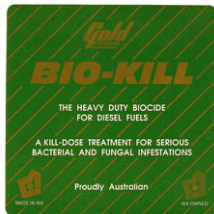


**Cladocide Gold** contains an antioxidant to reduce formation of corrosive products in fuel tanks, maintain fuel properties (ie reduce oxidation) and extend fuel storage life. The dead fungal and bacterial debris is easily trapped in filters and thus does not continue moving through the fuel system, damaging injectors and injector pumps. **Cladocide Gold** reduces fuel degradation and formation of corrosive by-products, resulting in an increased life span of injector pumps and injectors.

**Cladocide Gold** is available in four convenient package sizes: 1L, 5L, 20L and 205L.

### **BIO-KILL**



**BIO-KILL** is a highly effective biocide designed to eradicate microbes in strongly contaminated diesel fuel, home heating oil, kerosene and similar liquid fuels. The treatment rapidly destroys all growth in less than 72 hours in both the fuel and the water phase of the storage system.

**BIO-KILL** is a more aggressive way of treating microbial growths than Cladocide and Geotech recommends it only be used in severe cases of contamination by trained personnel.

### **Company Information**

Geotechnical Services Pty Ltd is a NATA and ISO accredited laboratory specialising in lubricant analysis and fuel quality testing. Analytical programmes are designed to detect operational problems and to help maintenance planning on machinery in the mining, fishing, agricultural and transport industries.



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**DON'T BE A FOOL.....  
TREAT YOUR FUEL!**



**Have you got the bug?**



## What is the bug?

The most common form of fungal growth in fuel systems is *Cladosporium resinae*. *Cladosporium* grows rapidly, needing only a trace amount of water and minerals to sustain itself. As it grows, it chemically alters the fuel to produce water, sludge and other by-products, therefore improving its own environment. These by-products can corrode fuel tanks, fuel lines, hoses and other components of a diesel fuel system.

The fungi grow into long strings and form large mats or globules. The growth appears slimy and is usually black, green or brown in colour. It normally commences at the interface between the fuel and the water layers and, in a short period of time, can spread throughout the fuel itself. Running a machine with contaminated fuel completes the spread of infection throughout the fuel system.

Once the fuel supply is contaminated, related problems such as fuel tank gauge damage and premature injector or injector pump failures are

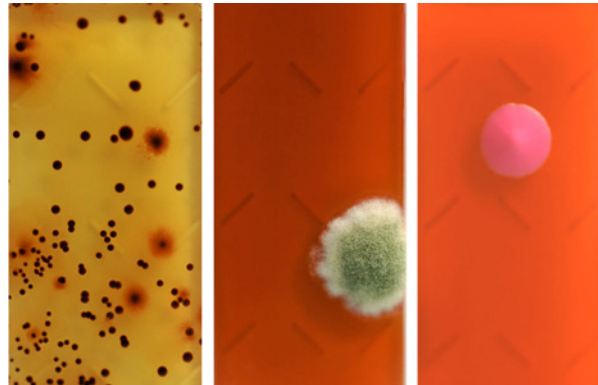


commonplace. Filter blockage also occurs due to both the fungal residue and the fuel 'dropout' caused by the growth's ability to reduce the chemical stability of the fuel. This reduction in chemical stability (or oxidation) generally reduces the lubricating quality, cooling ability and overall performance of the fuel.

## Detection and confirmation

The growth is usually seen in the form of mats or slimy masses in tanks, fuel systems or fuel filters. The fuel may develop a sulfurous odour, similar to that of rotten eggs. The exhaust of machinery using contaminated fuel can become darker than normal due to the reduced combustion efficiency of the fuel. When there is no clear evidence but contamination is suspected, fuel samples should be taken and forwarded to Geotech's laboratory for testing.

### Typical pictures of contamination



Bacteria/Yeast

Mould Growth

## Prevention rather than cure

The two main steps to stop the problem of fungal attack on diesel are:

1. The regular use of a biocide such as **Cladocide Gold**.
2. Proper maintenance of the fuel handling system. This is a key step as the effectiveness of even the most efficient treatment is likely to be reduced if the fuel is allowed to retain fungal debris and excess water.

Contamination occurs very easily and even the best maintained system will benefit from the preventative use of Cladocide Gold.

## Cladocide Gold



**Cladocide Gold** is scientifically formulated as a broad spectrum biocide designed to control microbial growth in diesel fuel.

**Cladocide Gold** is easy to use and is compatible with a wide variety of fuel systems and associated components. It is soluble in both fuel and water and it partitions itself between the layers occurring in most storage tanks, thus preventing any fungal and bacterial infestations.

**Cladocide Gold** is a low cost preventative treatment - at less than half a cent per litre, there is no cheaper insurance policy for your fuel storage systems!