

CHIORINO[®]
1906

Passion for belting

Your partner
for food safety

HPAM[®]

AntiMicrobial food belts



EC 1935/2004 & FDA
Certified Food Compliance



HP^{AM} AntiMicrobial food belts

Chiorino **HP^{AM} Antimicrobial** conveyor and process belts represent a breakthrough for food safety & hygiene.

The HP^{AM} Antimicrobial belts combine the advanced **antimicrobial bacteriostatic action** with the premium features of the HP^{AM} line. The bacteriostatic action **prevents bacteria build-up** on the belt surface by breaking the cycle of biofilm creation.

HP^{AM} Antimicrobial belts **do not contain biocides** (eg. metallic ions) that can migrate and contaminate the food.

They fully comply with **EU and international food regulations**.

HP^{AM} Antimicrobial belts **prevent product recalls** and **minimize the risks** on non-compliance during food safety inspections and audits by authorities.



Stop contamination and product recalls!

Food industry is continuously establishing stricter hygiene standards to prevent contaminations by microorganisms that may cause serious foodborne diseases and costly product recalls.

*As the uncontrolled biofilm growth on a conveyor surface is a severe danger, Chiorino has developed a solution that minimizes this risk: the **HP^{AM} Antimicrobial belts** reduce by **>99%** the bacterial growth of most dangerous foodborne pathogens.*





Enhancing food safety & hygiene

Durable inhibition of biofilm growth

They reduce bacterial growth by >99% and inhibit the biofilm formation. Allow faster and more effective cleaning operations, with lower water consumption ⁽¹⁾.

Easier cleaning operations facilitate the use of less aggressive detergents, extending the belt service life.

They maintain constant the antimicrobial properties during the whole lifetime.



Quick & easy to clean



Prevent product recalls



Long service life

⁽¹⁾ HP AM belts do not replace cleaning and sanitizing procedures of the HACCP system.



No food contamination

Biocides-free

They do not contain biocides (eg. metallic ions) that can migrate and contaminate the food.



Preserve food quality & Consumers' health and safety



HP[®] Product System

Premium performances

Excellent resistance to:

- Chemicals & sanitization agents
- High/low temperatures
- Fats and aggressive oils
- Mechanical stress caused by knife edges backflexing and scrapers.



Increased production efficiency



Long service life



Certified Food Compliance

REGULATION EC 1935/2004 and amendments

REGULATION EC 2023/2006 and amendments

REGULATION EU 10/2011 and amendments

FDA (Food and Drug Administration)



Antimicrobial tests

Measurement of antibacterial activity on plastics and other non-porous surfaces.

Test performed by external independent Laboratories.

BACTERIA	Antibacterial activity ¹ ufc/cm ²	Reduction %	Test method
Staphylococcus aureus ATCC 6538P	2,63	99,77%	ISO 22196:2011
Escherichia coli ATCC 8739	3,54	99,97%	
Salmonella enterica ATCC 70072	3,54	99,73%	
Listeria monocytogenes CECT 5672	3,54	98,87%	

¹As reported by ISO22196:2011 and JAS 2801:2010 a material has an antibacterial attitude if its antibacterial activity is $\geq 2,00$

FUNGI	Antifungi action rate ²	Note	Test method
Aspergillus brasiliensis ATCC9642	1	Belt remained free of fungal growth	ASTM G-21-15
Talaromyces pinophilum ATCC 11797	1		
Chaetomium globosum ATCC 6205	1		
Trichoderma virens ATCC9645	1		
Aereobasidium pullulans ATCC 15233	1		

² Rates values: 1=No fungal growth; 2=<10% fungal growth; 3=10-30% fungal growth; 4=30-60% fungal growth; 5=>60% fungal growth

VIRUS	Antiviral activity ³	Viral activity reduction %	Test method
ATCC-CCL 1679 Orthomyxoviridae Influenza virus A Influenza virus H3N2	0,000	100%	ISO 21702:2019
ATCC VR 782 Feline calicivirus	0,087	98,56%	

³ Antiviral activity shows the ability of the antiviral material to abate the inoculated virus

Bacterial growth & biocides migration test

Microbes have been inoculated on TPU belt covers in a petri dish. The bacterial growth has been monitored for 7 days simulating washing cycles of a belt in industrial application.

Tests performed by external independent Laboratory.



Standard TPU belt

X Bacterial growth on the belt's surface



TPU antimicrobial belts WITH BIOCIDES

✓ Bacterial growth inhibited
X Migration of biocides
X Loss of antimicrobial efficacy due to biocides migration



HPAM

✓ Bacterial growth inhibited
✓ No migration
✓ No contamination



Biofilm formation on belt



Food contamination & reduced antimicrobial effect with time



No biofilm, no contamination



Supporting HACCP

On field results

Chiorino HP® Antimicrobial belts have been successfully tested by End users adopting severe hygienic protocols.

Comparative Swab Tests have been run on HP® AM belts both during the food processing and after sanitization cycles.

The bacteria count on HP® AM belts resulted far below the acceptable limits and it remained constant for the whole belt service life.

Customers declared that HP® AM belts fully support the HACCP procedures and facilitate cleaning operations⁽¹⁾.

⁽¹⁾ HP®AM belts do not replace the cleaning and sanitification procedures



HP[®]AM Production program

Code	Type	Material	Colour	Surface	Total thickness	Knife edge min. radius ⁽¹⁾	Min. pulley diameter ⁽¹⁾	Pull for 1% elongation	Temperature resistance °C	
					mm	mm	mm	N/mm	min.	max.
NA1669	EL2- U10 HP blue AM	HP® TPU	HP® blue	smooth	1.00	-	10	2 ⁽²⁾	-30	60
NA1688	EL3-U15 HP blue AM	HP® TPU	HP® blue	smooth	1.50	-	10	3 ⁽²⁾	-30	60
NA1667	1M5 U0-U2 HP blue A AM	HP® TPU	HP® blue	smooth	0.70	3	6	5	-30	110
NA1665	1M5 U0-U2 HP VL blue A AM	HP® TPU	HP® blue	VL	0.70	3	6	5	-30	110
NA1668	2M5 U0-U2 HP blue A AM	HP® TPU	HP® blue	smooth	1.30	4	8	6	-30	110
NA1666	2M5 U0-U2 HP VL blue A AM	HP® TPU	HP® blue	VL	1.30	4	8	6	-30	110

⁽¹⁾ Minimum pulley radius / diameters is dependent on the joint recommended by Chiorino

⁽²⁾ Pull for 8% elongation

The technical data are valid under normal environmental conditions and are subject to change without notice.



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