

Your partner
for food safety

HPAM[®]

AntiMicrobial food belts



EC 1935/2004 & FDA
Certified Food Compliance



HP[®] AM AntiMicrobial food belts

Chiorino **HP[®] Antimicrobial** conveyor and process belts represent a breakthrough for food safety & hygiene.

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

HP[®] Antimicrobial belts **do not contain biocides that can migrate and contaminate the food** ⁽¹⁾. They fully comply with **EU and international food regulations**.

HP[®] Antimicrobial belts **help preventing product recalls** due to cross contamination from the belt and **minimize the risks** on non-compliance during food safety inspections and audits by authorities.

⁽¹⁾ Migration tests are made in accordance with EU 10/2011 regulation.



Minimize the risk of 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.*



Risk minimization

Empower food safety



Enhancing food safety & hygiene

Durable inhibition of biofilm growth

They reduce bacterial growth by >99% and inhibit the biofilm formation.

They maintain constant the antimicrobial properties during the whole lifetime.



Help preventing product recalls



Long service life



Preserve food quality

No contamination from the belt

They do not contain biocides that can migrate and contaminate the food ⁽¹⁾.

⁽¹⁾ Migration tests are made in accordance with EU 10/2011 regulation.



No food contamination

No alteration of food organoleptic properties



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.



Quick & easy to clean



Increased production efficiency



Long service life



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%	

¹ As 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	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 calcivirus	0,087	98,56%	

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

✗ Bacterial growth on the belt's surface



Biofilm formation on belt



Competitors antimicrobial belts
WITH BIOCIDES

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



Food contamination & reduced
antimicrobial effect with time



HPAM

✓ Bacterial growth inhibited
✓ No migration ⁽¹⁾
✓ No contamination from the belt



No biofilm, no contamination

⁽¹⁾ Migration tests are made in accordance with EU 10/2011 regulation.



Supporting HACCP

On field results

Chiorino HP® AM Hygienic 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.

HP® AM belts resulted protected from the bacterial attack, detecting counts far below the acceptable limits, remaining 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.



Certified Food Compliance

To protect Consumer's health, CHIORINO process and conveyor belts comply with the latest european and international Food Regulations:

REGULATION EC 1935/2004 and amendments

REGULATION EC 2023/2006 and amendments

REGULATION EU 10/2011 and amendments

FDA (Food and Drug Administration)



V-Label certified

Chiorino's premium food lines are compliant **with the vegan food production processes**, that require:

- No use of animal origin substances at any production stage
- No presence of non-vegan substances
- No presence of genetically modified organism (GMO)
- No animal testing

HP®, HP AM®, FXD® process and conveyor belts have been assessed and certified as meeting the requirements of the **V-Label Criteria for Vegan Products, Version 1, 07.11.2019**, for the products certified and licensed by V-Label.



Antimicrobial belts

Production program

Code	Type	Material	Colour	Surface	Total thickness mm	Knife edge min. radius ⁽¹⁾ mm	Min. pulley diameter ⁽¹⁾ mm	Pull for 1% elongation N/mm	Temperature resistance °C min. max.
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NA1669	EL2- U10 HP blue AM	HP® TPU	blue	smooth	1.00	-	10	2 ⁽²⁾	-30 60
NA1688	EL3-U15 HP blue AM	HP® TPU	blue	smooth	1.50	-	10	3 ⁽²⁾	-30 60
NA1758	EL3-U15 HP PN blue AM	HP® TPU	blue	PN	1.50	-	10	3 ⁽²⁾	-30 60
NA1667	1M5 U0-U2 HP blue A AM	HP® TPU	blue	smooth	0.70	3	6	5	-30 110
NA1665	1M5 U0-U2 HP VL blue A AM	HP® TPU	blue	VL	0.70	3	6	5	-30 110
NA1717	1DM8 U0-U2 HP W A AM	HP® TPU	white	smooth	1.35	4	8	8	-30 110
NA1738	1M5 U3-U3 HP FL/FM W AM	HP® TPU	white	FM	1.40	-	10	5	-30 110
NA1747	2M5 U0-U0 HP A AM	HP® TPU ⁽³⁾	white	fabric	1.00	4	8	6	-30 110
NA1760	2M5 U0-U0 HP blue A AM	HP® TPU ⁽³⁾	light blue	fabric	1.00	4	8	6	-30 110
NA1748	2M5 U0-U2 HP W S A AM	HP® TPU	white	smooth	1.30	4	8	6	-30 110
NA1766	2M5 U0-U2 HP blue S A AM	HP® TPU	blue	smooth	1.30	4	8	6	-30 110
NA1775	2M5 U0-U2 HP W AM	HP® TPU	white	smooth	1.30	4	8	6	-30 110
NA1770	2M5 U0-U2 HP W A AM	HP® TPU	white	smooth	1.30	4	8	6	-30 110
NA1668	2M5 U0-U2 HP blue A AM	HP® TPU	blue	smooth	1.30	4	8	6	-30 110
NA1666	2M5 U0-U2 HP VL blue A AM	HP® TPU	blue	VL	1.30	4	8	6	-30 110
NA1761	2M5 U2-U2 HP PN blue AM	HP® TPU	blue	PN	1.85	-	15	6	-30 110
NA1722	2M5 U0-U3 HP EN blue A AM	HP® TPU	blue	EN	1.60	4	8	6	-30 110
NA1759	2M5 U0-U8 HP CC blue AM	HP® TPU	blue	CC	2.90	-	10	6	-30 110
NA1756	2M5 U0-U8 HP STL blue A AM	HP® TPU	blue	STL	2.40	-	10	6	-30 110
NA1737	2M5 U3-U15 HP FM/ST blue AM	HP® TPU	blue	ST	4.00	-	60	6	-30 110

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

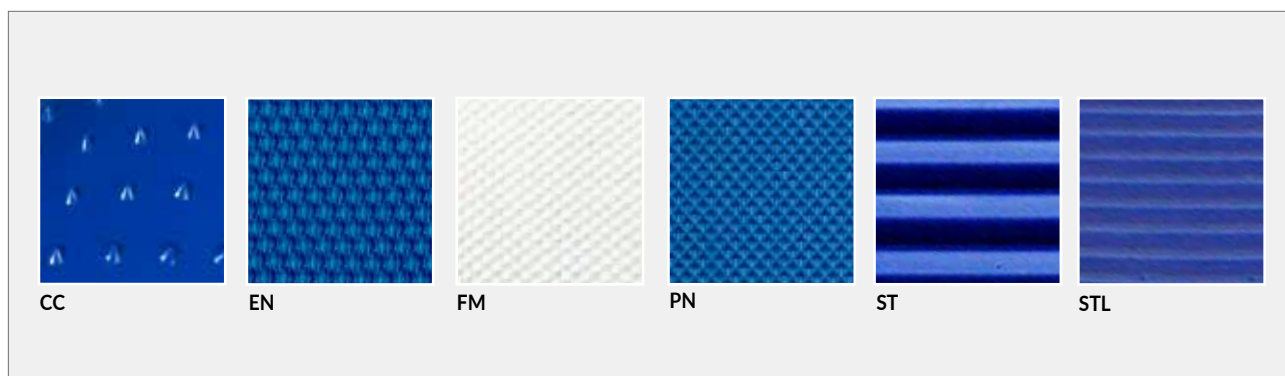
⁽²⁾ Elastic belts: pull for 8% elongation.

⁽³⁾ Fabric with HP® TPU impregnation.

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

Due to the variety of different worldwide regulations, the information in this catalogue are valid for Europe. For other geographical areas please contact our Sales Departments.

Textures





Prevent foreign material contamination Increase food safety & hygiene

Where Foreign Material Contamination is a dangerous concern, Chiorino **FXDTM** is the solution to **minimize risk** and to **prevent costly products recalls**. Chiorino **FXDTM** is the only range of food grade belts **detectable** by both **X-Rays** and **Metal detectors**.

Chiorino **FXDTM** belts installed on production lines equipped with both X-ray & Metal detectors **reduce significantly the risk of Foreign Material Contamination** originating accidentally from the belt, thus avoiding potential hazard to the consumer.

Chiorino **FXDTM AM** belts combine the **dual detectability** features of **FXDTM** belts with the **antimicrobial bacteriostatic** action of the Chiorino **AM** line.

The result is the **ultimate food safety belt**.



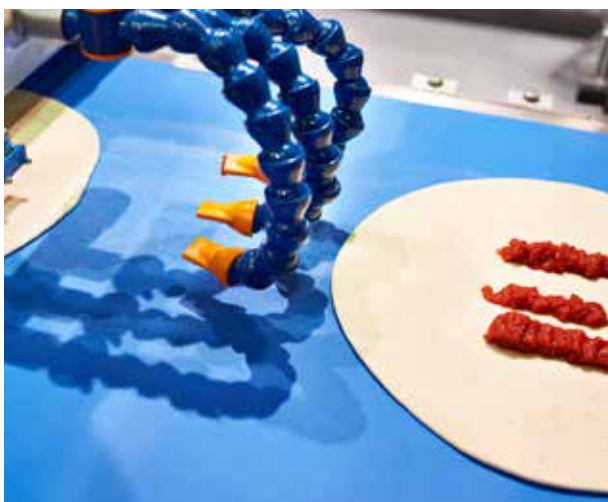
Dual detectability
X-Ray & Metal detectors



Durable inhibition of biofilm growth
EC 1935/2004 & FDA food compliance



Preserve food quality
No contamination from the belt



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