

jbs progas® power ch

Highly concentrated, complexed trace element mixtures

Today, trace element mixtures are an integral part of assuring the fermenter function. Accordingly, many different products and special mixtures are offered. The coarse requirement of trace elements in a plant is usually known and can be adapted to the plant's needs by simple analysis.

But one thing distinguishes trace element mixtures quite considerably: there is no possibility to compare prices objectively.

How come?

Generally, the ingredients are not openly declared.

We do it differently. **We declare all ingredients and recipes clearly, openly and comparably.**

jbs progas® power ch is available in 2 chelate-bound forms: as a **liquid product** and as a **powder**. What they have in common is a high amount of essential trace elements.



jbs progas® power ch	jbs progas® power p ch
20 l / 21.4 kg blue canister	60 x 10 kg fermentable bag
chelate-bound TRGS 529 compliant	powder with EDTA, TRGS 529 compliant
nickel 7,000 mg/l iron 1,000 mg/l manganese 500 mg/l molybdenum 5,000 mg/l cobalt 4,000 mg/l selenium 1,800 mg/l	nickel 800 mg/kg iron 2,500 mg/kg manganese 600 mg/kg molybdenum 560 mg/kg cobalt 450 mg/kg selenium 180 mg/kg
Example dosage, 500 kW:	
300 - 500 ml/day	1 bag every 1 - 2 days
jbs progas® power ch is also available as a barrel or container.	

- annual turnover / quantity discount
- standing order discount
- new customer discount

Save even more!

Our sales department will be happy to advise you!

Tel.: +49 4262 - 20 74 -927

jbs
growth & success
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At a glance

- optimises the micro-biological processes
- better substrate use / saving of substrate
- increases the methane content and increases the gas yield
- increases combined heat and power plan (CHP) period of time
- shortens the stirring times
- reduces the risk of floating and sinking layers
- supporting analysis by an accredited laboratory
- TRGS 529 compliant





photo: ProMinent®

Dosing made easy

Liquid products can be conveniently dosed automatically. Ask for our **jbs promidos** dosing unit (see photo on the left).

Which trace elements are the right choice?

Individual mixtures are also possible with **jbs**. However, experience shows that 90 % of the plants with silage-based substrate supply have similar requirements for trace element supply. And a little more content in a standard mixture remains cheaper than having individual recipes produced. From 440 litres upwards, an individual recipe can nevertheless be realised on request. For a long time, we have been working with **accredited** laboratories that are renowned in the biogas industry to provide analytical support.

You're the boss!

How many and which trace elements the fermenter needs can be estimated and controlled by the plant operator himself with the help of 2 - 4 analyses per year.

Even without intensive external advice!

In many products, costs for consultants are priced in, which you can very easily save when it comes to trace elements. It is better to form your own opinion. All our dosing recommendations are based on 15 years of experience. They have to be adapted to the respective local situation. Our biogas colleagues will be glad to support you.

jbs progas® power ch and power p ch

The **jbs progas® power ch** trace element mixtures with nickel, cobalt, molybdenum, selenium and manganese are openly declared. This facilitates the determination and adjustment of the application rate.

These two charts give you orientation when trace elements are missing:

Target values analysis parameters

Parameter	Target value	Importance for
pH	> 7,2	microorganisms, availability of trace elements
Acetic acid	< 1,000 mg/l FM	Acetogenesis
Propionic acid	< 300 mg/l FM (approx. 50 % of the acetic acid)	
iso-butyric acid	< 50 mg/l FM	Exceeding the target value indicates hyperacidity.
n-butyric acid	< 50 mg/l FM	
iso-valeric acid	< 50 mg/l FM	Measure: Reduce feeding, use of trace elements
org. total acids	< 1,500 mg/l FM	
TAC	< 20,000	Carbonate buffer capacity
FOS/TAC	< 0.3	organic acids / buffer capacity Provides information about the biochemical state.

Target values trace elements in fresh matter (organic matter)

Parameter	Target value (medium room impact, low acids)		Target value (higher room impact, and/or high acidity)		Important for
	mg/kg	mg/l*	mg/kg	mg/l*	
Cobalt	> 0.1	> 0.085	> 0.15	> 0.1275	methanogenesis
Iron**	> 150	> 127.5	> 150	> 127.5	methanogenesis desulphurisation availability of the trace elements
Copper	> 3.5 - 10	> 2.975 - 8.5	4.1 - 10	3.485 - 8.5	methanogenesis
Manganese	> 14	> 11.9	> 14	> 11.9	methanogenesis
Molybdenum	> 0.22	> 0.187	> 0.3	> 0.255	methanogenesis
Nickel	0.4 - 1.0	0.34 - 0.85	0.55 - 1.5	0.4675 - 1.275	methanogenesis
Selenium	> 0.1	> 0.085	> 0.12	> 0.102	methanogenesis
Zinc	15 - 40	12.75 - 34	15 - 40	12.75 - 34	methanogenesis

*calculated value, based on a density of the fermentation substrate of 0.85 / **depending on the S-content