

## Registration

Fax this form to +49 8034-9047-747, e-mail it to info@oildoc.com or register online <https://register.oildoc.com>.

### Hereby I officially register

4-day training "Lubrication for experts" Date: .....

Mr.  Mrs.  Title .....

First name, Name .....

Company .....

Department .....

Street, No. ....

Zip, City .....

Phone / Fax .....

E-mail .....

Order no. ....

I will proceed the registration fee (1320 € net) within 10 days after I got the training confirmation and invoice.

.....  
City, Date      Signature

Please check your address for invoice and order no. before registration. If we need to change these information after registration we have to charge a handling fee from 10,00 €. Please understand that we will charge a cancellation fee of 50% within 14 days before the start of the training and of 100% of the participation fee within 7 days. If a reported seminar participant does not appear, fee cannot be refunded. You can, of course, name a substitute participant. We are committed to run every announced training. Nevertheless, we may have to cancel a seminar, for example if a lecturer is ill or the minimum number of participants has not been reached. We will notify you as soon as possible. Participation fees already paid will be returned to you unsolicited. We can not recognize any further claims.

## What is special about this training?



- Intense preparation for the certification exam "Certified Lubrication Specialist (CLS)" of the American Society of Tribologists and Lubrication Engineers (STLE).
- Ideal exam training with realistic mock questions and guidance via CLS certified engineers.
- Holistic presentation of the area of Expertise, starting with technical applications, lubrication techniques over to oil condition monitoring and oil maintenance.
- For many year experienced, internationally recognized and certified speaker who is familiar through his daily routine with mechanical engineering topics and lubricants
- Especially useful to refresh your knowledge and stay up-to-date in the world of lubrication

### Costs:

1320 € net for the 4-day training

### Included:

- Participation in the training
- Hot lunch at all days in our cafeteria
- Coffee/Tea and sweet and savoury Snacks during the breaks
- Water during the training
- Training documents (printed and digital)
- Certificate of participation

### The CLS-Exam

The participation in the official CLS-Exam is optional. You do not need to take the exam if you take part in the training. The exam takes place at the venue on the Friday directly on the next day after the training. The exam starts at 9.00 am and has a duration of 3 hours. Please note that the exam is executed directly by the STLE which is completely independent from us. Therefore, if you would like to take part in the exam, you have to register yourself at least 2 weeks in advance to the exam at the STLE. Here you can register yourself for the CLS-Exam.

### CLS-Exam Fees\*

(not included in the training course fee!!!):

\$450 USD for STLE-Member

\$625 USD for Non-STLE-Members



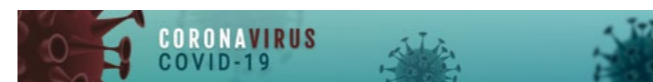
\* Fees are set directly by the STLE and may differ.

## Trainer

Rüdiger Krethe, Dipl.-Ing.

As certified trainer and general manager of OilDoc GmbH Rüdiger Krethe presents professional training courses about tribology, lubricants, lubrication, condition monitoring and oil analysis for more than 30 years.

He is a "Certified Lubrication Specialist" (CLS) of STLE, "Machine Lubricant Analyst II" (MLA II) and "Machinery Lubrication Engineer" (MLE) of ICML.



In the OilDoc Academy we teach according to the currently valid hygiene and protection specifications and ensure that you can deepen your knowledge of lubricants, lubrication and condition monitoring even in these challenging times.

Even if the leisure program is currently limited: West of the Inn River you will find a diverse mountain world with mountain and bicycle tours and walking trails for every level. Many tours can also be easily mastered after a seminar day. We know our way around here and will be happy to advise you!

### Are you affected by travel restrictions?

No problem! You can still join the seminar live - even at short notice! The camera is running the whole time during the seminar and you are live from your workplace or home office!



### OilDoc GmbH

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Since 2011 the OilDoc GmbH is certified according to **DIN ISO 29990**.



Lubrication for experts

– CLS Preparation course –

Venue: **OilDoc Academy, Brannenburg (near Munich, Germany)**

All dates and information:  
[en.oildoc.com/cls-certification/](https://en.oildoc.com/cls-certification/)

- Acquisition of a broad consolidated knowledge about lubricants and their correct application with a Focus on Technology - Lubricant - Environment
- Transfer of the latest expert knowledge tailored to the participants in discussions with experienced engineers.
- Structure, selection and usage of lubricants
- Functional principle and lubrication demands of important technical machines, devices and machine elements from industrial and automotive areas of application
- Procurement, storage and handling
- Lubrication procedures
- Oil condition Monitoring and oil maintenance
- Implementation of effective lubrication programs

## Training contents

### Fundamentals of Lubrication

- Friction and lubricating film generation (hydrodynamics, hydrostatics, EHD)
- Wear, wear mechanism and wear mode
- Viscosity and Viscosity-Temperature behavior

### Fundamentals of Lubricants

- Base oils: mineral oils and synthetic base stocks and their application area
- Additives: Types, working principle, application
- Greases: Composition, Thickener types, selection criteria
- Key properties, compatibility

### Bearings

- Plain bearings versus rolling bearings
- Oil and grease lubrication
- Basic selection criteria, Standards, specifications
- Re-lubrication

### Industrial gearboxes

- Types of gears and their specific lubrication requirements
- Key properties of gear oils
- Standardized oil types, selection criteria OEM specifications
- Typical wear modes in gears

### Hydraulics

- Principle: Pascal's law, hydrostatic pressure
- Typical elements of a hydraulic circuit
- Key properties of hydraulic fluids
- Fluid types, standards and OEM spec's
- Selection criteria
- Environmental acceptable and fire resistant fluids

### Turbines

- Turbine types and lubrication requirements: Steam, gas, combined cycle and water turbines
- Bearing and gearbox lubrication, hydraulic control system
- Key properties, standards, OEM specifications
- Selection criteria

### Compressors

- Types of compressors, lubrication requirements
- Air, gas and refrigeration compressors
- Key properties
- Standardized oil types, OEM specification
- Selection criteria

### Combustion engines

- Gasoline, Diesel- and gas engines
- Functions and key properties of engine oils
- Neutral classification systems and OEM specifications
- Selection criteria

### Gear boxes for transportation

- Types, application area, lubrication requirements
- Manual and automatic transmissions, axle and final drives
- Special driveline designs for earthmoving and agriculture machines
- Neutral and OEM specifications

### Lubricants and fluid in the production area

- Water based and water-free metal working fluids: key properties, monitoring
- Cleaner: Types and application areas
- Corrosion protection: Types, selection criteria

### Special applications

- Transformer oils: function, key properties, types
- Heat transfer fluids: Types, selection criteria
- Lubrication of slide ways, chains, wire ropes

### Contamination Control

- Types of contaminants
- Oil filtration: key properties of a filter element, selection criteria
- Main stream and by-pass filtration
- Operational filtration and start-up filtration

### Seals

- Types, designs and their application
- Static and dynamic seals
- Oil and sealing material: Compatibility
- Maintenance tasks

### Oil Analysis

- Oil Analysis concepts for of new and in-service fluids
- Test methods, scope of analysis by application and oil type
- Sampling and sample identification,
- Lab reports, online tools

### Storage and Handling

- Oil storage: Requirements, organization
- Product identification, labeling, tracking
- Tools and system solutions
- Waste disposal

### Lubrication devices and systems

- Lubrication of bearings, gears and other systems
- Circulating systems, lost lubrication systems
- Centralized Lubrication Systems, Direct lubrication systems

### Lubrication plans and programs, problem solving

- Lubrication plans and number of lubricants: Sustainability
- Oil consumption management, oil drain intervals and oil drain techniques
- Compatibility studies
- Problem solving strategies

## Target Group

- Skilled employees, managers and executives working in the field of service and maintenance
- Technical and sales consultants of lubricant producers and their distribution partners
- Technical purchasers for lubricants and operating fluids
- Skilled employees working in construction, service and distribution of machine and component producers
- Appraisors and surveyors for damage analysis and machine malfunction
- Skilled employees, managers and executives from oil maintenance, oil condition monitoring and other areas of application who want to extent or update their knowledge about the usage and application of lubricants

