

ARCH TEXTILES MANUFACTURE CORP.
SUITE 1202,TOWER D,7001 ZHONGCHUN ROAD,SHANGHAI,CHINA

THE TEST RESULTS WERE TRANSFERRED FROM TEST REPORT NO. SL52035286137501TX Date: August 24,2020

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Description : (A)Knitted fabric 21028 CuPlus® Mesh
(B)Knitted garment of USA outdoor brand with branded antimicrobial finish

Style No. : N

Composition : (A)CuPlus® Mesh, #21028, 85%Copper Infused Nylon, 15% Spandex;
(B)90% Nylon,10%Spandex

Sample Color : (A)Black; (B)White

End Use : (A)garment; (B)garment

Order No. : N

Country of Destination : United States

Country of Origin : China

Supplier : Arch

Proposed Care Instruction : Machine wash cold,wash with like colors,gentle cycle,only non-chlorine bleach if needed,tumble dry low,do not iron,do not dry clean

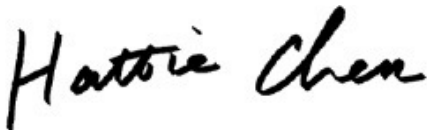
Sample Receiving Date : Jun 17, 2020

Testing Period : Jun 19, 2020 - Aug 05, 2020

Test Result(s) : Unless otherwise stated the results shown in this test report refer only to the sample(s) tested, for further details, please refer to the following page(s).

Test Performed : Selected test(s) as requested by applicant

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd Testing Center



Hattie Chen (Account Executive)



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Test Result

Fabric Weight Per Unit Area

(ASTM D3776/D3776M-09a(Reapproved 2017), Option C;)

	Unit	(A)	(B)
Weight	oz/yd ²	4.53	4.41
Weight	g/m ²	154	150

Fibre Content

(AATCC TM 20-2018 & AATCC TM 20A-2018 & based on moisture regain weight)

	(A)
Nylon (%)	85.3
Spandex (%)	14.7

	(B)
Nylon (%)	89.4
Spandex (%)	10.6

Note:

- Based on ASTM D1909-13, Moisture regain of Nylon:4.5%, Spandex:1.3%.



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Test Part Description :

Specimen No.	Description
A	A black fabric(as received)
B	B white fabric(as received)

Copper and Silver

Test Method: With reference to US EPA Method 3052:1996, analysis was performed by ICP-OES.

Test Item(s)	A	B
Silver (Ag)		29 mg/kg
Copper (Cu)	1788 mg/kg	

Notes :

RL (Reporting limit) =5mg/kg(Cu); 10mg/kg(Ag)

ND=Not Detected(< RL)

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) RL = Reporting limit
- (3) ND = Not Detected (< RL)

Test Part Description :

Specimen No.	Description
A	A black fabric(after 20 washes)
B	B white fabric(after 20 washes)

Copper and Silver

Test Method: With reference to US EPA Method 3052:1996, analysis was performed by ICP-OES.

Test Item(s)	A	B
Silver (Ag)		ND
Copper (Cu)	1904 mg/kg	

Notes :

RL (Reporting limit) =5mg/kg(Cu); 10mg/kg(Ag)

ND=Not Detected(< RL)

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) RL = Reporting limit
- (3) ND = Not Detected (< RL)

Washing procedure: AATCC TM 135-2018; Option 1, Machine wash at 80±5 °F with 1.8 kg total loading (Type 1 ballast + specimen) and 66±1g of 1993 AATCC Standard Reference Detergent, Delicate cycle, Tumble Dry Delicate.

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Test Part Description :

Specimen No.	Description
A	A black fabric (after 50 washes)
B	B white fabric (after 50 washes)

Copper and Silver

Test Method: With reference to US EPA Method 3052:1996, analysis was performed by ICP-OES.

<u>Test Item(s)</u>	A	B
Silver (Ag)		ND
Copper (Cu)	2075 mg/kg	

Notes :

RL (Reporting limit) =5mg/kg(Cu); 10mg/kg(Ag)

ND=Not Detected(< RL)

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) RL = Reporting limit
- (3) ND = Not Detected (< RL)

Washing procedure: AATCC TM 135-2018; Option 1, Machine wash at 80±5°F with 1.8 kg total loading (Type 1 ballast + specimen) and 66±1g of 1993 AATCC Standard Reference Detergent, Delicate cycle, Tumble Dry Delicate.

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Antimicrobial Activity Test

Test Method: AATCC 100-2019 Test Method for Antibacterial Finishes on Textile Material: Assessment of (A)-As Received

Test organisms	Concentration of bacteria (cfu/mL)	The number of bacteria recovered from			%Reduction
		/	at "0H" contact time (cfu/sample)	at "24H" contact time (cfu/ sample)	
<i>Staphylococcus aureus</i> ATCC 6538	1.7×10 ⁵	Treated test specimen	6.2×10 ⁴	7.8×10 ³	87.4
		Viability Control specimen	1.5×10 ⁵	8.0×10 ⁶	
<i>Klebsiella pneumoniae</i> ATCC 4352	1.8×10 ⁵	Treated test specimen	6.3×10 ⁴	7.3×10 ³	88.4
		Viability Control specimen	1.5×10 ⁵	8.0×10 ⁶	

(B)-As Received

Test organisms	Concentration of bacteria (cfu/mL)	The number of bacteria recovered from			%Reduction
		/	at "0H" contact time (cfu/sample)	at "24H" contact time (cfu/ sample)	
<i>Staphylococcus aureus</i> ATCC 6538	1.7×10 ⁵	Treated test specimen	1.1×10 ⁵	<1.0×10 ²	>99.9
		Viability Control specimen	1.5×10 ⁵	8.0×10 ⁶	
<i>Klebsiella pneumoniae</i> ATCC 4352	1.8×10 ⁵	Treated test specimen	6.0×10 ⁴	1.7×10 ⁴	71.0
		Viability Control specimen	1.5×10 ⁵	8.0×10 ⁶	

Remark:

The sample had been sterilized in the autoclave before the testing.
 Test validity control specimen is 100% cotton provided by SGS lab
 The neutralizer is DE broth
 The diluent is 1/20NB+0.05% Triton X-100
 Size and shape of test swatches: 3 pieces / circular / 4.8 cm in diameter, equal 1.0g.
 Reduction calculation method:
 $R = 100(C-A)/C$
 R=%reduction
 A=the number of bacteria recovered from the inoculated treated test specimen swatches in the jar incubated over the 24-h contact period
 C= the number of bacteria recovered from the inoculated, test specimen swatches in the jar immediately after inoculation (at "0" contact time).



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Antimicrobial Activity Test

Test Method: AATCC 100-2019 Test Method for Antibacterial Finishes on Textile Material: Assessment of (A)-After 20 washes

Test organisms	Concentration of bacteria (cfu/mL)	The number of bacteria recovered from			%Reduction
		/	at "0H" contact time (cfu/sample)	at "24H" contact time (cfu/sample)	
Klebsiella pneumoniae ATCC 4352	2.2×10 ⁵	Treated test specimen	2.1×10 ⁵	7.0×10 ²	99.7
		Viability Control specimen	2.1×10 ⁵	2.8×10 ⁸	
Staphylococcus aureus ATCC 6538	2.5×10 ⁵	Treated test specimen	2.3×10 ⁵	1.1×10 ³	99.5
		Viability Control specimen	2.4×10 ⁵	1.5×10 ⁸	

(B)-After 20 washes

Test organisms	Concentration of bacteria (cfu/mL)	The number of bacteria recovered from			%Reduction
		/	at "0H" contact time (cfu/sample)	at "24H" contact time (cfu/sample)	
Klebsiella pneumoniae ATCC 4352	2.2×10 ⁵	Treated test specimen	2.1×10 ⁵	2.7×10 ⁸	0
		Viability Control specimen	2.1×10 ⁵	2.8×10 ⁸	
Staphylococcus aureus ATCC 6538	2.5×10 ⁵	Treated test specimen	2.3×10 ⁵	4.4×10 ⁷	0
		Viability Control specimen	1.2×10 ⁵	3.4×10 ⁶	

Remark:

Treated test specimen has been sterilized in the autoclave before the testing.

Test validity control specimen is 100% cotton provided by SGS lab.

The neutralizer is DE broth

The diluent is 1/20NB+0.05% Triton X-100

Size and shape of test swatches: 5 pieces/square/3.8*3.8cm,equal 1.0g.

Reduction calculation method:

$$R=100(C-A)/C$$

$$R=\%reduction$$

A=the number of bacteria recovered from the inoculated treated test specimen swatches in the jar incubated over the 24-h contact period

C= the number of bacteria recovered from the inoculated, test specimen swatches in the jar immediately after inoculation (at "0" contact time).

Washing procedure: AATCC TM 135-2018; Option 1, Machine wash at 80±5 °F with 1.8 kg total loading (Type 1 ballast + specimen) and 66±1g of 1993 AATCC Standard Reference Detergent, Delicate cycle, Tumble Dry Delicate.

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Antimicrobial Activity Test

Test Method: AATCC 100-2019 Test Method for Antibacterial Finishes on Textile Material: Assessment of

(A)-After 50 washes

Test organisms	Concentration of bacteria (cfu/mL)	The number of bacteria recovered from			%Reduction
		/	at "0H" contact time (cfu/sample)	at "24H" contact time (cfu/sample)	
Staphylococcus aureus ATCC 6538	1.7×10 ⁵	Treated test specimen	1.4×10 ⁵	<100	>99.9
		Viability Control specimen	1.7×10 ⁵	1.1×10 ⁸	
Klebsiella pneumoniae ATCC 4352	1.4×10 ⁵	Treated test specimen	1.1×10 ⁵	<100	>99.9
		Viability Control specimen	1.4×10 ⁵	1.3×10 ⁸	

Remark:

Treated test specimen has been sterilized in the autoclave before the testing.

Test validity control specimen is 100% cotton provided by SGS lab.

The neutralizer is DE broth

The diluent is 1/20NB+0.05% Triton X-100

Size and shape of test swatches: 4 pieces/square/3.8*3.8cm, equal 1.0g.

Reduction calculation method:

$R=100(C-A)/C$

$R=\%reduction$

A=the number of bacteria recovered from the inoculated treated test specimen swatches in the jar incubated over the 24-h contact period

C= the number of bacteria recovered from the inoculated, test specimen swatches in the jar immediately after inoculation (at "0" contact time).

Washing procedure: AATCC TM 135-2018; Option 1, Machine wash at 80±5°F with 1.8 kg total loading (Type 1 ballast + specimen) and 66±1g of 1993 AATCC Standard Reference Detergent, Delicate cycle, Tumble Dry Delicate.

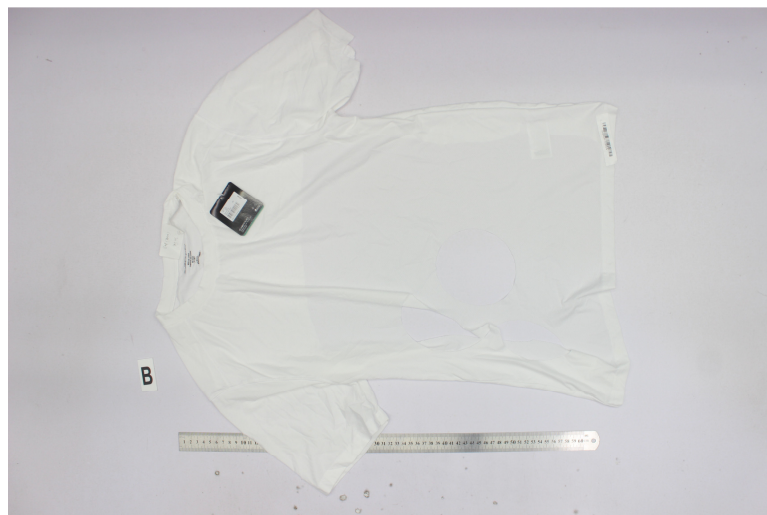


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Sample Photo



End of Report



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