

DO YOU UTILIZE ENERGY FROM ALTERNATIVE FUELS?

- ✓ Tap hidden potential
- ✓ Minimize the CO₂ footprint
- ✓ Lower operating costs



GET MORE FOR YOURSELF.

The advantages for you at a glance

- ✓ Reduced fuel costs.
- ✓ Lower CO₂ and NO_x emissions.
- ✓ Elimination of any waste disposal costs.
- ✓ Maximum availability.
- ✓ Tried-and-tested combustion technology made by SAACKE.

Whether in gaseous, liquid, or dust form – alternative fuels in combination with the right technology offer considerable potential as a valuable energy carrier. This makes it possible to replace expensive fuels such as natural gas, cuts the energy costs significantly, and reduces your company's greenhouse gas emissions.

Combustion plants from SAACKE enable low-pollutant combustion and energetic utilization of the by-products – usually without additional fossil support fuels.

Benefit from the unused thermal resources of your production: with technology from SAACKE tried and tested for decades for the challenges of today.

**Save energy costs,
lower pollutant emissions.**

THE ENERGY TRANSITION MADE EASY.

Seize the opportunity to replace conventional fuels with previously untapped alternatives. Our pioneering, low-emission combustion plants guarantee not only maximum availability but also significantly reduced operating costs.

At SAACKE, playing a pioneering role in the use of innovative energy carriers is a matter of course and a central component of our product range. As such, we have been H₂ ready for more than four decades and offer solutions for the combustion of hydrogen in its pure form as well as in a mixture with natural gas.

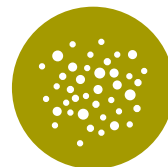
In SAACKE, you can rely on a competent and experienced partner for your alternative fuels.



- ✓ Whether high or low heat values...
- ✓ Whether fossil, biogenic, or synthetic (e-fuels) ...
- ✓ Whether in gaseous, liquid or dust form...
- ✓ Whether standardized, tailor-made, or optimized by innovative solutions...

... we always find a way to utilize your fuels.

A SELECTION OF OUR FUELS.



Heat value	Gases	Liquids	Dusts
< 15 MJ	Coal gas, Corex gas, vent gas, CO gas, blast furnace gas, hydrogen (up to 100%)	Molasses, vinasse, acrylonitrile polymer solutions	–
> 15 MJ	Waste dump gas, coalbed methane, refinery gas, coke oven gas	Sulfur, styrene, glycerin, e-fuels, etc. (problem substances that are usually costly to dispose of), palm oil, rapeseed oil, and soybean oil, biodiesel, animal fat	Fermentation substrate, dust from sugar beet pulp, coffee husks, rapeseed meal, wood dust

SUCCESS STORY.

SAACKE realized an 11 MW plant for the energetic recovery of alternative fuels (by-products) for ANGUS Chemie GmbH. It proved possible to utilize substances previously associated with considerable disposal efforts for steam generation. **Natural gas consumption was thus reduced by up to 85%**, while remaining significantly below the statutory emission limits.

In this project, the customer was able to draw on SAACKE's broad portfolio and was therefore able to rely on one partner at all times – from the engineering to the delivery, installation, and commissioning, right up to support from the customer service team.

The result is a plant performance which more than satisfies the requirements – and that with top availability.

We are there for you every step of the way: from the idea to its implementation right up to operation!

Engineering phase

- (Laboratory) investigation of the alternative fuel
- Test combustion of the alternative fuel
- Selection of the best technology adapted to the customer's needs

Implementation phase

- Detailed planning
- Production and delivery
- Assembly and installation
- Commissioning

Operating phase

- Service
- Maintenance
- Continuous optimization



EXCERPT OF REFERENCES.

What alternative fuels are there in your industrial processes? We analyze the current situation and identify the best and most efficient solution for you. From the initial idea to consulting services and the design right up to the implementation and commissioning of your plant: **SAACKE is your partner.**

Gases, low heat value (LCG)	Industry (mainly)	Our customers (excerpt)
Blast furnace gas	Steel industry	Arcelor Mittal (DE, BE, ES, PL), Tata Steel (IN), Raahe Steel Works (FI)
Formalin gas (2.0 MJ/m ³)	Chemical industry	Dynea (NL, DE, NO)
Carbon black gas (1.5–2.0 MJ/m ³)	Carbon black production	Cabot (CN), Birla (CN)
CO gas (CO boiler)	Refineries	Raffinerie Holborn (DE), Bayern Oil Raffinerie (DE)
Gases, fluctuating heat value	Industry (mainly)	Our customers (excerpt)
Refinery gas	Refineries	BP Gelsenkirchen (DE), PCK Schwedt (DE)
Vent gas	Tank farm	Odfjell Rotterdam (NL)
Waste dump gas, sewage gas, biogas, mine gas	Sewage treatment, food industry	Paulaner Brauerei (DE), InBev (DE, BE, NL), DMK (DE), Nordzucker (DE, DK, SE)
Hydrogen	Chemical industry, shipping	Nouryon Ibbenbüren (DE), Produits Chimique de Loos (FR), Coogee Chemicals (AU), LH2-Tanker (JP/AU)
Coke oven gas	Coke oven plant, steel industry	Thyssen Krupp (DE)
Gasification gas, reactor gas	Waste-to-energy, district heating supply, chemical industry	Lahti Energia (FI), Mitteldeutsches Bitumenwerk MBW Webau (DE)

Liquids,

low heat value (LCL)

Industry

(mainly)

Our customers

(excerpt)

ACN polymer solution

Chemical industry

EC / INEOS Dormagen (DE)

Wastewater concentrate

Chemical industry

ZTS Pułkov (PL), **ANGUS Ibbenbüren** (DE), **DSM** (CN)

Soy molasses

Food industry

IMCOPA (BR), **SOJAPROTEIN** (RS)

Liquids,

fluctuating composition

Industry

(mainly)

Our customers

(excerpt)

BPA

Chemical industry

Taminco (BE)

Toluene, styrene,
fuselol (alcohol waste)

Chemical industry

Dow Chemicals / EnBW (DE)

Bio-oil, vegetable oil, animal fat

Animal carcass disposal (carcass
disposal plant), energy suppliers

SARIA (FR, DE), **TBA** (DE)

Glycerin

Biofuel industry

COANSA (ES)

Dust fuels

Industry

(mainly)

Our customers

(excerpt)

Lignite / hard coal

Energy suppliers, sugar industry,
gypsum industry

**Erfurt Tapeten, Knauf, Pfeifer & Langen, Nordzucker,
Südzucker** (alle DE), **Shenjang** (CN)

Wood dust

Municipal utilities

Helen Oy (FI), **Göteborg Energi** (SE)

Wood grinding dust

Wood-based materials industry

Kronospan (DE)

Coffee husk dust

Cement industry, coffee industry

Anlagen in Kenia (KE), **Kraft Foods St. Petersburg** (RU)

WE ARE THERE FOR YOU WHERE YOU NEED US.



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