

Biogas plant for agriculture



Krieg & Fischer Ingenieure GmbH

- ☑ Reduce emissions
- ☑ Produce energy
- ☑ Increase profitability

References since 2008

FALKENSTEIN
Biogas Plant, Germany



Input:
Corn silage, whole crop silage, sweet sorghum silage

Digester:
Steel tanks
2 x 3,100 m³

FORCATE
Biogas Plant, Italy



Input:
Grass- and corn silage

Digester:
Steel tank
1,700 m³

SZEPIETOWO
Biogas Plant, Poland



Input:
Rye-, corn- and grass silage, sugar beet pulp silage, waste pulp, potatoes, fruit pomace

Digester:
Glass coated steel tank 5,000 m³

Ed GOPAC
Biogas Plant, Ukraine



Input:
Corn silage

Digester:
Steel tank
5,670 m³

Lectures / Publications

FISCHER, T. and Dr. K. Backes 2017
Agricultural based Biogas Plants in Europe
International Conference on Intelligent Agricultural Machinery in Taiwan, IIF of New Agricultural Resources Circulation Application Organisation: Taiwan Livestock Institute, Taiwan, Yunlin, Huwei, December 2017

Agricultural based Biogas Plants in Europe
Torsten Fischer and Dr. Katharina Backes



- # Agricultural substrates
- # Presentation of individual plants
- # Special Biogas concept with upright digester
- # Digestate separation

FISCHER, T. and Dr. K. Backes 2013
Grünschnitt und Grassilage: Technische und biologische Aspekte der Vergärung
9. Biogastagung Dresden zum Thema: Anaerobe biologische Abfallbehandlung
Forum für Abfallwirtschaft und Altlasten e.V., 11./12.11.2013 Dresden

Grünschnitt und Grassilage:
Technische und biologische Aspekte der Vergärung
Torsten Fischer and Dr. Katharina Backes



- # Vergärung von Grünschnitt und Grassilage
- # Vergleich Mais- und Grassilage
- # Entschwefelung
- # Gärrest-Nutzung

Brochure

Biogas Plants:
Engineering • Construction
Operation • Optimization



Biogas Plants
Engineering • Construction
Operation • Optimization

The sustainable and intelligent way of producing renewable energy and managing waste



- # Tailor-made biogas plants
- # Independent engineering office
- # Experience with different feedstock
- # Technical details of biogas plants
- # 160 references worldwide




Biogas plants for the sugar industry

- ☑ Reduce emissions
- ☑ Produce energy from waste
- ☑ Increase profitability

References since 2011

<p>ANKLAM Biogas Plant, Germany</p>			<p>Input: Sugar beet, vinasse</p> <p>Fermenter: Enameled steel tank 4 x 4,600 m³</p>
<p>VIERVERLATEN Biogas Plant, Netherlands</p>			<p>Input: Sugar beet pulp, sugar beet fragments, potato waste</p> <p>Fermenter: Steel tank 4 x 4,600 m³</p>
<p>DINTELOORD Biogas Plant, Netherlands</p>			<p>Input: Sugar beet, vegetable waste (potatoes, chicoree)</p> <p>Fermenter: Glas coated steel tanks 4 x 4,600 m³</p>

Lectures / Publications

<p><i>FISCHER, T. and LATINOVIC, S. 2021</i> "A real gas - How biogas is contributing to the success of sugar producers" Publication in journal Sugar Producer, Edition Aug/ Sep, S.18ff (2021)</p>			<p># #</p>
<p><i>FISCHER, T. and LATINOVIC, S. 2021</i> "Proven solutions for biogas plants in the sugar industry" Publication in journal Sugar Industry, Company report, Edition May, Issue No 5 (2021)</p>			<p># # #</p>

Brochure

<p>Biogas Plants: Engineering • Construction • Operation • Optimization</p>			
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FISCHER, T. 2022
First-person sleuthing: investigation a digestate dryer
 Publication in journal *BioenergyInsight*,
 Edition Jan/ Feb, Volume 13, Issue 1, S. 36ff

Bioenergy accident investigation
 Torsten Fischer of Krieg + Fischer Ingenieure discusses a legal investigation related to the deficiencies of a digestate dryer at a German biogas plant.

First-person sleuthing: investigating a digestate dryer

Torsten Fischer, founder and managing director at Krieg + Fischer Ingenieure, has been an expert legal witness for more than 10 years covering 120 cases.



My reaction: Dryers are always difficult; this is no exception.



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FISCHER, T. and LATINOVIC, S. 2021
"A real gas - How biogas is contributing to the success of sugar producers"
 Publication in journal *Sugar Producer*,
 Edition Aug/ Sep, S.18ff (2021)

INDUSTRY REPORT

A Real Gas

promoted content **biofuels**

Krieg & Fischer Ingenieure has been successfully designing biogas plants for the past 30 years and is looking towards helping bioethanol facilities utilize this potential.




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FISCHER, T. and LATINOVIC, S. 2021
"Discovering biogas plants for the ethanol industry"
 Publikation in journal "biofuels international",
 Edition July/ August (2021) S. 31ff

Discovering biogas plants for the ethanol industry

Krieg & Fischer Ingenieure is an engineering company specializing in the design and engineering of biogas plants. Torsten Fischer has been in the biogas sector for 30 years.



Company reports



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FISCHER, T. and LATINOVIC, S. 2021
"Proven solutions for biogas plants in the sugar industry"
 Publication in journal *Sugar Industry, Company report*,
 Edition May, Issue No 5 (2021)

Proven Solutions for Biogas Plants in the Sugar Industry

Krieg & Fischer Ingenieure GmbH is an expert engineering company specialized in biogas technology. We have 30 years of experience in biogas plant design, engineering and construction. We develop tailor-made solutions for biogas plants: complete, innovative and independent of equipment suppliers and subcontractors.

Our first reference from sugar industry dates back to 2011, with Distelrodt biogas plant designed for Dutch based sugar producer. Based on the successful cooperation, same client awarded contracts for two more biogas plants (Vervelen and Arnhem) to our office and became one of the biogas plant.

"Biogas is untapped potential for most of sugar producers. It offers an opportunity to shift from fossil fuels, reduce carbon emissions and increase profitability."




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THIES, R., LATINOVIC, S. and Dr. K. BACKES 2021
 Delving into the integration of biogas and bioethanol production in Argentina with Krieg & Fischer Ingenieure and Bioelectrica: **"A match made in heaven."**
 Publication in journal *Bioenergy-Insight*,
 Edition Jan/Feb, Volume 12 Issue 1, S. 32 ff (2021)

Bioenergy biogas
 Delving into the integration of biogas and bioethanol production in Argentina with Krieg & Fischer Ingenieure and Bioelectrica.

A match made in heaven

In Guanajuato, a biogas plant in Argentina for the production of waste from ethanol production was 90% full. In addition to the critical need of finding a solution for this of biogas, the plant provided an opportunity to self-renewable.

bioethanol producer that concentrated on water from ethanol production was 90% full. In addition to the critical need of finding a solution for this of biogas, the plant provided an opportunity to self-renewable.

With 30 years of experience in biogas sector and the team

bioethanol plant designed to process 130,000 tonnes per annum of this village from corn-based bioethanol production. The necessary tank and equipment needed to be designed according to high corrosion resistance. A continuous stirred tank reactor system was chosen.




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FISCHER, T. 2020
Investigating the chemically-damaged biological system of a biogas plant
 Publication in journal *Bioenergy-Insight*,
 Edition Nov/Dez, Volume 11 Issue 6, S. 36 ff (2020)

Bioenergy accident investigation
 Torsten Fischer of Krieg + Fischer Ingenieure discusses a legal investigation related to a biogas project that never materialised.

First-person sleuthing, investigation of a never-built biogas plant

Torsten Fischer, founder and managing director at Krieg + Fischer Ingenieure, has been an expert legal witness for more than 10 years covering 120 cases.



My role was to determine the following: what was the reason for the biogas plant not being built? How expensive was the report and how much would it cost to start with operation?



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FISCHER, T. 2020
First-person sleuthing, investigation of a never-built biogas plant.
 Publication in journal *Bioenergy-Insight*,
 Edition Jul/ Aug, Volume 11 Issue 4, S. 34 ff (2020)

Bioenergy accident investigation
 Torsten Fischer of Krieg + Fischer Ingenieure discusses a legal investigation related to deficiencies of a silage plate at a biogas plant in Germany.

First-person sleuthing, investigation of a silage plate

Torsten Fischer, founder and managing director at Krieg + Fischer Ingenieure, has been an expert legal witness for more than 10 years, covering 120 cases.



My role was to determine the following: what was the reason for the biogas plant not being built? How expensive was the report and how much would it cost to start with operation?



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FISCHER, T. 2020
First-person sleuthing, investigation of a silage plate
 Publication in journal *Bioenergy-Insight*, Edition Mar/ Apr, Volume 11 Issue 2, S. 38 ff (2020)

Bioenergy accident investigation
 Torsten Fischer of Krieg + Fischer Ingenieure discusses an accident investigation involving a broken mixer in a digester tank at a biogas plant in Germany.

First-person sleuthing, broken mixer in digester tank

Torsten Fischer, founder and managing director at Krieg + Fischer Ingenieure, has been an expert legal witness for more than 10 years, covering 120 cases, and writes his



My role was to determine the following: what was the reason for the broken mixer? How expensive was the report and how much would it cost to start with operation?



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FISCHER, T. 2019
First-person sleuthing, broken mixer in digester tank
 Publication in journal *Bioenergy-Insight*, Edition Nov/ Dec, Volume 10 Issue 6, S. 96 ff (2019)

Bioenergy accident investigation
 Torsten Fischer of Krieg + Fischer Ingenieure discusses an accident investigation involving a broken mixer in a digester tank at a biogas plant in Germany.

First-person sleuthing, broken mixer in digester tank

Torsten Fischer, founder and managing director at Krieg + Fischer Ingenieure, has been an expert legal witness for more than 10 years, covering 120 cases, and writes his



My role was to determine the following: what was the reason for the broken mixer? How expensive was the report and how much would it cost to start with operation?



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FISCHER, T. and Dr. K. BACKES 2019
The real engineering challenge when implementing biogas plants with biogas upgrading and mobility
 IBBK-Conference: "Fortschritt bei Biomethan-Mobilität", international conference with exhibition and excursion, 15.-17th October 2019, Akademie Schloss Kirchberg, Schwäbisch-Hall, Baden-Württemberg

The real engineering challenge when implementing biogas plants with biogas upgrading and mobility
Planerische Herausforderungen bei der Umsetzung von Biogasanlagen mit Biogasaufbereitung und Mobilität

Torsten Fischer and Dr. Katharina Backes

Krieg & Fischer Ingenieure GmbH, Bertha-von-Suttner-Straße 9, D-37085 Göttingen, Germany
 Tel.: +49 551 900 363-0, Fax: +49 551 900 363-29
 fischer@krieg-fischer.de, www.kriegfischer.de




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FISCHER, T. 2019
First-person sleuthing, gas holder roof rupture
 Publication in journal *Bioenergy-Insight*, Edition Jul/ Aug, Volume 10 Issue 4, S. 28 ff (2019)

Bioenergy accident investigation
 The author has been an expert legal witness for more than 10 years for over 120 cases and wrote his first report about a biogas plant accident more than 15 years ago. In this personal account, we learn about an investigation into an accident at a biogas plant.

First-person sleuthing, gas holder roof rupture




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