MethaPlus® L 100
Much more power in the fermenter

What is **Metha**Plus® L 100?

- A highly active biocatalyst able to increase capacity in the biogas operation
- An enzyme is able to hydrolyse plant fibers (polysaccharides such as cellulose and hemicellulose) and so makes these polysaccharides more accessible for gas-forming microorganisms
- A safe ride to higher energy and resource effciency for improved productivity of the whole plant

DSM Biogas

Further information can be obtained from: **www.dsmbiogas.com**
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DSM Food Specialties - Enabling Better Food for Everyone

DSM Food Specialties is a leading global supplier of food enzymes, cultures, bio-preservation, taste and health ingredients. We want to help make existing diets healthier and more sustainable and are driven to help create foods that people around the world can truly enjoy without compromises. Everywhere - every day we work to enable our customers to respond faster with better food - for everyone.

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HEALTH · NUTRITION · MATERIALS

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BRIGHT SCIENCE. BRIGHTER LIVING.

How does **Metha**Plus® L 100 work?

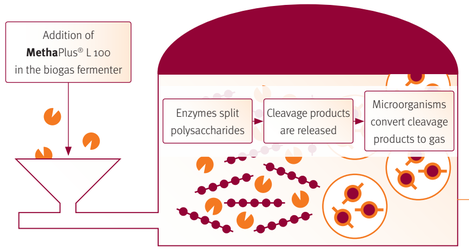
Countless microorganisms work in the biogas fermenter, and to create an optimum degrading performance they need energy. They obtain this energy from polysaccharides sugars that first of all have to be split by enzymes before they can be used or consumed. However, the number of enzymes occurring "naturally" in the fermenter is not enough to provide an optimum supply of sugars to the microbes.

Adding the enzyme combination MethaPlus® L 100 specially developed for biogas operations provides the microorganisms with a continuous flow of hydrolysed polysaccharides (monosaccharides and oligosaccharides) which convert them into energy.

As a result, the microorganisms multiply more quickly and the biological activity rises significantly. As well as polysaccharides, other higher-molecular substances are also increasingly converted to methane and carbon dioxide. The higher degradation rate has a number of effects; more biogas is produced and the viscosity of the contents in the fermenter is reduced. Peak loads can be accommodated in the plant due to the higher biological activity.

DSM – The leader in the development of enzymes in the renewable energies sector

Cleave. Convert. Produce gas!



You too can benefit from the **Metha**Plus® effekt
- Higher process stability
- Optimized substrate conversion
- Greater profitability

Productivity of **Metha**Plus® L 100

Using **Metha**Plus® L 100 in biogas plants is now based on a wealth of process data a proven method for producing Biogas. **Metha**Plus® L 100 has been successfully used in biogas plants since 2005, making it the best tested enzyme product for biogas plants that has been on the market the longest.

Optimum utilization is the key factor in the profitability of a biogas plant. Any improvement in the fermenter biology increases the efficiency and thus the profitability of a biogas plant. This is where **Metha**Plus® L 100 comes into play; its positive effects (higher biogas yield, reduction in viscosity, process stabilization) mean that your plant can run more economically.

We offer everything you need for greater effciency

DSM o ers a comprehensive tailormade package of service analysis, advice and recommendation of additives and carefully assesses each step in optimizing your biogas plant. After each step, the subsequent steps can be adapted for optimum results.

Step by step, we provide advice for optimizing your biogas plant:

- Recording of the relevant parameters of your plant and identification of potentials
- Assessment of plant capacity (substrate consumption, gas yield, process stability), if necessary recommendations for the use of **Metha**Plus® L 100
- Sustainable measures for plant optimization (selection of substrate, use of additives)

Using **Metha**Plus® L 100 will give you:

- Increased biogas yields and thus higher feed-in payments
- Lower viscosities to avoid/degrade digester supernatant
- Energy savings and less wear
- Maximum plant utilization
- Higher digester chamber loads
- Greater flexibility in substrate use

MethaPlus® convinces professionals in the field

The plus factor for greater security and safety

In a joint pilot trial involving WELTEC BIOPOWER GmbH and DSM Biogas, the use of **Metha**Plus® L 100 in a biogas plant (capacity: 536 kWel.) produced a 12 % rise in specific energy production (see graph). As a result, **Metha**Plus® L 100 had a sustainable effect on the e ciency of biogas production and signifi cantly improved the productivity of the plant.

Save substrate and reduce costs

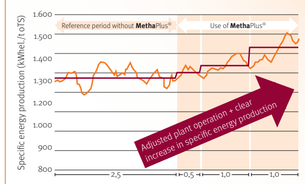
The intensified substrate hydrolysis and improved substrate conversion thanks to **Metha**Plus® L 100 made it possible to save approximately 1 tonne of organic substrate per day. Based on the fresh mass of an average corn silage with a 33 % DM content, this corresponds to a reduction of 3 tonnes of corn silage per day. With an energy production of 330 days, this means a potential saving of approx. 1,000 tonnes of corn silage a year for the plant.

Depending on corn prices, the use of **Metha**Plus® L 100 gives a cost reduction of 30,000 - 45,000 Euros minus the enzyme costs (see graph).

Earn more by improved substrate utilization

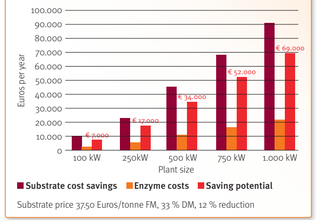
The improved utilization of substrate thanks to **Metha**Plus® L 100 also reduces the daily fermentation residue produced by approximately 2.2 m³ per day. Setting 3 Euros/m³ according to a guide value proposed by the NRW Chamber of Agriculture for disposal (spread application or discharge) means additional savings for a biogas plant of the corresponding size of approximately 7 Euros a day.

Increase in effciency with **Metha**Plus® L 100



WELTEC-BGA 536 kWel; DT 40 days; FRB (loading rate or organic load) 3.7 kg oDM/m³ x d; temp. 40.5°C; corn silage, rye GPS (whole crop silage), wilted silage, cattle manure

Possible saving potential using **Metha**Plus® L 100 with different plant sizes



Substrate price 37.50 Euros/tonne FM, 33 % DM, 12 % reduction