kill tiny bacteria and neutralise the ingredients they need to grow. They are the vitamin boost that keep your fuel bug-free and give your generators extra performance.



We strongly recommend that you at least get your fuel tested. You may find that your fuel is fine. But without a proper test you're risking the reliability of your critical systems and the continuity of care to patients. A test costs a lot less than a generator failure and highlights potential dangers before they become catastrophic.

To arrange your fuel test, please call the IPU Fuel Conditioning team on 0121 511 0470.

Case Studies

Full Case Studies available on our website: www.ipu.co.uk/case-studies/fuel

Good Hope Hospital



LOCATION

Sutton Coldfield, West Midlands, UK

SIZE

555 beds

EQUIPMENT

7 diesel storage tanks supplying a number of backup generator sets

Good Hope Hospital discovered that their diesel was heavily contaminated with substances such as colloid carbon (a material that can clog filters and causes poor combustion). This meant the hospital needed to act quickly as the consequences of a blackout at a hospital would be catastrophic.

Good Hope Hospital approached IPU with 7 unique fuel tanks, each in different locations including indoors, outdoors and underground. The test results had shown that all 7 tanks were showing signs of contamination.

IPU's ClearTank service removed the contamination and restored the fuel to clean fuel standards. IPU also supplied Diesel Defence fuel polishing units to ensure the fuel remained within EN590 and ISO 4406 standards.

"Clean, dry fuel is so important for our backup power systems. When we saw the results of our fuel test we knew we had to act. IPU has been excellent in restoring our diesel and in providing solutions that will allow us to keep our fuel clean going forward."

Paul Street, Estates Department, Good Hope Hospital

County Hospital Stafford



LOCATION

Stafford, UK

SIZE

1,500 staff

EQUIPMENT

Long term diesel storage tanks supplying critical backup generator sets

County Hospital Stafford became aware that their diesel was heavily contaminated with water and asphaltene (hard, brittle particles that can agglomerate). This could have blocked their engine filters, damaged fuel injectors or caused total generator failure.

County Hospital requested the help of IPU. Our ClearTank fuel tank cleaning service removed over 150 litres of contaminated water and asphaltene from the storage tanks.

ClearTank was the ideal solution for County Hospital as it requires no hazardous man-entry, cleans the tank and fuel simultaneously and enabled the generators to remain online throughout.

It also meant that County Hospital were not required to drain each of the tanks, have them manually cleaned and re-fill the storage units with new diesel.

"When we saw the results of our fuel test we knew we had to act. The difference between the diesel before ClearTank and after was phenomenal."

Steve Bagnall – Senior Estates Manager , NHS