

ProBIOGAS International

Biogas plant engineering and operating training with field trips

19 – 27 September, 2017



Venue:
SIMT – Steinbeis Institute for Management
and Technology
Filderhauptstr. 142, 70599
Stuttgart, Germany

Tuesday, 19th of September		Practical Digester Engineering
08:30	Registration	
09:00	Welcome to the seminar	
09:30	Overview of the national and international Biogas industry and its future development	
10:30	Coffee break	
10:45	Introduction into plant technology <ul style="list-style-type: none"> • Digester types • Prestorage, feed in and pretreatment technology (ensiling, mixing pit, hydrolysis) • Other process technologies • Most common design principles • Shapes & designs of digesters and equipment 	
12:15	Lunch	
13:30	Planning and designing of stirring and mixing technology for digesters, mixing pits and storages	
15:00	Coffee break	
15:15	Decision criteria for a biogas plant	
16:45	Discussion	
17:00	End of the day	

Optional – 19:00: Meet + greet dinner at a typical restaurant in downtown Stuttgart

Wednesday, 20th of September		Practical Digester Engineering
09:00	Process and external heat and gas engineering	
	<ul style="list-style-type: none"> Gas pipeline Type of heating Heating of digester 	
10:30	Coffee break	
10:45	Biogas specific building materials	
	<ul style="list-style-type: none"> Design and suitability Corrosion and operating conditions Reliability and installation 	
12:15	Lunch	
13:30	Pretreatment and pre-storage technology	
	<ul style="list-style-type: none"> Ensilaging and pre-storage technology Purpose and designing of mixing pit and hydrolysis phase Pretreatment of difficult substrates Dealing with high fibre and high nitrogen content 	
15:00	Coffee break	
15:15	Building a bio-waste and food waste plant	
	<ul style="list-style-type: none"> Building materials Operational requirements 	
16:45	Discussion	
17:00	End of the day	



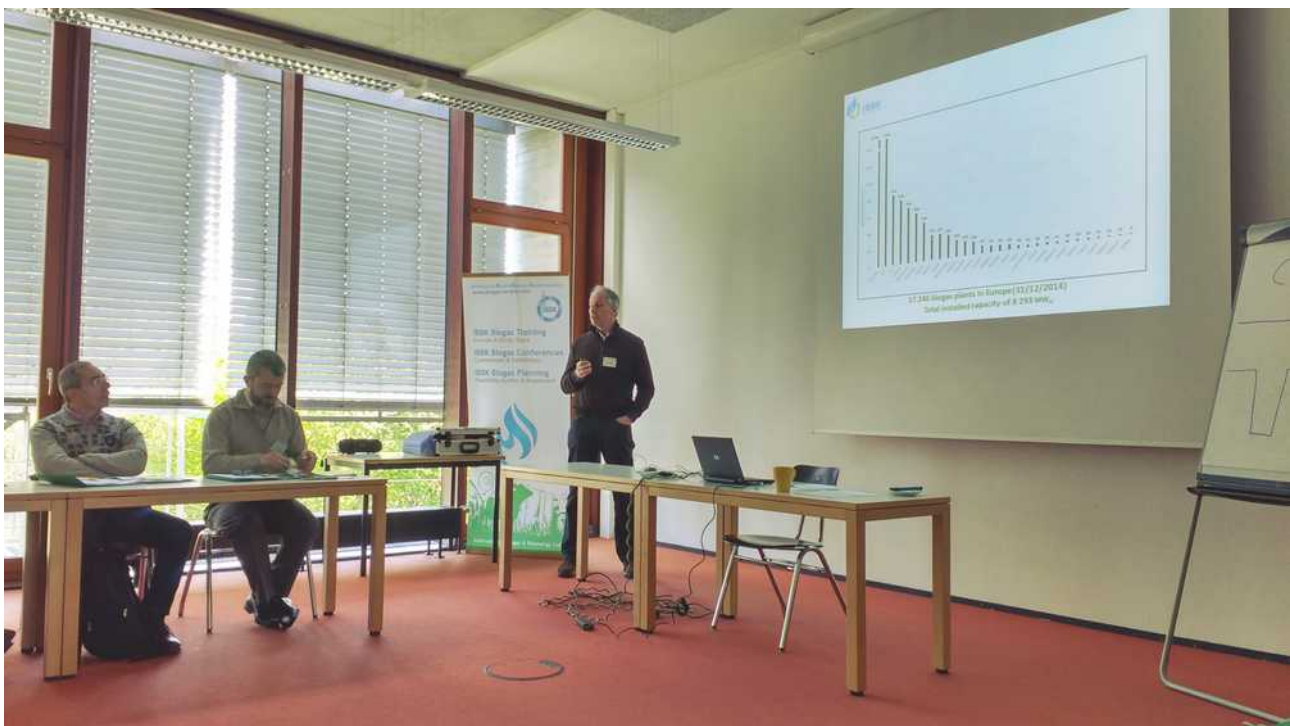


Thursday, 21st of September		Study Tours
09:00	Visit of a biogas plant with a biomethane gas station	
12:15	Lunch	
13:30	Visit of the biogas upgrading and injection plant	
18:15	End of the day	

Friday, 22nd of September		Study Tours
09:00	Visit of a municipal bio-waste and food waste plant	
12:15	Lunch	
13:30	Visit of a municipal bio-waste and food waste plant	
17:00	End of the day	

Monday, 25th of September		Practical Digester Biology
09:00	Crucial substrate parameters and their impact on plant performance <ul style="list-style-type: none"> • Sampling and analysis methods for agricultural and industrial substrates • Definition of the substrate quality 	

	<ul style="list-style-type: none"> • Right and wrong way of analyzing • Impact on planning, design and practical operation • Forecast possibilities on plant process disturbances
10:30	Coffee break
10:45	Start-up phase and practical measures for monitoring the digestion process <ul style="list-style-type: none"> • Initial phase: Seeding, heating and start of the feeding • Testing parameters during operation • Practical devices for on-site monitoring (FOS/TAC, pH, gas analysis)
12:15	Lunch
13:30	Meet the challenge: How to digest fibrous and N-rich feedstocks <ul style="list-style-type: none"> • Characteristics of the substrates • Causes of an NH₃-inhibition (feedstocks, NH₃-formation, pH, temperature) • Counter measures • Case studies and practical example
15:00	Coffee break
15:15	Biogas desulphurization <ul style="list-style-type: none"> • Reasons for sulphur content in biogas • Introduction into cleaning technologies • Critical values
16:45	Discussion
17:00	End of the day



Tuesday, 26th of September Practical Plant Operation + Lab session

09:00	Process control and process optimization <ul style="list-style-type: none"> • Inhibitors in anaerobic processes • Additives (trace elements, enzymes, sulphur binder, buffer) • Process control measures
10:30	Coffee break
10:45	Proper usage of digestate as organic fertilizer in agriculture <ul style="list-style-type: none"> • Fertilizer management • Field application • Digestate processing • Fiber and fertilizer production
12:15	Lunch
13:30	Interactive group and field session – Necessary on site tests and practical interpretation of operating modes on a biogas plant <ul style="list-style-type: none"> • Substrate and digester content sampling • Testing parameters during operation • Practical devices for plant monitoring • Record keeping • Technical and safety evaluation on a biogas plant
17:00	End of the day



Wednesday, 27th of September		Practical Plant Operation
09:00	Safety features of biogas plants and equipment	
10:30	Coffee break	
10:45	Cogeneration to heat and power – Gas utilisation <ul style="list-style-type: none"> • Differences between injection and gas engine • Generator and controlling • Design principles and effectiveness 	
12:15	Lunch	
13:30	Measurement and data recording for optimization, stabilization and enhancement of the biogas process <ul style="list-style-type: none"> • Gas analysis related to the metabolic pathway • Application area for gas analysis devices • Application of further measured variables, controlling and supervisory control 	
14:30	Coffee break	
14:45	Closing with a visit at the laboratories of the University	
15:45	Discussion	
16:00	Handout of the certificates and end of the event.	

Program is subject to change

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