

**proBIOGAS International**  
**Biogas Engineering and Operating Training**  
**April 20 – 24, 2020**

<b>Monday, April 20<sup>th</sup> – Practical Plant Engineering</b>	
09:00	<b>Welcome to the seminar – Introductory Round</b> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH</i>
09:30	<b>Overview of the national and int. biogas industry and its future development</b> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH</i>
10:30	Coffee break
10:45	<b>Introduction into plant technology</b> <ul style="list-style-type: none"> <li>• Digester types</li> <li>• Prestorage, feed-in and pretreatment technology (ensiling, mixing pit, hydrolysis)</li> <li>• Other process technologies</li> <li>• Most common design principles</li> <li>• Shapes &amp; designs of digesters and equipment</li> </ul> <i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH</i>
12:15	Lunch
13:30	<b>Decision criteria for a biogas plant</b> <i>Katrin KAYSER, IBBK Fachgruppe Biogas GmbH</i>
15:00	Coffee break
15:15	<b>Measurement and data recording for optimization, stabilization and enhancement of the biogas process</b> <ul style="list-style-type: none"> <li>• Gas analysis related to the metabolic pathway</li> <li>• Application area for gas analysis devices</li> <li>• Application of further measured variables, controlling and supervisory control</li> </ul> <i>Philipp RÖHRER., Awite Bioenergie GmbH</i>
16:45	Discussion
17:00	End of the day

## Tuesday, April 21<sup>st</sup> – Practical Digester Biology

09:00	<p><b>Digester Biology – an introduction</b></p> <p><i>Dr. Andreas LEMMER, State institute of Agricultural Engineering and Bioenergy, University of Hohenheim</i></p>
10:30	Coffee break
10:45	<p><b>Biogas plant start-up and shutdown</b></p> <ul style="list-style-type: none"> <li>• Counter measures</li> <li>• Case studies</li> <li>• Practical examples</li> </ul> <p><i>Birgit PFEIFER, Schaumann BioEnergy Consult GmbH, Pinneberg</i></p>
12:15	Lunch
13:30	<p><b>Process control and process optimization</b></p> <ul style="list-style-type: none"> <li>• Inhibitors in anaerobic processes</li> <li>• Additives (trace elements, enzymes, sulfur binders, buffer)</li> <li>• Process control measures</li> </ul> <p><i>Birgit PFEIFER, Schaumann BioEnergy Consult GmbH, Pinneberg</i></p>
15:00	Coffee break
15:15	<p><b>Crucial substrate parameters and their impact on plant performance</b></p> <ul style="list-style-type: none"> <li>• Sampling and analysis methods for agricultural and industrial substrates</li> <li>• Definition of the substrate quality – right and wrong way of analyzing</li> <li>• Impact on planning, design and practical operation</li> <li>• Forecast possibilities on plant process disturbances</li> </ul> <p><i>Gunther PESTA, CEO, ATRES-Group, Munich</i></p>
16:45	Discussion
17:00	End of the day

## Wednesday, April 22<sup>nd</sup> – Practical Plant Operation

09:00	<b>Safety features of biogas plants and equipment</b> <i>Katrin KAYSER, IBBK Fachgruppe Biogas GmbH</i>
10:30	Coffee break
10:45	<b>Biogas specific building materials for sustainable plant operation</b> <ul style="list-style-type: none"> <li>• Design and suitability</li> <li>• Corrosion and operating conditions</li> <li>• Reliability and installation</li> </ul> <i>Erwin KÖBERLE, Biogaskontor Köberle GmbH</i>
12:15	Lunch
13:30	<b>Day to day maintenance</b> <ul style="list-style-type: none"> <li>• Duties of the operator</li> <li>• Data recording</li> <li>• General maintenance</li> <li>• Minor repairs</li> <li>• Digestion biology with control instruments and feeding management</li> </ul> <i>Erwin KÖBERLE, Biogaskontor Köberle GmbH, Obermarchtal</i>
15:00	Coffee break
15:15	<b>Using Predictive Analytics to De-Risk Biogas Projects</b> <i>Robert DiDiodato, Anessa Biogas Software, Canada</i>
16:45	Discussion
17:00	End of the day

## Thursday, April 23<sup>rd</sup> – Practical Plant Operation

09:00	<b>Planning and designing of stirring and mixing technology for digesters, mixing pits and storages</b> <i>Mr. ZIMMERMANN, Propeller Technik Maier GmbH, Mindelheim, Germany</i>
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10:30	Coffee break
10:45	<p><b>Organic waste and fermentation technology – processes and biological stability</b></p> <ul style="list-style-type: none"> <li>• Building materials</li> <li>• Operational requirements</li> </ul> <p><i>Bernhard NATTERER, Finsterwalder Umwelttechnik GmbH, Bernau</i></p>
12:15	Lunch
13:30	<p><b>Practical Presentation – necessary on site tests and interpretation of operating modes on a biogas plant</b></p> <ul style="list-style-type: none"> <li>• Substrate and digester content sampling</li> <li>• Testing parameters during operation</li> <li>• Practical devices for plant monitoring</li> <li>• Record keeping</li> <li>• Technical and safety evaluation on a biogas plant</li> </ul> <p><i>Birgit PFEIFER, Schaumann BioEnergy Consult GmbH, Pinneberg</i></p>
17:00	End of the day

## Friday, April 24<sup>th</sup> – Practical Plant Operation

09:00	<p><b>Proper usage of digestate as organic fertilizer in agriculture</b></p> <ul style="list-style-type: none"> <li>• Fertilizer management a field application</li> <li>• Digestate processing</li> <li>• Fiber and fertilizer production</li> </ul> <p><i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH</i></p>
10:30	Coffee break
10:45	<p><b>Biomethane as a transport fuel</b></p> <ul style="list-style-type: none"> <li>• Overview of the status quo</li> <li>• Possibilities and challenges</li> </ul> <p><i>Michael KÖTTNER, IBBK Fachgruppe Biogas GmbH</i></p>
12:15	Lunch

13:30	<b>Biogas upgrading technology</b> <i>Torsten HAUG, Union Instruments GmbH</i>
14:30	Coffee break
14:45	<b>Cogeneration to heat and power – Gas utilisation</b> <ul style="list-style-type: none"> <li>• Differences between injection and gas engine</li> <li>• Generator and controlling</li> <li>• Design principles and effectiveness</li> </ul> <i>Andre BANKEN, 2G Energietechnik GmbH</i>
16:15	Discussion
16:30	End of the day

### Monday, April 27<sup>th</sup> – Q&A Sessions

09:00 – 18:00	<b>Ask your questions on specific presentations, get a personalized 1h consultation, or be a “fly on the wall” during the questions of other participants</b> <i>IBBK’s Senior Biogas Experts</i>
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### Tuesday, April 28<sup>th</sup> – Q&A Sessions

09:00 – 18:00	<b>Ask your questions on specific presentations, get a personalized 1h consultation, or be a “fly on the wall” during the questions of other participants</b> <i>IBBK’s Senior Biogas Experts</i>
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### Wednesday, April 29<sup>th</sup> – Q&A Sessions

09:00 – 18:00	<b>Ask your questions on specific presentations, get a personalized 1h consultation, or be a “fly on the wall” during the questions of other participants</b> <i>IBBK’s Senior Biogas Experts</i>
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*Program is subject to change*