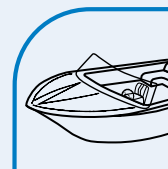
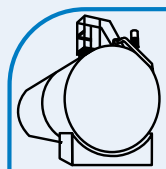


grotamar® 82

**Stops microbiological contamination
in diesel fuels and heating oil**



grotamar® 82 – biocide for treatment of contaminated diesel fuel

grotamar® 82 is a liquid biocide with a broad, balanced spectrum of efficacy against all types of microorganisms. It rapidly kills and controls all microbial contamination and does not alter the properties of the fuel. grotamar® 82 prevents fuel degradation by microorganisms and associated corrosion and sludge formation.

What can I treat with grotamar® 82?

- Diesel fuel
- Diesel fuel blends with biodiesel
- Marine fuels
- Biodiesel
- Heating oil
- Heating oil blends with Biodiesel

Who should use grotamar® 82?

- Fuel distribution terminals, depots and bunkering facilities
- Ship operators / Boat owners
- Petrol Stations
- Power generators
- Naval vessels and military ground vessels
- All vehicle types with diesel engine

Why should I use grotamar® 82?

- Broad activity spectrum against bacteria (including SRB), yeasts and moulds
- Rapidly kills and controls all microbial contamination
- Excellent solubility
- Concentrates in any water in fuel/ oils systems (which is where the microbes live)
- Prevents bio-sludge formation
- Excellent anti-corrosive and anti-oxidant properties
- Good compatibility with fuels, oils, additives and system components
- Completely combustible in fuels with no corrosive combustion products
- Contains no inorganic constituents, sulphur, nitrate, nitrosing agents or chlorine
- In compliance with the European Biocidal Products Directive
- Approved for use in heating oil

How to use grotamar® 82?

- Dose for prophylactic treatment use 250-800 ppm
- For decontamination use 1000-2500 ppm
- Wherever possible, drain all water from the tank before adding grotamar® 82.
- If bio-sludge is visible, mechanical cleaning to remove residues is crucial.
- After treatment with grotamar® 82 it may initially be necessary to change fuel filters more frequently as grotamar® 82 flushes out dead microbes from the system
- Mixing in tank is not necessary. grotamar® 82 is self-dispersing.
- Avoid over- or underdosing

References and approvals

Automobile and engine manufacturer

- MAN
- MTU
- Deutz
- Daimler (pending)

Military / NATO

- Germany – stock no. 6840-12-388-3545
- stock no. 6840-12-388-3543
- stock no. 6840-12-390-4174

How to detect microbiological contamination?

- Use mikrocount® fuel, a special germ count test kit for fuel
- The test kit provides precise and reliable results
- Suitable for all qualities of diesel fuel inclusive biodiesel



Consequences of untreated microbial contamination

Diesel fuel contamination

Water can dissolve in fuel, particularly in warm, humid conditions. This water will condense out of the fuel and also from any air in the tank when it cools. It collects on the tank bottom or forms droplets on tank walls and in fuel lines. Microorganisms are everywhere and can multiply exponentially within this water. The formation of slime and heavy bio-sludge is the result of their metabolism. The bio-sludge can cause engine failure or damage as a result of filter and injector blockage. Microbes can also cause rapid and severe corrosion of tanks and fuel system components.



Slimy residues on tank walls

Microbial contamination causes major system failures.

Microbes need very little water to grow. In practice there is often sufficient water in the bottom of tanks, pipelines and equipment or as condensate films on tank surfaces. When they grow in terminal storage tanks they may be passed on down the fuel distribution chain to contaminate facilities and end-user tanks downstream. The major problems caused by microbial contamination are spoilage, fouling and corrosion and result in failures like:

- **Excessive wear of system components and engine failure**

Fouling by slimes produced by bacteria, yeasts and moulds can cause severe filter plugging, blocking of fuel and oil lines and injectors and consequently cause excessive wear and failure of engines and system components.



Pipe blocked by bio-sludge

- **Alteration of technical properties**

Microbes can grow in fuel causing additives depletion, increased acidity and loss of functional properties.

- **Pitting Corrosion in tanks**

In steel and aluminium storage tanks, growth of Sulphate Reducing Bacteria (SRB) can cause pitting corrosion which can proceed at rates of over 10mm per annum.



Pitting Corrosion

- **Failure to meet fuel specification**

Growth of SRB in fuel tanks can cause sulphide spoilage of fuels. The fuel becomes corrosive and can fail specification. Fuel fouled by microbial slimes can fail filtration tests.

- **Failure of filter water separators**

Microbial surfactants can stimulate the suspension of water in fuels and oils causing them to become hazy and causing failure of filter water separators.

Solution

It is more cost effective to prevent problems by good house-keeping and a preventive treatment with grotamar® 82. Costs for decontaminating heavily infected facilities and the consequential losses due to system and equipment failures are high. Early detection of contamination allows early action to prevent operational issues. mikrocount® fuel test kits are tailor-made to detect microbes in all types of fuel. It should be used regularly for an effective hygiene monitoring of fuel tanks.

If you have further questions, please do not hesitate to contact us:

Schülke & Mayr GmbH
22840 Norderstedt | GERMANY
Tel. +49 40 52100-0
Fax +49 40 52100-244
www.schuelke.com | sai@schuelke.com

United Kingdom
Schülke & Mayr UK Ltd. | Sheffield
S9 1AT
Phone +44-114-254 35 00
Fax +44-114-254 35 01