April 19th, 2016
Oji Holdings Corporation
Oji Kinocloth Co., Ltd.
http://www.ojiholdings.co.jp/

Oji Group Companies Develop Antibacterial Sheet with Antibacterial Agent Derived from Scallop Shells

Oji Holdings Corporation and its fully-owned subsidiary Oji Kinocloth Co., Ltd. (Head Office: Fuji, Shizuoka) have developed an antibacterial sheet made with a material derived from scallop shells. Through Oji Kinocloth, the companies will launch the manufacture and sales of fabric winding rolls under the product line "NURASUTO!"*1

The new types of antibacterial sheet exhibits exceptional antibacterial effects after coming into contact with moisture, and can be developed into a variety of products that require a sterilization effect.

*1 Trademark registration pending

1. Background to development of the new product

Observing the antibacterial effect manifested by the sintering of scallop shells, Oji Kinocloth undertook research into the whether sheets could be imbued with that effect, and succeeded in creating antibacterial sheets of nonwoven fabric. Through application of the TDS process,*2 an original technology of Oji Kinocloth, the company has succeeded in developing a sheet with powerful antibacterial properties, and has decided to manufacture and market the product. Its antibacterial component is the same as the sintered shell used as a food additive.

*2 TDS (Totally Dry System) process: An air-laid method for dry nonwoven cloth manufacturing using no water. An original process of Oji Kinocloth, it is able to create sheets from granular material or fibers without damaging their functionality.

2. Characteristics of NURASUTO! Antibacterial Sheet

-Diverse antibacterial effects

Effective against a wide range of organisms from commonplace bacteria to viruses, and including noroviruses,*3 fungus, and the bacteria that cause food poisoning.

-Excellent storage stability

Exhibits the NURASUTO! effect without loss when kept out of contact with water, enabling long-term storage. *4 The sheets are dry, making them convenient to carry.

-Naturally derived, non-chlorine-based component

Exhibits the same effects as chlorine-based chemicals*5 but without metal corrosivity, removing the need for wiping away chemicals. It is also odorless, enabling easy and certain disinfection in a wide range of environments.

*3 Alternative evaluation conducted with feline calicivirus.
*4 While general wet wipes exhibit liquid-based antibacterial effects that are lost when the liquid dries, thus presenting concerns with storage stability, NARASUTO! sheets do not lose efficacy unless moistened with water.
*5 Evaluated according to JIS L1902 for typical bacteria.

■ Antibacterial, antivirus, and antifungal efficacy

Antibacterial experiments: Evaluation of wet sheets

・ Experimental method: JIS L1902 bacterial suspension absorption method

Antibacterial experiments	Bactericidal activity value
Staphylococcus aureus	2.8
Escherichia coli	3.2 or higher
Pseudomonas aeruginosa	3.1 or higher
Serratia marcescens	2.7
MRSA	2.7
Salmonella enteritidis	3.2 or higher
O-157	3.2 or higher
Vibrio parahaemolyticus	2.1

Value of 0 or higher indicates considerably high level of effect

Antiviral experiments: Evaluation of wet sheets

・ Experimental method: ISO 18184 experimental method for antiviral activity of textile products

・ Viruses targeted by experiment: Feline calicivirus (norovirus substitute)

Antiviral experiment	Viricidal activity value
Feline calicivirus	3.8 or higher

Value of 3.0 or higher indicates considerably high level of effect

Fungal resistance experiment

・Experimental method: JIS Z2911

Fungal resistance experiment		Fungal resistance
Application of wet process	Mixture of 4 types of JIS-specified fungi	O
Dry process	Mixture of 4 types of JIS-specified fungi	O

・ O indicates no growth of hyphae seen
・ Pre-treatment rinsing not performed in wet process

3. Hypothetical use cases

・Sanitizing wipes (used after moistening with water)

Sanitizing wipes for use in food processing plants, sports gyms, hospitals, nursing care facilities, and public facilities (day care centers, libraries, etc.)

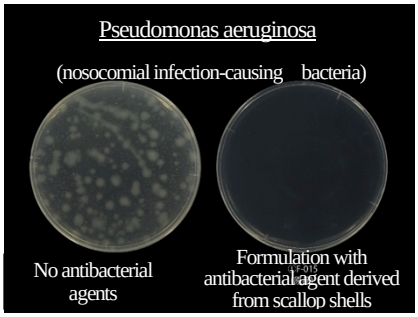
Wiping sheets for use after clean-up of vomit/excreta

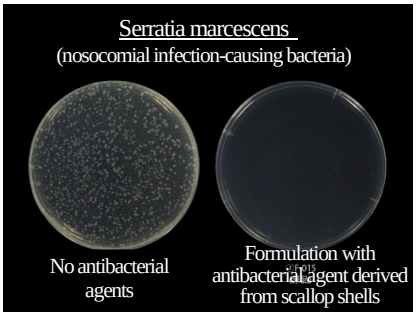
・ Sheets to prevent bacterial growth (used as-is, without moistening)

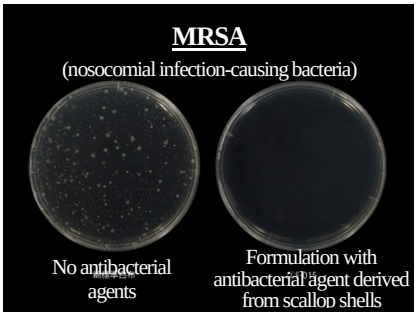
Inserted as-is into receptacles for food wastes to prevent offensive odors from bacteria

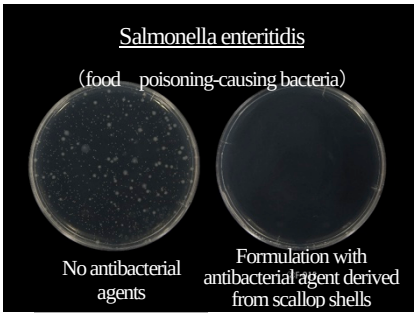
■ Antibacterial test with evaluation by Kaken Test Center

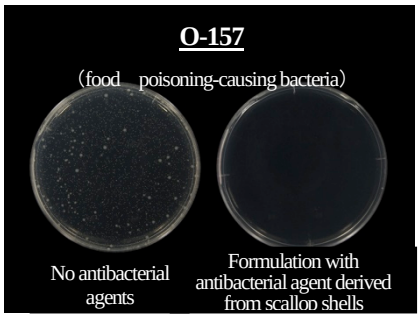
JIS L1902 bacterial suspension absorption method (after 18 hours of cultivation)

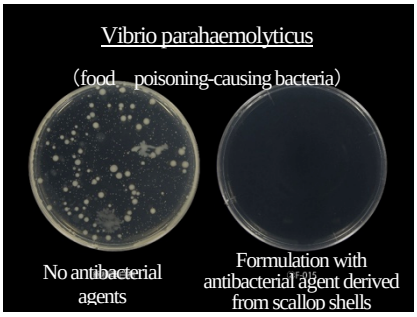


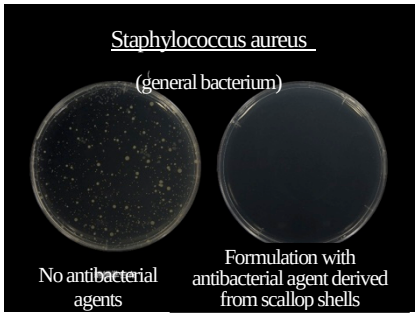


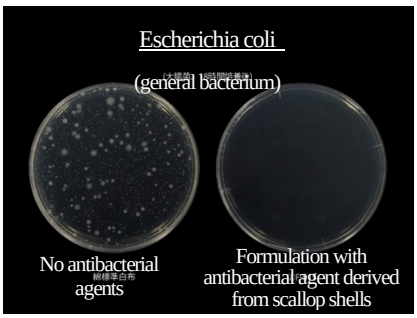












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