

Biostel® Schweiz AG

Agrostel-Generator

Product specifications

DLG Test Report 5309 F



Manufacturer and registering company

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Deutsche Landwirtschafts-
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Short description/Suitability

(information provided by the manufacturer)

The Agrostel®-generator is a micro-processor-controlled implement for the production of activated water with an integrated water softening system. The solutions produced on the basis of an extended form of electrolysis have opposite effects and can be characterized as follows:

Anostel:
oxidation solution, pH 2.5 – 4.5

Cathostel:
alkaline solution, pH 11–13

Technique:

The controlled addition of specific salts results in an increase in the electric conductivity of tap water. The opposite electric charge of two electrodes (cathode and anode) causes water to be decomposed

into its elements hydrogen and oxygen. As a result of the special separation of the cathode side and the anode side by a semi-permeable membrane, the solutions are produced separately.

According to the manufacturer, the solutions produced by the generator serve purposes such as the cleaning and disinfection of stalls, feeding- and drinking facilities, as well as milking machines. In addition, the disinfection of drinking water is mentioned as an application.

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Technical Data

The Agrostel generator provided for the test featured the following technical specifications:

Plant designation		Mass	
Item designation	Biostel-Generator		127 kg
Serial type	Agrostel 60		
Machine number	01 01 03 60 – year of construction 2003	Energy supply	
			220 V
Dimensions		Products	
Height	1560 mm	Anostel	Cl ₂ , HClO, OH ⁻ , H ₂ O ₂ , HO ₂ , ClO ₂ , etc.
Width	710 mm	Cathostel	NaOH, H(X), H ₂ (X), OH ⁻ , etc.
Depth	580 mm		

Test criteria

The test of the registered Agrostel generator included the product specifications.

In these tests, the stability of the concentration of characteristics components under changing initial conditions (water hardness and set amperage) were examined.

Other criteria were not tested.

Testing

The FokusTest was carried out in the laboratory of the DLG Test Station Potsdam.

At three different degrees of water hardness (15°dH, 25°dH and 35°dH) and changing amperage (8 A, 12 A and 16 A), the solutions were examined for the following concentrations of the components:

- alkalinity [ml 0.1 mol H₂SO₄)
- conductivity [mS/cm]
- pH-value
- chlorine content [ppm]
- peroxy acid content [ppm]

Beginning with the tenth liter produced, the solutions were used for the tests. Immediately after production, the chemical-physical values were determined.

The tests were based on selected methods of the DLG Testing Guidelines for chemical-physical analyses of cleaning- and disinfection agents for milk production.



Figure 2:
View of the interior
of the generator

Results

Overview 1: Summarized test results

Amperage			8 A		12 A		16 A	
Agent	Test paramter	Measuring unit	MV	s	MV	s	MV	s
Cathostel	Alkalinity	ml*	3,1	0,3	5,4	0,2	7,3	0,1
	Conductivity	mS/cm	20,17	0,4	30,56	1,4	41,03	1,1
	pH-value		12,6	0,1	12,7	0,0	12,9	0,1
Anostel	Chlorine	ppm	146	3,6	221	10,7	313	2,6
	Peroxo acid	ppm	167	1,4	238	8,6	325	6,7
	Conductivity	mS/cm	18,85	0,1	27,96	1,5	38,32	2,0
	pH-value		3,1	0,5	2,5	0,1	2,4	0,1

* ml (0,1 mol H₂SO₄); MV = arithmetic mean value; s = standard deviation

The concentrations of the individual parameters tested can be summarized as follows:

Alkalinity as well as the content of chlorine and peroxxo acid are dependent upon the **amperage** used. For both types of solutions, the same relations were established for the parameter conductivity. The altered amperage did not have any influence on the pH-value (cf. Figure 3).

If the connections are shown under the aspect of **water hardness**, no significant effects on the examined parameters can be discerned (cf. Figure 4).

For the set test conditions to be observed, repeated adjustments of the mixing ratio of the solutions Cathostel and Anostel were required.

The operating principle of the produced solutions was not tested.

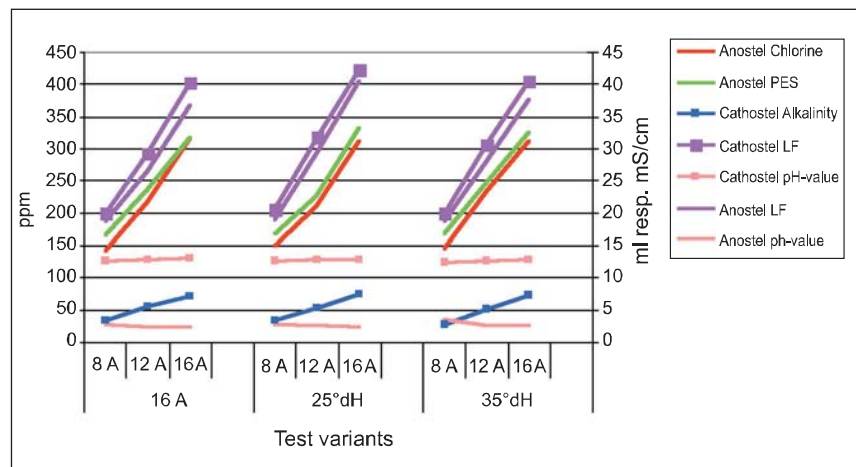


Figure 3: Active substance content of the agents Cathostel and Anostel as a function of the amperage

Summary and Annotations

The Agrostel generator from Biostel-Switzerland AG generally allows water having different degrees of hardness to be chemically decomposed such that solutions of constant concentration are produced. Thus, the Agrostel generator can be used for different water qualities and guarantees a constant product.

However, the chosen amperage exerts an influence on the concentrations of the components.

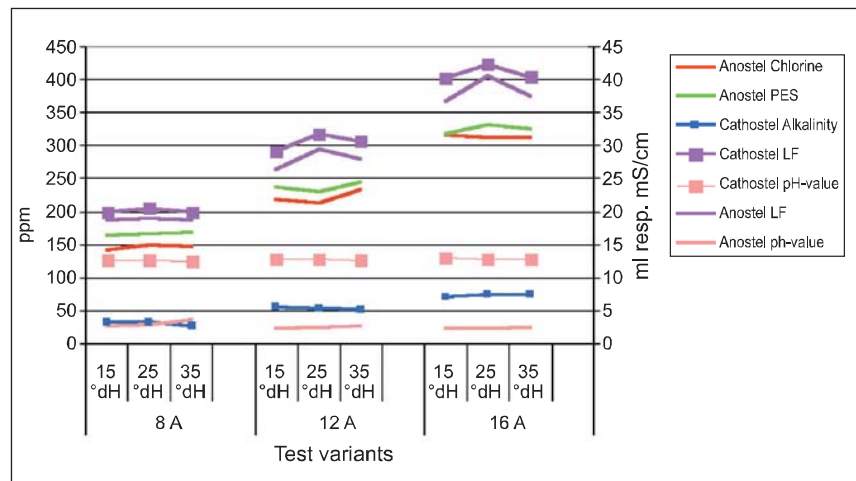


Figure 4: Active substance content of the agents Cathostel and Anostel as a function of water hardness

Realization of the tests

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ENTAM – The European Network for the Testing of Agricultural Machines is the association of European test centres. It is the goal of ENTAM to spread test results Europe-wide to farmers, agricultural machinery dealers and manufacturers.

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