

ITOFINISH LJGF is an antibacterial agent derived from completely the natural and safe extract of grapefruit seeds and citrus grandis.

## PROPERTIES

- **Appearance** : Transparent Liquid
- **Main Ingredient** : Grapefruit seed extract
- **Ionic Character** : Cationic
- **Solubility** : Easily soluble in water
- **pH** : Ca. 3

## APPLICATION

### In Padding:

- **ITOFINISH LJGF** : 5-10 g/l
- **ITOBINDER GHS** : 10g/l
- **Drying** : 110°C for 3 min.
- **Curing** : 160°C for 1 min.

### In Exhaustion

- **ITOFINISH LJGF** : 0.5-1.0 %
- **Liquor Ratio** : 10:1, at 40°C for 20 min.
- **Drying** : 110°C for 3 min.
- **Curing** : 160°C for 1 min

## CHARACTERISTICS

1. Extremely safe product made from natural fruit ingredients
2. Only a small dose is required to impart an excellent antibacterial effect to treated fabrics
3. Imparts deodorising properties to treated fabrics
4. Does not cause yellowing caused by NOx
5. Does not impart an odour onto treated fabric
6. Particularly useful for medical end uses due to its natural fruit ingredients
7. Due to European legislation this product is not available for processing within Europe due to being unregistered under the Biocidal Products Regulations.

## DISCLAIMER

The information herein offered is based on the best of our knowledge at present. However, we are not able to guarantee these matters, as the result of application may vary according to conditions adopted. Preliminary tests are, therefore, recommended in all cases. Please refer to MSDS regarding handling of the products.

## APPENDIX

### Antibacterial activity test

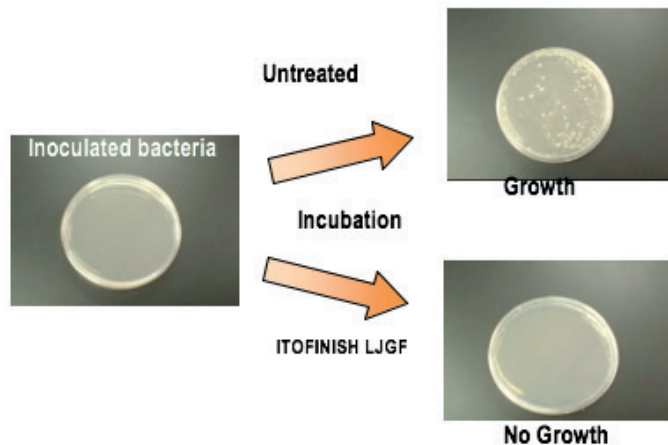
#### 1. Process conditions and test result

- **Fabric:** Cotton knitted cloth, polyester tropical
- **Application:** Pad, Dry (110°C x 3 minutes), Cure (160°C x 1 minute)
- **Pickup:** (Pickup: Cotton = 83% and Polyester = 80%)

		Cotton knitted	Polyester tropical
ITOFINISH LJGF		10g/l	10g/l
ITOBINDER GHS		-	10g/l
Antibacterial test: Bacteriostatic activity ratio $\geq$ 2.2	Initial	>4.0	>4.0
	HL-30	>4.0	>4.0
	HL-40	3.8	>4.0
	HL-50	1.1	>4.0

A result of 2.2 or more is considered good antibacterial effect.

#### 2. Details of antibacterial test



- 1) Species of bacteria: Staphylococcus Aureus FO-12732
- 2) Antibacterial test: Conformed to test method of JTETC (with detergent conformed to JAFET)
- 3) Test method: Administer the bacterial broth to sterile a sample plate, put it in an air-tight container, incubate at 37°C for 24 hours, and determine the number of active bacteria. Then evaluate the number of bacteria by bacteriostatic activity ratio to the number of bacteria on untreated cloth.

## APPENDIX

### Resistance to washing of antibacterial effect of ITOFINISH LJGF

Sample: Cotton knitted cloth treated in padding process

	Dosage (%)	Bacteriostatic activity ratio	Number of washes
ITOFINISH LJGF (only)	0.5	4 or more 4 or more 4 or more 1.4	(initial) (black)* 2 % fixing agent was used) (HL-10) (HL-20) (HL-30)
	1.0	3.8 1.1	(HL-40) (HL-50)
ITOFINISH LJGF ITOBINDER GHS	1.0 1.0	4 or more 4 or more	(HL-40) (HL-50)

Laundry test: Conformed to test method of JTETC (with detergent conformed to JAFET)

Species of bacteria: Staphylococcus Aureus FO-12732

Evaluation: Conformed to standard of JTETC (bacteriostatic activity ratio  $\geq 2.2$ )

### Antifungal effect of ITOFINISH LJGF

Test Material : Insoles of shoes

Recipe : 100g/l ITOFINISH LJGF  
100g/l ITOFINISH COOL LJ8  
20g/l ITOFINISH COOL LJ1

Test Fungus : Trichophyton mentagrophytes NBRC 32409

Test Method : JTETC method using Luminescence measuring method of ATP amount

Results:

ATP amount of inoculated fungus (log)	[A]	-12.1	(log b - log a)
ATP amount of inoculated fungus in untreated control after 42h incubation (log)	[B]	-9.9	2.2

Test Sample	Log (ATP amount)		Antifungal activity value
Treated fabric	[B]	-13.2	2.5
	[C]	-1.5	