The benchmark for quality in AD

patented process
Pat. No. DE 10 2011 011 924 B4

# BC.PRO®

# BC.COMPACT

## BC. products for process optimisation

**Bespoke micronutrient mixtures**
**based on precise analyses**

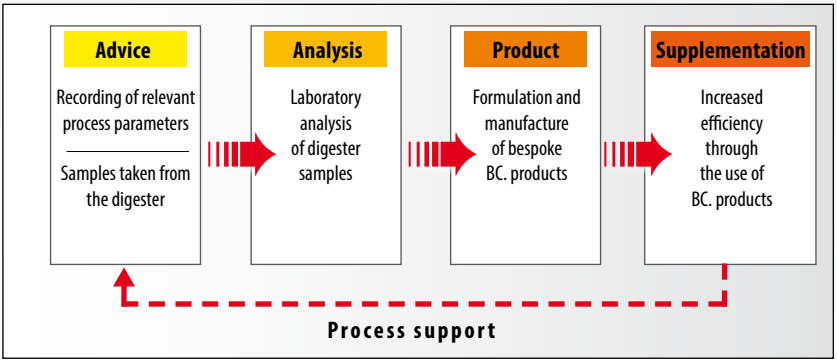
SCHAUMANN BioEnergy Consult

Competence in biogas



## The concept for efficient biogas production

To optimise biogas production, all relevant parameters within an anaerobic digestion plant must be considered and that is where the Schaumann BioEnergy concept comes into play: we offer innovative products based on exact analytics for improving feedstock pretreatment and utilisation accompanied by comprehensive, personal consultancy.




## BC. products for full substrate utilisation

The special micronutrient mixtures BC.PRO and BC.COMPACT are customized to a digester's individual biological set-up, optimizing methane generation.

Mixtures formulated for the BC. concept balance existing micronutrient deficiencies as well as low bioavailability and, if necessary, supplement macro-elements. Their composition offers optimal complementation of microbial requirements and specifically prevents oversupply.

Bespoke BC. mixtures are formulated and manufactured on the basis of exact iCAP-spectrometry of all relevant nutrients and according to state-of-the-art scientific standards.

# Bespoke mixtures

**iCAP 6500: cutting-edge analytics for determination of central macro- and micronutrients**

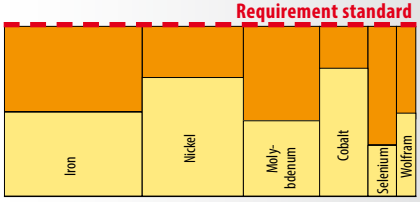
## BC.PRO® and BC.COMPACT

The micronutrient mixtures of the BC.PRO® and BC.COMPACT product lines synchronise the individual steps in biogas production and optimise the entire process by:

- Stabilising the degradation process
- Activating the methanogenic organisms in a digester
- Synchronising the separate steps of biogas production
- Maximising methane yields
- Increasing return on your investment

The products of both lines are manufactured within patented procedures and are optimised for plant-specific use.

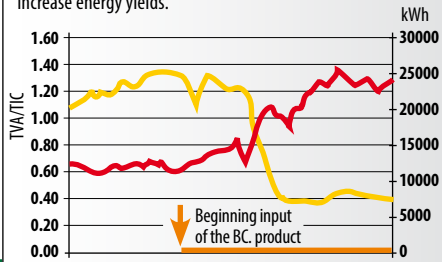
The BC. products complement main and trace elements plant-specifically according to scientifically based requirement standards.




(Selected main and trace elements as examples)

Content in digester  BC. products

BC. products bring the TVA/TIC values to a normal level and increase energy yields.



Micronutrient mixtures for every plant requirement

# BC.PRO®

## The BC.PRO® product line

The microbial and biological set-up can vary considerably between digesters depending on feedstock composition, plant management and multiple other factors. That is why, alongside from bespoke micronutrient mixtures, digesters frequently require additional supplementation with specific active ingredient complexes.

The BC.PRO® line enables integration of all the active ingredient complexes needed for each individual plant. Bespoke BC.PRO® products can be applied at every level of organic loading.

## BC.PRO® product line applications

- Bespoke mixtures based on iCAP-analysis
- Applicable at every organic loading level found in biogas plants (and certified organic farms)
- Combination of various active ingredient complexes
- All plant types
- In fermentable bags for ultimate occupational health and safety
- Dosage amounts: 3 or 4 kg/100 kW
- Meets the highest occupational health and safety standards

## Customised BC.PRO® products

## BC.PRO® and specific active ingredient complexes

**BC.PRO START**

Developed for a plant's commissioning stage. The mixture of micronutrients, iron compounds and buffer substances creates an optimal environment for rapid process biology formation and efficiently reduces hydrogen sulphide in the biogas.

**BC.ATOX Ncon** → **binds nitrogen**

Ncon reduces the inhibitory effect in nitrogen-rich biogas plants and stabilises digester biology, especially where high amounts of protein-rich substrate (e.g. poultry manure) are used.

**BC.ATOX Scon** → **binds hydrogen sulphide**

Scon binds the hydrogen sulphide present in substrates, thus supporting digester biology and promoting biogas quality.

**BC.SLcon** → **reduces floating layers**

SLcon promotes break-up of floating and sedimentation layers and reduces the risk of them reoccurring.

**BC.VIScon** → **homogenises the substrate**

VIScon homogenises the fermentation substrate, stabilises gas production and reduces wear and tear in pumps and agitators.

**BC.HEATcon** → **specifically promotes heat-tolerant bacterial strains**

BC.HEATcon stabilises the digester biology during self-heating events (e.g. in summer).

**BC.PHcon** → **increases buffer capacity**

PHcon complements buffering substances in the digester, thus increasing buffer capacity, and avoids acidification.

**BC.MAKRO con** → **supplements macronutrient deficiencies**

If a digester shows both micro- and macronutrient deficiencies, either can be complemented by MAKROcon.

## A stable process for high digester performance

**1. Plant commissioning**

Use of BC.PRO® START

**2. Adjusting the plant**

Use of analysis-supported BC.PRO® micronutrient mixtures

**3. Process optimisation**

Combination of BC.PRO® products with specific active ingredient complexes (depending on feedstock composition)

**4. Stabilised biogas production**

Use of BC.COMPACT products

# BC.COMPACT

## The BC.COMPACT product line

Characteristic of the BC.COMPACT line are its low dosage requirements and the outstanding price-performance ratio.

The concentrated BC.COMPACT products are used after the plant has been adjusted to a stable, optimal performance level. A combination with active ingredient complexes is possible to a limited extent.

BC.COMPACT products are delivered in fermentable bags adapted to the respective plant size to be fed unopened into the digester, meeting the highest occupational health and safety standards.

## Application of the BC.COMPACT product line

- Analysis-based, customised mixtures
- Limited combination with active ingredient complexes
- Applicable at every organic loading level
- Delivery in fermentable bags
- Dosage in closed containers
- Dosage: approx. 2 kg/100 kW and day
- Meets the highest occupational health and safety standards


**Fermentable packaging**

Competence in biogas

## The BC. concept for process optimisation

The analysis-based micronutrient mixtures maximise your digester's performance, ensure optimum process stability and prevent environmentally harmful overdosing.

BC.PRO®

BC.COMPACT

- Precise supplementing for exact fermenter requirement
- Support an environmentally friendly nutrient cycle
- Encouraging substrate degradation in the fermenter
- Increasing gas production

## The result → Your profit

- Long-term increase in digester performance
- More full-load hours per year
- Higher company profit
- Stable biogas process
- Does not require additional time-consuming health and safety measures
- Reduces the risk of process failures
- Supports a resilient biological process

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