

## // H<sub>2</sub>O<sub>2</sub>OLEUM

Ref-Nr: TA-156

### HINTERGRUND

Water/Diesel emulsions have been intensively discussed as potentially beneficial fuels with respect to reduction of noxious exhaust gases – mainly particulate matter (PM) and nitrous oxides (NO<sub>x</sub>). So far, however, these emulsions were thermodynamically unstable and only low amounts of water could be emulsified. Thus, water/fuel emulsions are currently limited to niche applications and other options for reducing PM and NO<sub>x</sub> are under development. All these methods are costly, increase fuel consumption and require delicate engine management systems.

### LÖSUNG

H<sub>2</sub>O<sub>2</sub>Oleum in contrast is an absolutely stable microemulsion. H<sub>2</sub>O<sub>2</sub>Oleum is the first thermodynamically stable water/fuel emulsion ever – stable over an extremely wide range of temperatures and operating conditions. H<sub>2</sub>O<sub>2</sub>Oleum is a bicontinuous microemulsion – i.e. both the oil and the water components form continuous domains within the liquid. H<sub>2</sub>O<sub>2</sub>Oleum significantly saves surfactant and the water/fuel ratio can be freely varied. We offer licenses and technical support for the commercialisation of H<sub>2</sub>O<sub>2</sub>Oleum to innovative companies. Patent applications have been filed for H<sub>2</sub>O<sub>2</sub>Oleum in Europe and North America. H<sub>2</sub>O<sub>2</sub>Oleum has successfully been tested both in the laboratory and on engine test benches.

### VORTEILE

# Stable and durable microemulsions # Water content freely adjustable # Wide temperature/stability window # Clean and efficient combustion # No temperature peaks during combustion (□ NO<sub>x</sub> reduction) # Significant PM reduction # Reduces engine pinging # Simple implementation # Easy to handle # Works for Diesel, RME, kerosene and gasoline



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### ENTWICKLUNGSSTAND

Machbarkeit

### CATEGORIES

//Energie- und  
Energiespeich  
ertechnik //Chemie //Synthesen und  
Verfahrenstechnik