



DMC Co., Ltd.

**Anti-viral & Anti-bacterial Film
FV Series (B-type) Product Specifications**

No. DEV-S0004B



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1. Matters to Be Complied with in Transactions

1.1 Press Release, etc.

When your company (distributor) discloses information to the public (hereinafter referred to as “press releases, etc.”) involved in transactions with our product, (hereinafter referred to as “FV series”), such as press releases, sales materials, technical materials, IR materials and posting on the website, please consult with in advance and discuss the content of press releases, etc. with us.

1.2 Display and Indication

When selling FV series or products using FV series, your company (distributor) shall display the followings on the materials of press releases, etc.

- (1) SIAA mark indicating that the FV series has been registered with SIAA
- (2) Indication that the products are using RIKEGUARD® from RIKEN TECHNOS CORPORATION
- (3) SIAA mark also has to be displayed on outer box of packages delivered to end users.
- (4) SIAA mark does not necessarily have to be displayed on products to which the anti-viral film has been affixed by end users, but it is necessary if publicly disclosing that an anti-viral product is being used.
(1) and (2) are also required for materials of press releases, etc.

1.3 Additional Processing

If your company (distributor) performs any additional processing that may affect the anti-viral and/or anti-bacterial performance of FV series or products using FV series, please consult with us in advance and proceed after consultation. Processing refers to molding that applies excessive heat, scraping the surface, performing special treatment on the surface, and so on.

1.4 Change in Packing Specifications and/or Applications

If your company (distributor) changes packaging specifications and/or product applications, please consult with us in advance and implement it after consultation.

2. Product Specifications

2.1 Application

This specification sheet is applied to anti-viral & anti-bacterial film, FV series (B-type).

Product No. to which this specification sheet applied: FV-*****B*** (*=digit)

2.2 Outline Dimensions and Structure

Refer to the outline dimensional drawing.

2.3 Chemical Resistance

Drops of each chemical (concentration is 100% unless otherwise indicated) described below is put on the anti-viral & anti-bacterial surface of the sample, and the surface is checked for appearance change after 24 hours. (For 5% NaOH, 5% sulfur acid and 5% hydrochloric acid, each sample is immersed for 10 minutes)

Chemical Name	Appearance Change
Methanol	No change
Ethanol	No change
IPA	Yellowing
MEK	Slight yellowing
MIBK	Yellowing
Acetone	Slightly yellowing
Ethyl Acetate	Yellowing
Butyl Acetate	No change
Toluene	No change
Hexane	No change
Insect repellent spray	No change
Mint oil	Yellowing
Neutral detergent (Mama Lemon)	No change
Magic clean (for kitchen)	No change
ISOPER E	No change
Glass cleaner	No change
Furniture cleaner	No change
Mold killer (Hypochlorous acid type)	Slightly yellowing
Nivea (40°C)	No change
5% NaOH	No change
5% Sulfuric acid	No change
5% Hydrochloric acid	No change

*The above results are experimental results and not guaranteed.

*Contact with highly concentrated IPA or hypochlorous acid water for a long time may cause yellowing. Please avoid it.

2.4 Mechanical Characteristics (Initial characteristics)

Item	Test Condition	Unit	Specification
Water contact angle	Water angle meter: (Contact angle: Young-Laplace method)	Θ deg.	90 ≤

*The value is measured as the sample is attached on a glass of 3mm thickness.

2.5 Optical Characteristics (Initial characteristics)

Item	Test Condition	Unit	Specification
Total light transmittance	JISA7361	%	83 ≤
Haze	JISA7136	%	10 ± 3

*The values are measured as the sample is attached on a glass of 3mm thickness.

2.6 Appearance Characteristics

2.6.1 Inspection Environment

- Temperature: 15~30°C
- Illuminance: 1000 lux or above (distance from the fluorescent light: 1.5m)
- Test distance: 30cm
- Inspection Method: Visual inspection is to be performed over its protective film.
- Quality Assurance: Target of the quality assurance is limited to the anti-viral & antibacterial film itself. Scratches and foreign substances on the protective films shall be accepted.

2.6.2 Visual Standard

Item	Size	Standard
Foreign substance (Colored foreign substances, bubbles, etc.)	$X \leq 0.5\text{mm}^2$	Acceptable
	$0.5\text{mm}^2 < X \leq 1.0\text{mm}^2$	Up to 1 piece per product
	$1.0\text{mm}^2 < X$	Rejected
Linear defects (Streaks, scratches)	Width(W): $X \leq 0.2\text{mm}$ and also length (L): $X \leq 30\text{mm}$	Acceptable
	Width(W): $0.2\text{mm} < X$ or Length(L): $30\text{mm} < X$	Rejected

2.7 Anti-viral Performance(ISO 21702)

Virus species	Average Infectivity Titer (Blank)	Average Infectivity Titer (FV Film)	Anti-viral activity value
Virus A	5.03	2.86	2.0 ≤
Virus B	4.89	<0.80	2.0 ≤

*The above results are the test results provided by the manufacturer (RIKEN TECHNOS CORP.) and not guaranteed values.

*SIAA's criteria of anti-viral activity value : 2.0 ≤

2.8 Anti-bacterial (ISO 22196)

FUNGAL SPECIES	Viable Bacteria Count (Blank)	Viable Bacteria count (FV series)	Anti-bacteria activity value
Bacteria A	4.34	< - 0.20	2.0 ≤
Bacteria B	5.68	< - 0.20	2.0 ≤

*The above results are the test results provided by the manufacturer (RIKEN TECHNOS CORP.) and not guaranteed values.

*SIAA's criteria of anti-bacterial activity value: 2.0 ≤

3. Reliability Test Results

Test name	Test Condition	Total Light Transmission	Haze
High temperature storage	80°C, 240H	83 ≤	10 ± 3
High temperature and High humidity storage	60°C, 90%RH, 240H	83 ≤	10 ± 3
Low temperature storage	-40°C, 240H	83 ≤	10 ± 3
Temperature cycle	-30°C, 1H → 25°C, 0.5H → 70°C, 1H → 25°C, 0.5H The above is regarded as 1 cycle. The test goes through 5 cycles.	83 ≤	10 ± 3

*The above results are reliability test results and not guaranteed values.

4. Anti-viral & Anti-bacterial Film

This product uses RIKEGUARD® by RIKEN TECHNOS CORP.

5. Handling Notes:

5.1 Precautions

- This product is intended for use in standard applications (computers, office automation, and other office equipment, industrial, communications, and measurement equipment, personal and household devices, etc.) Please avoid using this product for special applications where extremely high levels of reliability are required (such as aerospace systems, vehicle operating control, atomic energy controls, medical devices for life support, etc.).
- This produce is not allowed to be sold to European area due to the Biocidal Product Regulations.

5.2 Handling Notes

- Do not depress or scratch the product with any object with a sharp edge or hard end. A dent may remain on the surface because its adhesive is soft.
- Do not forcibly bend or fold the product.
- When the product is stored, make sure it is packed in a packing box and stored in a storage temperature range, eliminating any outside load.
- Do not use or store the product under a condition where the product will be exposed to water, organic solution or acid.
- Do not use the product under the direct sunlight
- Wipe off any water droplets on the product surface. If they remain, there may be traces, etc. of chlorine in tap water.
- If the product gets any dirt, etc., wipe it off lightly with a soft cloth. At this time, do not use solvents such as nail polish remover, benzene, thinner, bleach, or abrasives. Do not use hypochlorous acid water used for disinfection of hospital equipment, etc. This may cause discoloration.
- If the product is heavily dirty, soap a soft cloth with water and household soap, wipe the surface gently, then wipe it off with a clean, soft cloth and dry it. When using alcohol, wipe it off with a soft cloth impregnated with ethanol, which is commonly used to disinfect hands, etc., then wipe it off with a dry soft cloth and dry it. Use of other alcohols may cause discoloration.
- Do not touch the adhesive surface. It may cause adhesive strength to weaken and also appearance defects.
- Please note that if the area where the anti-viral & anti-bacterial film is attached is covered with bezel, it will be difficult to re-attach the film.
- When attaching the anti-viral & anti-bacterial film, make sure to avoid foreign substance from getting into. Bubbles will occur around the foreign substance.

5.3 About Anti-viral

- Inorganic anti-viral agent, kneading ,surface layer:JP0612499X0001N
- SIAA mark is displayed on products that are subject to quality control and information disclosure in accordance with the guidelines of the Society of International sustaining growth for Antimicrobial Articles, based on the results of evaluation in accordance with the ISO 21702 method.
- This product is not a pharmaceutical product.
- This product does not reduce all viruses.
- It uses antiviral materials that meet the safety standards of SIAA.

- It meets SIAA safety standards.
- Anti-viral processing is not intended to treat or prevent disease.

5.4 About Anti-bacterial

- Inorganic anti-bacterial agent, kneading, surface layer: JP0122499X0001J.
- SIAA mark is displayed on products that are subject to quality control and information disclosure in accordance with the guidelines of the Society of International sustaining growth for Antimicrobial Articles, based on the results of evaluation in accordance with the ISO 22196 method.
- This product is not a pharmaceutical product.
- This product does not reduce all bacteria.
- It uses antibacterial materials that meet the safety standards of SIAA.”

5.5 Attaching Notes

Please refer to the separate document, [Usage Notes].

6. Storage Method

- Store it in a cool and dark place indoors. (Reference for storage temperature 5-30°C, relative humidity 50%RH or less.
- Getting wet in water is prohibited.

7. Warranty

7.1 Warranty Period

- The warranty period is limited to 6 months from the date of shipment as the product is stored under the condition described in the section 5.
- The replacement is subject to be included in the next lot.

7.2 Warranty Target

- The warranty only covers the product itself and does not cover any damage to others caused by using this product. Onsite repair or replacement is not supported.
- We will do our best for delivery problem and product defections, but the warranty for the production line is not covered.
- Anti-viral & anti-bacterial films are not repairable. All defections are subject to replacement.

7.3 Warranty Exceptions

Following conditions are not covered with the warranty and subject to charge.

- Any malfunction and damage during transportation and transfer by the user.
- Any malfunction and damage caused by a natural disaster or a fire.
- Any malfunctions and damages caused by static electricity.
- Any malfunctions and damages caused by the failure of the associated equipment.
- If the product is remodeled, disassembled or repaired by the user.
- If the product is glued onto the equipment and uninstalled.
- In the case of damage caused by handling that is contrary on the instructions of usage.

- Any malfunction and damage caused by an improper usage and handling against the specifications and notes.

7.4 Changes

- Standard products are subject to change for improvement without notice.

7.5 RoHS Compliance

- This product complies with RoHS.

8. Revision History

Revision	Date	Description / Reason
1	July, 16, 2021	First Revision
2	March 23, 2022	<p>Changed the following content to comply with the SIAA Advertising Expression Guidelines:</p> <p>2.7 Anti-viral Performance : Changed the representation of the virus species, and revised the anti-viral activity values.</p> <p>2.8 Anti-bacterial : Changed the representation of the fungal species, and revised the anti-bacteria activity values.</p> <p>5.3 About Anti-viral : Revised the phrase from “inactivate” to “reduce”.</p> <p>5.4 About Anti-bacterial : Revised the phrase from “inactivate” to “reduce”.</p>
3	February 3, 2023	Website address change

DMC Co., Ltd.

<https://www.dush.co.jp/english>

11F Takanawa Sengakuji Ekimae Bldg., 2-18-10 Takanawa, Minato-ku, Tokyo 108-0074, Japan

Phone: +81-3-6721-6731 (Japanese), 6736 (English) Fax: +81-3-6721-6732