

COVID-19 – ANTI VIRUS FILM

YG Virus-ZERO

Anti-Virus
99.99%!

Zinc compound(Zn^{+}) Anti-virus flim

ZN+(Zinc Compound) Anti-Virus Film

1. A safe material registered with the U.S FDA And U.S Environmental Protection Agency
2. It is made of zinc compound, not metal so it is safe.
3. 99.99% excellent anti-virus activity due to the continuous anti-virus Effect fo zinc comound.
4. Completion of quality and safety certifications through various tests.
5. Smooth surface.
6. The Transparency and thickness and size suitable for tables, make it suitable for schools, academies, desk, and feeding facilities.



**Actual Sticker Size
as Safety certificate
(attach sticker on film)**



Advantage of COPPER(Cu) Anti-Virus Film

- When zinc compound material is used in hygiene products, it shows strong antibacterial power to bacteria, super bacteria and candida (fungus) in daily life
- A substance approved by FDA(U.S Food and Drug -administration) and the EPA(U.S Environmental -Protection agency) that is harmless to the human body.
- Organic anti-virus agents have high temporary anti-virus power but short-continuity.
- However, inorganic anti-virus have a lower temporary anti-virus power than organic anti-virus, but they are highly safe in the human body, have a semi-permanent and excellent durability



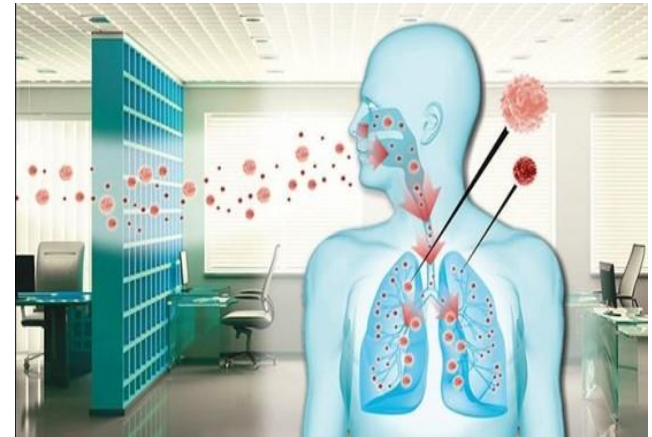
YG V-ZERO

Zinc compound(Zn^{+}) Anti-virus flim

THIS IS Zinc(Zn^{+}) NOT COPPER(Cu)

Demerits of COPPER(Cu) Anti-Virus Film

1. Copper is a heavy metal material and has poor human safety.
2. Touching the face with a hand in contacted with a copper containing product may absorb copper into the human body.
3. Since heavy material are not guaranteed to be stable, customers need to be recognized, such as reading report from certificate authority.
4. In the case of copper anti-virus film, there is a product than can only be used on one side.



Demerits of COPPER(Cu) Anti-Virus Film

Anti-Virus Film made of Zinc or Copper for commercial use

Zinc (Zn)

It is non-toxic, non-stimulating, and has antibacterial function and UV blocking ability to suppress germs and fungi.

It is a material that has a wide range of uses, including household goods and cosmetics.

Why need to use Zinc Film



Copper (Cu)

Discoloration problems caused by toxicity and oxidation



Nano silver (Ag)

Although it has strong sterilization ability, it has a problem that carcinogenic substances occur during manufacturing process.



YG V-ZERO

Zinc compound(Zn^{+}) Anti-virus flim

TEST REPORT

TEST – Bacteria Description



Staphylococcus aureus

A causative bacterium that is widely distributed in the natural world and causes purulent diseases such as food poisoning, suppuration, tympanitis, bladder infection.

The bacteria that cause food poisoning after salmonella and *Vibrio parahemolyticus*.



Pseudomonas aeruginosa

A pathogenic bacterium that causes intractable infections in patients with sepsis and systemic infections and chronic respiratory tract and cystic fibrosis.

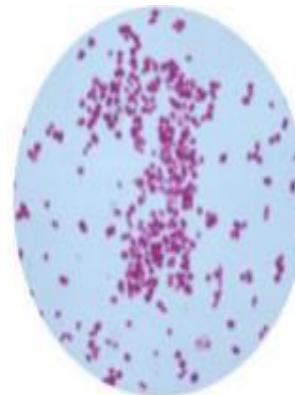
In particular, if patients with reduced resistance, such as surgery, burns, and trauma, suffer septicemia due to *Pseudomonas aeruginosa*, they may die from shock such as high fever and low blood pressure.



Escherichia coli

Bacteria that live in the intestines of humans and animals.

Entering organs other than the intestines causes bladder inflammation, nephritis, peritonitis, sepsis, etc.



Pneumococcus

A bacterium that causes purulent disease such as lobar pneumonia and bronchopneumonia.

TEST – Performance 1 (Korea)

TECHNICAL DATA

TEST REPORT

문서번호	제 020-0049호
작성일자	2020. 4. 23
신청인	와이오엘
참고인	
시료명	PE 항균시트
시험항목	JIS Z 2801 : 2000 (필름박막법 : Anti-bacterial Test) (Antimicrobial products-Test for antimicrobial activity and efficacy)

시험요약 :

- 와이오엘로부터 인수받은 PE 항균시트의 항균력 측정시험.
- 시험일자: 2020. 4. 21 ~ 2019. 4. 23
- 시료 총 2종: PE 항균시트, NO.1, NO.2, 2종
- 시험항목: 대장균, 포도상구균, 폐렴균에 대한 항균성능평가 (JIS Z 2801)

시험결과에 대한 의견 :

- 시험결과 시료 2종은 항균 성능이 우수한 것으로 판명됨.

시험방법: JIS Z 2801 : 2000 – 필름박막법

- 사용배지 : Nutrient Broth Medium and Plate Count Agar Medium (Difco사)
SCDLP(카제인 17g, 대두 3g, 염화나트륨 2.5g, 인산수소이칼륨 2.5g, 글루코스 2.5g, 레시틴 1g, Tween 80 7g, 증류수 1,000ml)
- 사용균주 : *Staphylococcus aureus* (ATCC NO. 6538P) - 황색 포도상구균
Escherichia coli (ATCC NO. 8739) - 대장균
Klebsiella pneumoniae (KCCM NO. 41433) - 폐렴균
- 필름박막법
시험편은 정방형의 50 ± 2mm 크기의 자
계측과정을 거친 시료는 멸균된 PLATE
운반한 공산균액 0.4 배를 넣고 STC
없이 균액이 넓게 확산되도록 한다.
후, 온도 35℃, 습도 90% 배양기에
24시간 이후, 시판표면 및 FILM에
세척한 후 세척수 1배를 취하여 상
유가공 시험편의 편차를 계수하여 함

시료의 종류와 수량

- 시료일과일자: 2020. 4. 20
- 시료의 종류와 수량: PE 항균시트, NO.1 (P-580MB) 2종
- 특이사항: P-580MB, P-250PA

시험결과

NO	포도상구균 (CFU / mL)		감소율(%)	항균활성(R)	시료명
	접속초기	24 hours	SD B/L대비	SD B/L대비	
1	1.2E+05	3.6E+06	-	-	SD BLANK
2		1.0E+01	99.99%	5.6	NO.1(P-580MB)
3		1.0E+01	99.99%	5.6	NO.2(P-250PA)

NO	대장균 (CFU / mL)		감소율(%)	항균활성(R)	시료명
	접속초기	24 hours	SD B/L대비	SD B/L대비	
1	5.8E+04	7.2E+06	-	-	SD BLANK
2		1.0E+01	99.99%	5.9	NO.1(P-580MB)
3		1.0E+01	99.99%	5.9	NO.2(P-250PA)

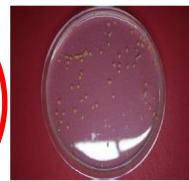
NO	폐렴균 (CFU / mL)		감소율(%)	항균활성(R)	시료명
	접속초기	24 hours	SD B/L대비	SD B/L대비	
1	9.0E+04	2.8E+06	-	-	SD BLANK
2		1.0E+01	99.99%	5.4	NO.1(P-580MB)
3		1.0E+01	99.99%	5.4	NO.2(P-250PA)

시험결과

* 항균가공 제품의 항균효과는 규격의 시험방법에 준하여 항균 활성지(R)의 값이 2.0이상이어야 함.

JIS Z 2801 : 2000

Staphylococcus aureus
(황색포도상구균)



SD BLANK



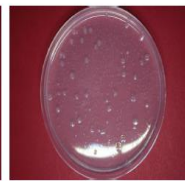
NO.1 (P-580MB)



NO.2 (P-250PA)

사용배지: Plate Count Agar Medium
사용균주: 포도상구균, 대장균
배양기간: 24 hours

Escherichia coli (대장균)



SD BLANK



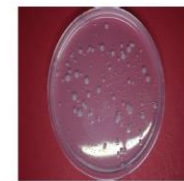
NO.1 (P-580MB)



NO.2 (P-250PA)

JIS Z 2801 : 2000

Klebsiella pneumoniae
(폐렴균)



SD BLANK



NO.1 (P-580MB)



NO.2 (P-250PA)

사용배지: Plate Count Agar Medium
사용균주: 포도상구균, 대장균
배양기간: 24 hours

* 본 자료에서 제공되는 정보 및 DATA는 송현제 신뢰할 수 있는 자료를 근거로 작성하였으나, 실제 결과에 대해 보증하는 것이 아니며, 다른 사용
결과가 있는 자료입니다. 따라서, 사용 시에는 귀사에서 적용 외부에 대한 사전시험을 행하여 사용 목적에 적합여부를 확인한 후 사용 바랍니다.
또한, 상기 자료는 어떠한 내용의 법적 근거자료로도 이용될 수 있음을 양지바랍니다.

TEST – Performance 2 (International SGS)

Test Report

No. F690101/LF-CTSAYAR20-01310E Issued Date : 2020. 05. 28 Page 2 of 5

Sample No. : AYAR20-01310E.001

Sample Description : Anti-Virus film

Item / Part No. : V-Zero 580

Material : N/A

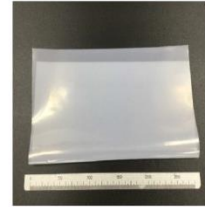
Antimicrobial Activity (JIS Z 2801:2010E)

Test microorganisms	Result(s)					
	Initial bacteria number (CFU/film)	Bacteria number after 24 hr at 35 °C			Antimicrobial activity	
		Control (CFU/film)	Sample (CFU/film)		R	Percentage (%)
<i>Escherichia coli</i> ATCC 8739	2.0×10^5	1.0×10^8	1st	<25	6.6	>99.9%
			2nd	<25	6.6	>99.9%
			3rd	<25	6.6	>99.9%
<i>Staphylococcus aureus</i> ATCC 6538P	2.1×10^5	1.4×10^7	1st	<25	5.8	>99.9%
			2nd	<25	5.8	>99.9%
			3rd	<25	5.8	>99.9%

Test Report No. F690101/LF-CTSAYAR20-01310E Issued Date : 2020. 05. 28 Page 3 of 5

Test Report No. F690101/LF-CTSAYAR20-01310E Issued Date : 2020. 05. 28 Page 3 of 5

Picture of Sample as Received



AYAR20-01310E

Anti-Virus
99.99
%!

© 2015 Korea Co., Ltd. | #301, 67, Magunsaeng-gil, Ulsang-si, Gyeonggi-do, Korea 102

Test Report No. F690101/IF-CTSAIAR20-01310E Issued Date : 2020. 05. 28 Page 4 of 5

Test Report No. F690101/ILF-CTSAYAR20-01310E Issued Date : 2020. 05. 28 Page 4 of 5

- Antimicrobial Activity of Photo : Escherichia coli: Control & Sample -

- after 24 hr at 35 °C -

Contro

808 KOREA CO., LTD. 808 KOREA CO., LTD.



BACTERIUM: Enterobius coli ATCC 8739

SGS FILE NO. : Control

DATE: 2020-09-22 REF: JIS 2 20091

BACTERIUM: *Escherichia coli* ATCC 8739

SGS FILE NO. : AYAR26-1210

DATE: 2020-04-22	REF: J012001
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Sample

Sample 3^a

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FGP-27-F2(2)

Main ingredients (Certificate of U.S FDA & EPA)

TO INHIBIT THE GROWTH OF MOLD AND MILDEW ON ADHESIVE FILMS*, SEALANTS*, GROUT*, PAINT FILMS, PAPER PRODUCTS*, HEATING AND COOLING SYSTEM FILTERS
AND/OR ROOM AIR CLEANERS/PURIFIERS*, PLASTICS*, PLASTIC INTERMEDIATES* AND NATURAL* AND SYNTHETIC* FIBERS*

ACTIVE INGREDIENT: 2-(4-Thiazolyl)Benzimidazole99.5%
INERT INGREDIENTS0.5%
TOTAL100%

KEEP OUT OF REACH OF CHILDREN WARNING

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

WARNING. Harmful if swallowed, inhaled or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes and clothing. Avoid breathing dust. Mixer, loaders and applicators must wear: Long sleeved shirts and long pants, socks plus shoes, and a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C), or a NIOSH approved respirator with any N, R, P or HE filter. Chemical resistant gloves and eye protection may be worn. User should wash hands before eating, drinking, chewing gum, tobacco, or using the toilet. User must remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users must remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Do not apply this product in a way that will contact workers or other persons. Only protected handlers may be in the area during applications.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.
PESTICIDE STORAGE: Keep container closed when not in use.
PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
CONTAINER HANDLING: Metal or plastic containers: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or reconditioning if appropriate. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Metal containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.
When the water-soluble bags have been removed, dispose of corrugated box in a sanitary landfill, by incineration, or, if allowed by State and Local Authorities, by burning. If burned, stay out of smoke.

ENVIRONMENTAL HAZARDS

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

IN CASE OF EMERGENCY, CALL: CHEMTREC 800-424-9300 INTERNATIONAL 703-527-3887
EPA REGISTRATION NUMBER: 39967-33 Net Contents:
EPA ESTABLISHMENT NUMBER: Lot No.:

ACCEPTED

Jun 02, 2015

Under the Federal Insecticide, Fungicide
and Rodenticide Act as amended, for the
pesticide registered under

EPA Reg. No. 39967-33

FIRST AID

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.
IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told by a poison control center or doctor. Do not give anything to an unconscious person.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor or when going for treatment.

TYPICAL LEVELS OF USE

The following ranges for specific product applications are based on total formulation weight. Exact levels within the ranges below will depend on individual formulation components, production procedures, storage time, and environmental conditions, and should be determined by laboratory testing.

Product Application Concentration	
Adhesives *	0.05 – 0.15%
Paints	
Exterior	0.05 – 0.4%
Interior	0.01 – 0.1%
Paper Products*	0.02 – 0.1%
Sealants*	0.01 – 0.1%
Grout*	0.05 – 0.8%
Canvas Textiles*	0.05 – 0.3%
Nylon Carpeting*	0.05 – 0.5%
Air filters (heating & cooling filters) and/or room air cleaner/purifiers*	0.1 - 0.5%
Plastics*	
Vinyl chloride or Urethane	0.1 – 0.3%
Polypropylene, Polyethylene, or Nylon	0.2 – 0.3%

*Metasol is a registered trademark of LANXESS Corporation.
Product manufactured in India

POWDER INDUSTRIAL MICROBIOSTAT

Active Ingredient:
Zinc, 2-pyridinethiol-I-oxide* 95.0%
Other Ingredients: 5.0%
Total: 100.0%
*Zinc Pyrithione

Keep Out of Reach of Children

DANGER

SEE [SIDE] [BACK] [RIGHT] [LEFT] PANEL FOR FIRST AID AND PRECAUTIONS

Net Wt [Enter Net Weight].

MANUFACTURED FOR/ BY:
Arch Chemicals, Inc.
1200 Bluegrass Lakes Parkway
Alpharetta, GA 30004

{Made in [Enter country of origin].}

EPA Reg. No. 1258-840
EPA Est. No. [Enter EPA Establishment Number]

NOTIFICATION

1258-840

The applicant has certified that no
changes, other than those reported to
the Agency have been made to the
labeling. The Agency acknowledges
this notification by letter dated:
02/13/2017

Note: Text in [Square Brackets] are notes to the label reviewer. Text in {Curly Brackets} is optional.
Powder Industrial Microbiostat
EPA Reg. No. 1258-840
EPA Draft Label 2017-01-31

Page 1 of 8

LABEL TEXT DATE: 5/27/15

YG V-ZERO

Zinc compound(Zn^{+}) Anti-virus flim

Film Attached Case

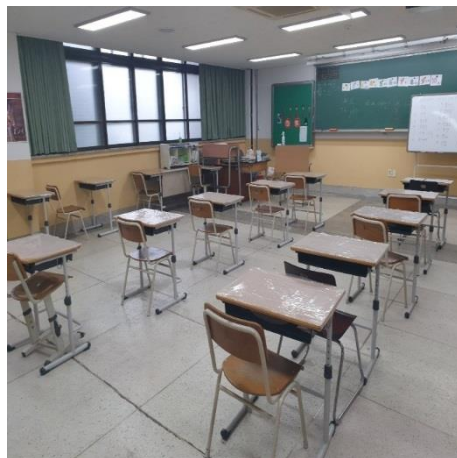
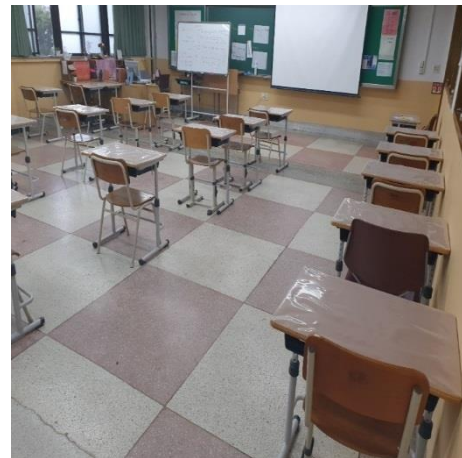
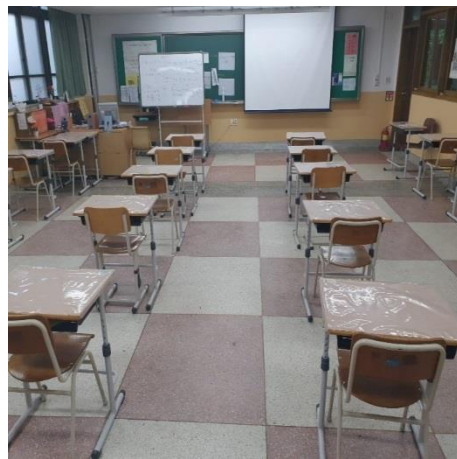
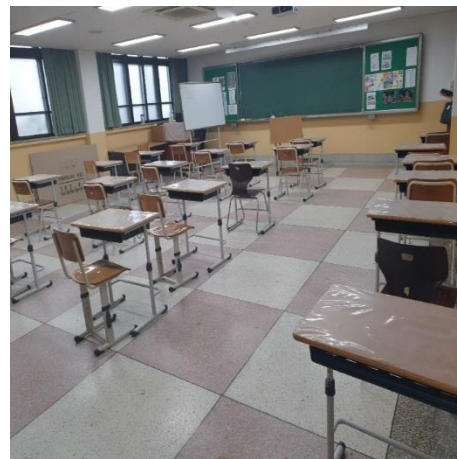
TEST – Bacteria Description



Korea Maritime & Ocean University



Busan National Science high school



Korea Busan Coast Guard



THANK YOU



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group of companies

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