AstroCel S+

Post Product Launch

Sep 21

AstroCel I, II & III

AstroCel S+ HEPA filter

The Product Overview

1. Fiberglass media immobilized with the antimicrobial properties to combat microorganisms.

2. The new innovated filter media material prepared for particle aerosols (trapping) and bioaerosols (inactivate) preventing them to growth.

3. The antimicrobial agent is Non-dermally-irritating.

4. Effective over a broad PH range (2 – 11).

5. Harmlessness to human body and environmental friendliness

6. Available for AstroCel I, II & III S+ HEPA filters

7. The filter media performance against the Bacteria and Viruses through the laboratory testing complete with a test report (Influenza A Virus (H1N1) pandemic (Human Isolated), Human coronavirus 229E – Tested in Thailand)

Non dermally-irritating Designed to be used in situations where dry blending of ingredients is desired. Applications Adhesives, coatings, caulks, textiles. Related Applications Adhesives.

AstroCel S+ HEPA filter

Antimicrobial Mechanism

- ✓ The key performance goal is to reduce the growth of microbial organisms in the filter components
- ✓ The intent is not to make the air clean and free of viable microbes, but rather to prevent filter components from becoming the microbial reservoir.
- ✓ Prevents formation of cell protein and cell walls
- ✓ Disrupts Energy metabolism and development or microorganism.
- ✓ Fusion with cell membrane and enters the cell through the structures of organelles, protein, nucleic acids, etc. The active ingredients destroys cell contents, enzymes, proteins, nucleic acids in order to inhibit bacteria and mold reproduction.

nucleic acid – a complex organic substance present in living cells, especially DNA, RNA whose molecules consist o many nucleotides linked in a long chain

AstroCel S+ HEPA filter

The Production Method

- ✓ Addition of antibacterial solution during the manufacturing process of air filtration media.
- ✓ Active ingredients of antibacterial solution is immobilized (acrylate adhesive bonding) on the surface of the air filtration media, providing antibacterial properties.
- ✓ When microorganisms comes into contact with the air filtration media, the antibacterial solution emits the protection effect through the penetration of cell wall and the destruction of essential and important cell functions.
- ✓ Microorganism are unable to function, grow and reproduce

S+ Media Test Report from Supplier – H1N1

广微测 Gmicro Testing

广东省微生物分析检测中心

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

分析检测结果

ANALYSIS AND TEST RESULT

报告编号（Report №.）：2020FM16000R01D

1.作用浓度 Action concentration：原样 Original

1.1 试验结果 Test Result:

病毒名称 Virus	实验序号 No.	对照样未经抗病毒处理试样接种 0h 后病毒滴度 The infectivity titre value immediate after inoculation of the reference specimen	对照样未经抗病毒处理试样接种 24h 后病毒滴度 The infectivity titre value after 24h contacting with the reference specimen	试验样经抗病毒处理试样接种 24h 后病毒滴度 The infectivity titre value after 24h contacting with the test specimen
甲型流感病毒 H1N1（A/PR/8/34）MDCK 细胞 *Influenza A virus* H1N1（A/PR/8/34）Host cell: MDCK	1	5.90	4.57	3.00
	2	5.75	4.59	3.12
	3	5.80	4.67	3.00
平均病毒滴度的对数值 Average logarithm of infectivity titre value $lgTCID_{50}/mL$		5.82	4.61	3.04
平均病毒滴度的对数值 Average logarithm of infectivity titre value $lgTCID_{50}/cm^2$		5.61	4.41	2.84
平均病毒总数 Average virus count $TCID_{50}/cm^2$		4.14×10^5	2.56×10^4	6.91×10^2
抗病毒活性值 Logarithm of antiviral activity		1.57		
抗病毒活性率（%）Antiviural activity rate（%）		97.30		

S+ Media Test Report from Supplier - Antimicrobial

广微测 Gmicro Testing

中国认可 国际互认 检测 TESTING CNAS L1747

推荐实验室

广东省微生物分析检测中心

GUANGDONG DETECTION CENTER OF MICROBIOLOGY

分析检测结果

ANALYSIS AND TEST RESULT

报告编号（Report №.）：2020FM11740R01D

测试微生物 The tested organism	无加工试样片接种后直接得到的活菌数 The average of the common logarithm of the number of viable bacteriare covered from the untreated test specimens immediately after inoculation（cfu/cm²）	无加工试样片接种后放置 24h 得到活菌数 The average of the common logarithm of the number of viable bacteriare covered from the untreated test specimens after 24h（cfu/cm²）	抗菌试样片接种后放置 24h 得到的活菌数 The average of the common logarithm of the number of viable bacteria recovered from the treated test specimens after 24h（cfu/cm²）	抗菌活性值 Antibacterial activity	抗菌率 Antibacterial rate (%)
大肠杆菌（*Escherichia coli*）ATCC 8739	2.4×10^4	5.4×10^5	9	4.8	99.9

(以下空白 Blank below)

S+ Media Test Report – Thailand
(Human coronavirus 229E)

Test Method	Virus inhibition assay and plaque reduction neutralization assay (PRNT)
Reference Standard	ISO 18184:2019: Textiles - Determination of antiviral activity of textile products
Test Organisms	Human coronavirus 229E (ATCC® VR-740™) Titer = $1x10^7$ $TCID_{50}$/ml (50% Tissue Culture Infectious Dose)

Product	Testing concentration	Contact time	Efficacy (%)	Log Reduction
AstroCel S+	-	24 hours	99.92%	3.090

S+ Media Test Report – Thailand
(Influenza A Virus (H1N1) pandemic (Human Isolated)

Test Method	Virus Inhibition Assay and Real Time Reverse Transcription Polymerase Chain Reaction
Reference Standard	ISO 18184:2019: Textiles - Determination of antiviral activity of textile products
Test Organisms	Influenza A Virus (H1N1) pandemic (Human Isolated) Titer = $1x10^7$ $TCID_{50}$/ml (50% Tissue Culture Infectious Dose)

Product	Testing concentration	Contact time	Efficacy (%)	Log Reduction
AstroCel S+	-	24 hours	99.93%	3.150

Available Product Range with S+ Media

Performance

Price

AstroCel I S +

AstroCel II S +

AstroCel III S +

AstroCel III

AstroCel II

AstroCel I

New

Existing

AstroCel I S+ HEPA Filter

Specification	Description
EN1822	H13, H14
Filter Depth (mm)	149 & 292
Media Type	Fibreglass with antimicrobial properties
Frame material (Standard)	GI
Frame material (Optional)	Aluminium, Stainless steel, Plywood, Particle board
Separator Style	Aluminium
Gasket Material (Standard)	Neoprene
Gasket Material (Optional)	PU, EPDM, PU Gel
Gasket Position (Standard)	Downstream
Gasket Position (Optional)	Upstream, Both sides
Faceguard	No
Special Size Available	Yes
Header Type	Non Header
Antimicrobial Available	Yes
Recommended Final Resistance	750 Pa
Max Operating Temperature	90°C
Test Report	JIS Z 2801 & ISO 18184

AstroCel II S+ HEPA Filter

Specification	Description
EN1822	H13, H14
Filter Depth (mm)	69, 93, 117
Media Type	Fibreglass
Frame material	Aluminium
Separator Style	Hot Melt
Gasket Material (Standard)	Endless PU
Gasket Material (Optional)	Neoprene, EPDM
Gasket Position (Standard)	Downstream
Gasket Position (Optional)	Upstream, Both sides
Faceguard	Both sides
Special Size Available	Yes
Antimicrobial Available	Yes
Recommended Final Resistance	500 Pa
Max Operating Temperature	70°C
Test Report	JIS Z 2801 & ISO 18184

AstroCel III S+ HEPA Filter

Specification	Description
EN1822	H13
Filter Depth (mm)	292
Media Type	Fibreglass
Frame material (Standard)	GI
Frame material (Optional)	Stainless steel, Aluminium
Separator Style	Hot Melt
Gasket Material (Standard)	Endless PU
Gasket Material (Optional)	Neoprene, EPDM
Gasket Position (Standard)	Downstream
Gasket Position (Optional)	Upstream, Both sides
Special Size Available	No
Antimicrobial Available	Yes
Recommended Final Resistance	500 Pa
Header Type	Non Header
Recommended Final Resistance	750 Pa
Max Operating Temperature	70°C
Test Report	JIS Z 2801 & ISO 18184

AstroCel S+ Vs Std Glassfibre

AstroCel I

		AstroCel I HEPA (Standard)		AstroCel I S+ (Antimicrobial HEPA)	
EN1822	Size (mm)	Rated Airflow (CMH)	Rated Initial Resistance (Pa)	Rated Airflow (CMH)	Rated Initial Resistance (Pa)
H13	610 x 305 x 149	375	250	425	250
	610 x 610 x 149	850		850	
	610 x 305 x 292	750		850	
	610 x 610 x 292	1700		1700	
H14	610 x 305 x 149	375	250	425	260
	610 x 610 x 149	850		850	
	610 x 305 x 292	750		850	
	610 x 610 x 292	1700		1700	
H13 (HC)	610 x 305 x 149	750	350		
	610 x 610 x 149	1700			
	610 x 305 x 292	1500			
	610 x 610 x 292	3400			
H14 (HC)	610 x 305 x 149	750	350		
	610 x 610 x 149	1700			
	610 x 305 x 292	1500			
	610 x 610 x 292	3400			

AstroCel II

		AstroCel II HEPA (Standard)		AstroCel II S+ (Antimicrobial HEPA)	
EN1822	Size (mm)	Rated Airflow (CMH)	Rated Initial Resistance (Pa)	Rated Airflow (CMH)	Rated Initial Resistance (Pa)
H13	610x610x69	600	105	600	115
	610x1220x69	1205		1205	
	610x610x93	600	75	600	85
	610x1220x93	1205		1205	
	610x610x117	600	65	600	75
	610x1220x117	1205		1205	
H14	610x610x69	600	135	600	135
	610x1220x69	1205		1205	
	610x610x93	600	95	600	95
	610x1220x93	1205		1205	
	610x610x117	600	80	600	80
	610x1220x117	1205		1205	

AstroCel III

		AstroCel III HEPA (Standard)		AstroCel III S+ (Antimicrobial HEPA)	
EN1822	Size (mm)	Rated Airflow (CMH)	Rated Initial Resistance (Pa)	Rated Airflow (CMH)	Rated Initial Resistance (Pa)
H13	610 x 305 x 292	1500	250	1750	250
	610 x 610 x 292	4000		3500	250
H14	610 x 305 x 292	1400			
	610 x 610 x 292	3500			

AstroCel S+

Bringing clean air to life

Product Value

- The additional antibacterial mechanism being added
- 2 in 1 solution - inactivating bacterial or viruses and trapping particles at the same time.
- The active ingredients destroys cell contents, enzymes, proteins, nucleic acids in order to inhibit bacteria and mold reproduction.
- S+ is able to inactivate bacteria or virus comparing to standard glassfibre.
- The processability and functionality is the same as the standard glassfibre including filter classification.
- Available filter efficiency as H13 & H14
- Available AstroCel product range from I, II & III.
- Not commonly available in the current market
- Test reports available from media supplier and isolated test done in Thailand – The result achieved is very promising.
- The storage condition same as the standard glassfibre.

AstroCel S+

Bringing clean air to life

Product Positioning

- Suitable for indoor application
- Suitable to be installed in any new or existing equipment with the right design.
- Avoid high RH (take reference from glassfibre), direct rainwater contact, and high concentration of chemical present.
- The processability and functionality, installation, storage condition of the S+ media are the same as standard glassfibre.
- Take necessary precautions if the installation is done incorporating with the UVC under one housing.
- Follow the recommended operational temperature as the standard glassfibre.
- Required good filtration at the upstream of the S+ media to prolong its service life – dust clogging will reduce not only the filter efficiency but the effectiveness of the antimicrobial too.
- Recommended for Healthcare and Pharmaceutical segment at the current moment

Quick Summary on the AstroCel S+

Specification

	AstroCel® I S+	AstroCel® II S+	AstroCel® III S+
EN1822	H13, H14	H13, H14	H13
Filter Depth (mm)	149, 292	69, 93, 117	292
Media Type	Fibreglass with antimicrobial properties		
Frame Material	Galvanised Steel, Aluminium, Stainless Steel, Plywood, Particle Board	Aluminium	Galvanised Steel, Stainless Steel, Aluminium
Seperator Style	Aluminium	Hot Melt	Hot Melt
Gasket Material	PU, EPDM, PU Gel, Neoprene	PU, EPDM, Neoprene	PU, EPDM, Neoprene
Gasket Position	Downstream, Both Sides, Upstream		
Faceguard	No	Both Sides	No
Special Size Available	Yes	Yes	No
Recommended Final Resistance	750 Pa	500 Pa	750 Pa
Max Operating Temperature	90°C	70°C	70°C

Frequently ask questions to share?

Provide the comparison table between standard HEPA and Antivirus HEPA in terms of TP, pressure drop Vs airflow Vs size, and the delivery lead time?

From the comparison table from above(full product launch slides), there is a 10 Pa increase between standard and antimicrobial HEPA for H13 while for H14, the pressure drop/initial resistance remains the same. The delivery time is expected to be the same as the standard HEPA filter.

Any special terms and conditions (Air temp, RH, etc) to take note of the Antivirus HEPA filter during installation?

Although the antibacterial component is added into the HEPA-grade air filtration media, it does not affect the physical nature of the media. Hence, all the processability and functionality of the media are the same as the standard glass fibre media, the installation conditions should remain the same as the standard installation for HEPA filters.

The Product Launch Announcement

We are pleased to announce to you that the AstroCel I, II & III S + media has been officially launched on Sep 2021 to all our sales teams, distributors and business partners.

Kindly contact our customer service in Malaysia plant for the TP and detail.

We can provide a better service to you if you can provide us your sales forecast on the mentioned products promptly to mitigate the long delivery lead time

Thank You