



# Evaluation of activity according to PN-EN 13610:2005

**Product Name: Atom Plus / Covigo / ATM**

**ITA Job No.:**

**ITA 23945**

**Company Name and address:**

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**Prepared for:**

**A Burton & Sons CC**

**Prepared by:**

**Intertek**

**Period of Analysis:**

**20.10.2020 – 10.11.2020**

**Date of Report:**

**12 November 2020**



Test procedure performed under Quality Management System according to ISO/IEC 17025, 'General Requirements for the competence of testing and calibration laboratories'. PCA accreditation Nr AB 815.

A. Identification of the sample:

1. Batch..... 2208GB
2. Storage conditions..... Room temperature
3. Active Substances:..... HOCL
4. Product diluent recommended by the manufacturer .....tap water

B. 1. Test Method..... dilution – neutralization

2. Neutralizer:

tween 80, 30 g/l; lecithin 7 g/l; sodium thiosulphate 5 g/l; phosphate buffer 10 ml/l  
plated on TSA+ tween 80, 5 g/l + lecithin, 7 g/l

C. Test conditions:

1. Product diluent in the test..... standardized hard water according to PN-EN 13610:2005
2. Concentrations tested 6 gram tablet in: 10 l / 50 l / 100 l of water  
(in-test concentrations; test concentrations prepared with the factor 5/4 due to the further dilution in the test mixtures)
3. Appearance of product dilutions clear
4. Interfering substance. 1,0% v/v sour whey
5. Test temperature. 20,0°C ± 0,6°C
6. Contact time. 1 min ± 10 s
7. Incubation 29,5°C - 30,5°C, 48 h
8. Microbial strains in the test:

<i>Lactococcus lactis</i> subsp. <i>lactis</i> Bacteriophage P001	DSM 4262
<i>Lactococcus lactis</i> subsp. <i>lactis</i> Bacteriophage P008	DSM 10567
Host strain: <i>Lactococcus lactis</i> subsp. <i>lactis</i> F7/2	DSM 4366

D. Test results: table 1



E. Conclusion:

Product: **Atom Plus / Covigo / ATM** tested according to **PN-EN 13610:2005**, interfering substance: 1,0% v/v sour whey, contact time 1 min, test temperature  $20,0^{\circ}\text{C} \pm 1,0^{\circ}\text{C}$ , diluted in hard water is active (reduction 4 log) against:

*Lactococcus lactis* subsp. *lactis* Bacteriophage P001

DSM 4262

at 6 gram tablet in 10 l water, m/v

*Lactococcus lactis* subsp. *lactis* Bacteriophage P008

DSM 10567

at 6 gram tablet in 10 l water, m/v



**TABLE 1**

Test strain	Validation test				Phage test suspension	test procedure for product concentration M/V			
	phage suspension	test conditions	neutralizer toxicity control	dilution-neutralization control		Pc	6 gram tablet in	6 gram tablet in	6 gram tablet in
							10 l of water	50 l of water	100 l of water
Bacteriophage P001 DSM 4262	Pc: 10 <sup>-1</sup> : >200;>200 10 <sup>-2</sup> : 43;48 Nv: 4,6•10 <sup>4</sup>	Pc: 10 <sup>0</sup> : >200;>200 10 <sup>-1</sup> : 36;45 A: 4,0•10 <sup>3</sup>	Pc: 10 <sup>0</sup> : 78;85 10 <sup>-1</sup> : 7;9 B: 8,2•10 <sup>2</sup>	Pc: 10 <sup>0</sup> : 57;69 10 <sup>-1</sup> : 6;8 C: 6,3•10 <sup>2</sup>	Pc: 10 <sup>0</sup> : 162;185 10 <sup>-1</sup> : 21;24 N: 1,8•10 <sup>9</sup> lgN <sub>0</sub> =8,26	Pc 10 <sup>0</sup> : 0;0 10 <sup>-1</sup> : 0;0	10 <sup>0</sup> : >300;>300 10 <sup>-1</sup> : 106;118	10 <sup>0</sup> : >300;>300 10 <sup>-1</sup> : >330;>330	
						Nn < 1,5•10 <sup>2</sup>	1,1•10 <sup>4</sup>	> 3,3•10 <sup>4</sup>	
						Na < 7,5•10 <sup>3</sup>	5,5•10 <sup>3</sup>	> 1,6•10 <sup>6</sup>	
						R > 4,38	2,52	< 2,06	
Bacteriophage P008 DSM 10567	Pc: 10 <sup>-1</sup> : 212;230 10 <sup>-2</sup> : 27;34 Nv: 2,3•10 <sup>4</sup>	Pc: 10 <sup>0</sup> : 226;248 10 <sup>-1</sup> : 28;31 A: 2,4•10 <sup>3</sup>	Pc: 10 <sup>0</sup> : 39;47 10 <sup>-1</sup> : 3;3 B: 4,3•10 <sup>2</sup>	Pc: 10 <sup>0</sup> : 29;35 10 <sup>-1</sup> : 2;4 C: 3,2•10 <sup>2</sup>	Pc: 10 <sup>0</sup> : 108;119 10 <sup>-1</sup> : 12;14 N: 1,2•10 <sup>9</sup> lgN <sub>0</sub> =8,08	Pc 10 <sup>0</sup> : 0;0 10 <sup>-1</sup> : 0;0	10 <sup>0</sup> : >300;>300 10 <sup>-1</sup> : 41;54	10 <sup>0</sup> : >300;>300 10 <sup>-1</sup> : >330;>330	
						Nn < 1,5•10 <sup>2</sup>	4,8•10 <sup>3</sup>	> 3,3•10 <sup>4</sup>	
						Na < 7,5•10 <sup>3</sup>	2,4•10 <sup>3</sup>	> 1,6•10 <sup>6</sup>	
						R > 4,20	2,70	< 1,88	

Pc – number of PFU on plate  
 N – number of PFU/ml in phage test suspension; N<sub>0</sub>= N/10  
 Na – number of PFU/ml in the test mixture  
 A – number of PFU/ml in the experimental conditions control test  
 B – number of PFU/ml in neutralizer toxicity control test  
 C – number of PFU/ml in dilution-neutralization method control test

Nv – number of PFU/ml in the validation test  
 Nn – number of PFU/ml in the neutralize test mixture  
 R – Reduction of viable phage count R = lgN<sub>0</sub> - lgNa

**Validation criteria verification:**  
 8,0 · 10<sup>5</sup> < N < 3,0 · 10<sup>6</sup> - met  
 2,0 · 10<sup>4</sup> < N<sub>0</sub> < 1,0 · 10<sup>5</sup> - met  
 A > 0,05 N<sub>0</sub> - met  
 B > 0,01 N<sub>0</sub> - met  
 C > 0,5 B - met

**Method modifications:** none

**Method deviations:** none

Tests have been sub-contracted to an agent approved by Intertek.

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