

## CONTACT:

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**O RING  
PRÜFLABOR  
RICHTER**

## THE O-RING PRÜFLABOR RICHTER:

The O-Ring Prüflabor Richter specializes in services designed to ensure a safe use of elastomer seals and technical moldings and has been accredited according to DIN EN ISO/IEC 17025 since 2002. In addition to numerous services, we also offer the performance of failure analyses, which we have carried out on more than 2000 cases to date.

Our gained experience is shared in seminars, in-house seminars and consultations. Since the laboratory was founded in 1996, more than 2000 companies have already taken advantage of these services.

## INSTRUCTOR DIPL-ING. BERNHARD RICHTER:

After he graduated with a degree in mechanical engineering from the University of Stuttgart, Bernhard Richter was employed by one of the world's leading sealing manufacturers for more than ten years, seven of which were spent as Head of Applications Engineering of the European O-Ring Division. Soon after, he founded the O-Ring Prüflabor Richter in 1996 and ever since has passed on his knowledge in seminars throughout the year.

His ability to comprehensively understand complex correlations is particularly appreciated. Furthermore, he is not afraid to provide the user with clear decision criteria. He has been an expert in the ISO Working Group on O-Ring Standardization (ISO 3601) for more than ten years and is well known for his numerous publications.

## IN-HOUSE SEMINARS:

We also offer individual designed seminars in English according to the needs of our customers. For more information feel free to contact us at [info@o-ring-prueflabor.de](mailto:info@o-ring-prueflabor.de).

## Seminar

# ELASTOMER MATERIALS AND SEALS



## ABOUT THIS SEMINAR

This course imparts basic knowledge about technical elastomer materials and their use as seals. Influences are pointed out which can be decisive for the function of the components in practical use. An introduction to the most important test methods followed by a laboratory tour concludes the seminar.

## REGISTRATION AND LOCATION:

Please contact us for further information. We offer seminars at our facility and at preferred locations of our customers.  
Email: [info@o-ring-prueflabor.de](mailto:info@o-ring-prueflabor.de)

## DAY 1 – PROGRAM

### 09:30 AM INTRODUCTION

### 09:45 AM ELASTOMER MATERIALS

- From rubber to seals, what does vulcanization mean?
- Influences of the polymer
- Influences of plasticizers, fillers and the type of cross-linking
- Production of gaskets
- Influence of manufacturing on important material properties
- The most important polymers for seals, advantages and disadvantages
- Correlation between permissible continuous temperature and max. service life
- Specification of seals, example ISO 3601-5
- Influence of mediums, references to resistance table

### 12:45 PM LUNCH BREAK

### 02:00 PM COMPARISON OF SEALING MATERIALS

- Performance potential of standard commercial elastomers based on NBR, HNBR, EPDM, FKM, FFKM, CR, VMQ and FVMQ polymers
- Presentation of the state of the art
- Comparative studies
- High and low temperature limits

### 03:45 PM COFFEE BREAK

### 04:00 PM MATERIAL CERTIFICATION

- Definition of physiological safety
- BGA and FDA recommendations
- Drinking water approvals (UBA-Elastomer guideline/W270, WRAS)
- DVGW approvals, special requirements (BAM, UL, Norsork)
- Material requirements in the automotive industry

### 05:00 PM DISCUSSIONS (ends approx. 05:15 PM)

### 19:00 PM EXCHANGE OF EXPERIENCES IN A CASUAL SETTING

## DAY 2 – PROGRAM

### 08:30 AM MATERIAL AND FINISHED PART TESTING

- Visual inspections, dimensional inspections
- IRHD and Shore A hardness, density measurement, tensile test
- Compression and tensile set, compressive stress relaxation
- Swelling and aging tests
- Cold test methods (TR10, DSC, DVR, DMA)
- Analytical test methods (FTIR, TGA, pyrolysis GC-MS)

### 11:00 AM TOUR OF THE O-RING PRÜFLABOR RICHTER

### 12:45 AM LUNCH BREAK

### 02:00 PM ELASTOMERIC SEALS AND THEIR APPLICATIONS

- O-rings, fields of application, preferred dimensions, application examples
- O-rings compared to rectangular and X-rings
- Different sealing systems, piston and rod seals
- Piston seals for pneumatics
- Radial shaft seals and V-rings
- Membranes and technical moldings
- Thermoplastic elastomers

### 03:30 PM FINAL DISCUSSION (end approx. 04:00 PM)