IdNo DOK70101 **Rev. 01-2016**

Use of biodiesel pursuant to DIN EN 14214

for heating units in the Thermo, Thermo E, Thermo S and Thermo Plus series

Fuel made from FAME (fatty acid methyl ester) is created using plant-based or animal fats and is called biodiesel. Biodiesel is divided into, but not limited to, the following:

RME Rapeseed oil methyl ester *PME* Plant methyl ester or Palm oil methyl ester
SME Soy methyl ester

Since 2009, mineral oil companies in Europe have been adding up to 7 percent biodiesel to conventional, mineral diesel fuels (according to DIN EN 590). This does not affect the standard functionality of Spheros heating units.

Biodiesel is more aggressive than standard diesel fuels and can damage non-suitable materials in the fuel circuit (like seals, hoses)!

The following heating units are equipped with biodiesel-resistant sealing elements starting on the date given:

- Thermo since 02 / 2004
- Thermo S since 02 / 2009
- Thermo E since 05 / 2016
- Thermo plus since 05 / 2016

Old devices can be converted. This information applies for external attachments or components (hoses and filters) delivered with the designation “biodiesel”.

What to know when operating with biodiesel

Biodiesel is a natural product and can be produced using fresh plant oils like soy, rapeseed, palm, peanut or canola oils, but it can also be created using used cooking oil or animal fats. This is accomplished via the chemical process of transesterification.

Biodiesel pursuant to DIN 14214 has a lower shelf life or storage stability than standard diesel.
This fuel must be protected from temperatures over 40 degrees Celsius, from temperature deviations, from light as well as from the entry of oxygen and water. Therefore, biodiesel must be regularly consumed or monitored and replaced.

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Avoid using non-ferrous metals (like copper or brass) in the entire fuel system, since biodiesel is more corrosive - compared to diesel.

Biodiesel has - depending on the temperature - a higher viscosity than standard diesel.
This has grave effects where this fuel can be used, even if the temperature requirements from the standard are satisfied.

For a smooth combustion process when using biodiesel up to -10 degrees Celsius, ensure:

- Biodiesel must comply with DIN EN 14214
- Biodiesel must comply with the climatic requirements (CFPP classes)
- Use of a nozzle block preheater required for temperatures < 0 degrees Celsius
- Use of a filter heater required for temperatures < 0 degrees Celsius
- Fuel pump must be equipped with FKM (Viton) seals
- Fuel hoses and seals for the fuel filter must provide resistance compliant with DIN EN 14214 – NBR elastomers/hoses are excluded
- Replace the fuel pump, fuel lines and seals for the filter every four years
- Operate the heating unit every four weeks, even in summer
- Do not use outdated fuel
- The CO_2 value has to be adjusted

Furthermore, we recommend:

- Changing the fuel filter when converting from diesel to biodiesel (after 20 operating hours).
- Changing the nozzles at least 1x per heating period.

Note:

- Smoke will form if a non-standard fuel is used

Reliable operation of the heating unit depends solely on:

- Observance of the maintenance work and
- measures and recommendations listed above

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