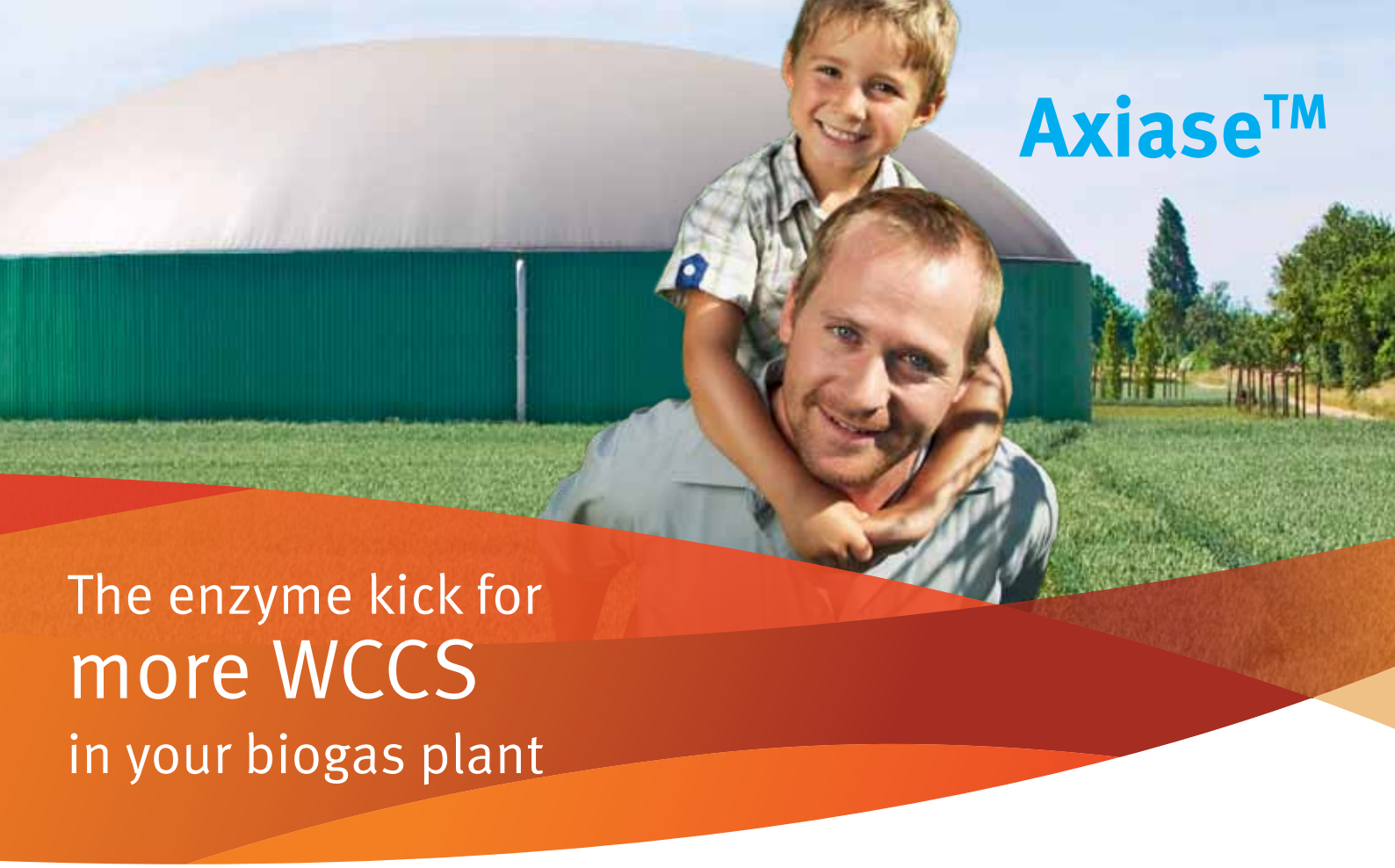


Axiase™

The enzyme kick for more WCCS in your biogas plant

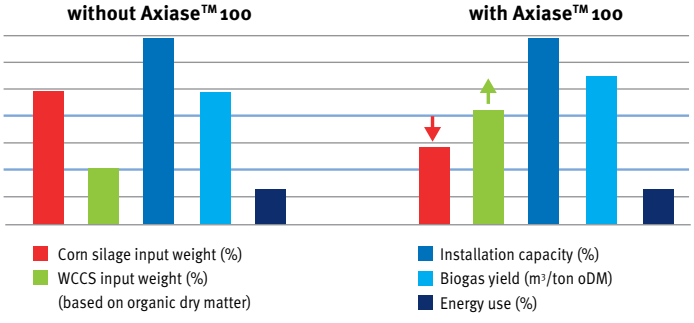
Axiase™ 100 – innovative and convincing

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

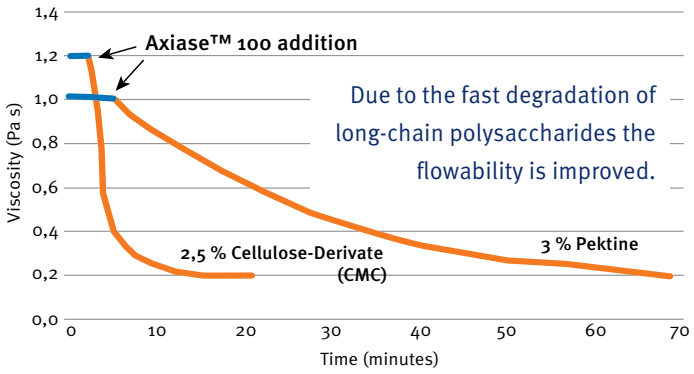
- Better agitation (reduced floating layer)
- Less technical problems with stirring unit and pumps
- Less domestic energy consumption
- Improved utilisation of the substrate and biogas yield

HEALTH · NUTRITION · MATERIALS

DSM
BRIGHT SCIENCE. BRIGHTER LIVING.

How does Axiase™ 100 work?

Axiase™ 100 contains enzymes which degrade pectins, beta-glucans, pentosanes, hemicellulose and cellulose. In nature these are built among others from microorganisms that degrade the plant cell wall. In the process of 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.

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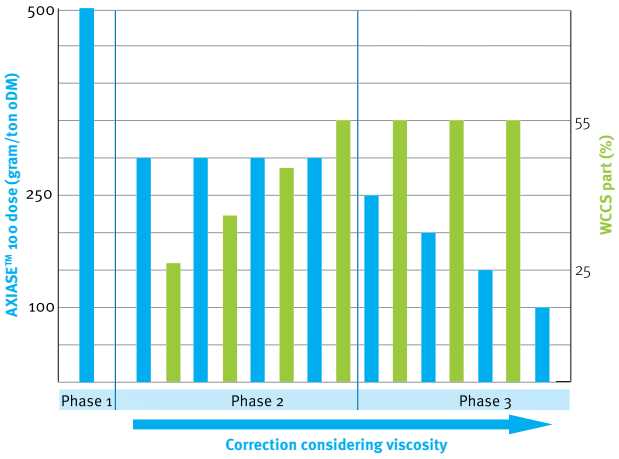
The three phases of Axiase™ 100 application:



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 flowablility of the fermentor liquid deteriorates, the Axiase™ 100 dosis should be increased or the WCCS proportion should be reduced.