



# Axiase™

## The future of Biogas

### Axiase™ 100 – innovative and convincing

Many plant operators would like to use more whole crop cereal silages (WCCS) as substrate. Until now it was hardly possible to increase the proportion of WCCS to more than 25% of the total substrate mixture due to its mucous properties.

#### The enzyme kick of Axiase™100 enables instant increase

Several tests in the laboratory and practises with rye, barley, wheat and triticale have shown that Axiase™ 100 specifically counteracts mucilage. Therefore, the proportion of WCCS in the substrate mixture can easily be maximized up to 60 percent of the organic matter, and even further increases are possible. For example, one plant with a high proportion of maize and the addition of Axiase™ 100 could:

- reverse the substrate ratio to use more triticale-WCCS while the domestic energy consumption remains steady and;
- slightly increase the biogas yield.

### Your benefit with Axiase™ 100

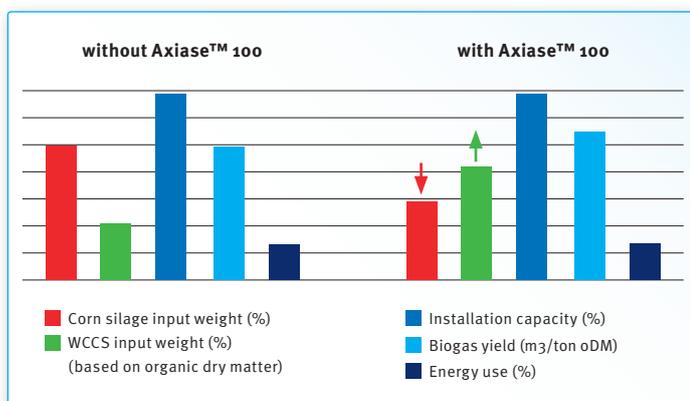
**Trouble-free maximization of the proportion of WCCS in the substrate mixture up to 60 percent of the organic matter without mucus.**

#### More flexibility in substrate management

- Replacement of maize silage by WCCS without reducing the methane yield
- Cultivation of WCCS on for maize-inappropriate sites
- Balance out the crop rotation
- Equalisation of peak workload

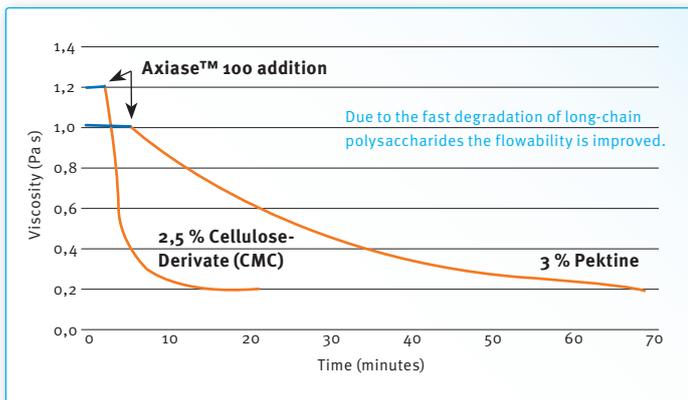
#### Cost benefits by higher flowability of fermentor content

- Better agitation (reduced floating layer)
- Less technical problems with stirring unit and pumps
- Less domestic energy consumption
- Improved utilisation of the substrate and biogas yield



## How does Axiase™ 100 work?

Axiase™ 100 contains enzymes which degrade pectins, betaglacans, pentosanes, hemicellulose and cellulose. In nature these are built among others from microorganisms that degrade the plant cell wall. In the process of an anaerobic digestion Axiase™ boosts the degradation of this long-chain and water retaining polysaccharides into short-chain and water-soluble saccharides to optimize the flowability of the fermentor content.



## Step by step to the maximum WCCS substrate input

The dosage of Axiase™ 100 depends on the organic dry matter (oDM) of the substances used in the biogas plant and the property to build mucus. A step by step application of Axiase™ 100 has proven to be successful. The recommended dosage, in three phases, varies between an initial dosis of 500 and later 100 gram per tonne substrate (oDM). The best way to stabilize the enzyme concentration in the fermentor is to add Axiase™ 100 directly into the fermentor. In case it is not possible to add Axiase™ 100 as described, Axiase™ 100 could be added to the biogas process using a solid disperser (screw conveyor system) or a mixing tank.

Our staff will be glad to advise you.

Tel: +31 (0)15 279 26 13

info.biogas@dsm.com | www.dsmbiogas.com

## 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.

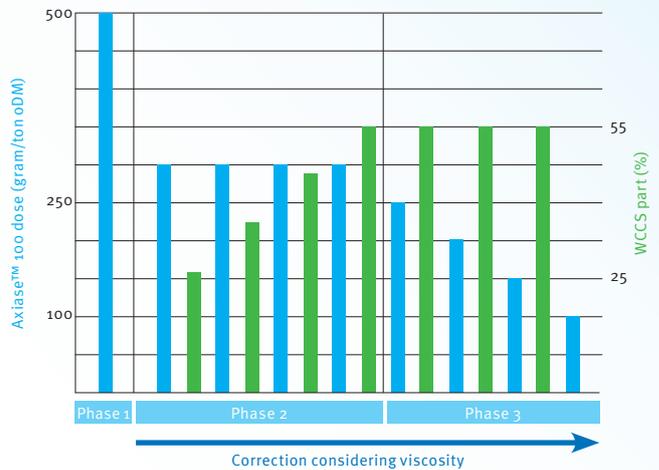
info.food@dsm.com | www.dsm.com/food

Although diligent care has been used to ensure that the information provided herein is accurate, nothing contained herein can be construed to imply any representation or warranty for which we assume legal responsibility, including without limitation any warranties as to the accuracy, currency or completeness of this information or of non-infringement of third party intellectual property rights. The content of this document is subject to change without further notice. Please contact us for the latest version of this document or for further information. Since the user's product formulations, specific use applications and conditions of use are beyond our control, we make no warranty or representation regarding the results which may be obtained by the user. It shall be the responsibility of the user to determine the suitability of our products for the user's specific purposes and the legal status for the user's intended use of our products.

The General Terms and Conditions of Sale of DSM Food Specialties B.V. apply to and are part of all our offers, agreements, sales, deliveries and all other dealings. The applicability of any other terms and conditions is explicitly rejected and superseded by our General Terms and Conditions of Sale. The current version of our General Terms and Conditions of Sale can be found at [www.dsm-foodspecialties.com](http://www.dsm-foodspecialties.com), a hard copy will be forwarded upon your request.

© DSM B.V. 2017 | A. Fleminglaan 1 | 2613 AX Delft | The Netherlands | Trade Register Number 27235314 | [www.dsm.com](http://www.dsm.com)

## The three phases of Axiase™ 100 application



### Phase 1: Increasing the enzyme concentration in the fermentation liquid

Rapidly increase the Axiase™ 100 concentration in the biogas plant by adding 500 gram Axiase™ 100 per tonne oDM per day over a period of 4 weeks.

### Phase 2: Gradual increase of WCCS every 4 weeks

Gradually increase the WCCS proportion in the input by 5 to 10 percent every 4 weeks. Addition of a minimum of 250 gram Axiase™ 100 per tonne oDM per day until the maximum of possible WCCS proportion is reached.

### Phase 3: Gradual adaptation of Axiase™ 100 dosis with maximum of WCCS input

The daily Axiase™ 100 dosis can be reduced step by step. Recommendation: reduce the dosis in 50 gram steps from 250 gram per tonne oDM to the dosis that ensures good flowability.

During gradual increase of the proportion of WCCS or reduction of Axiase™ 100 dosis respectively, it is recommended to monitor flowability and power consumption daily. In case the flowability of the fermentor liquid deteriorates, the Axiase™ 100 dosis should be increased or the WCCS proportion should be reduced.