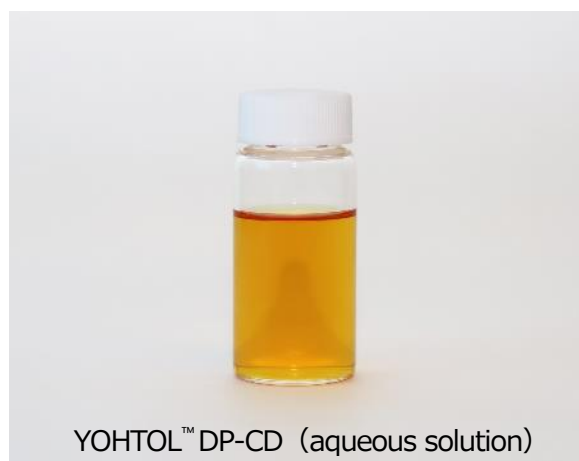


**Giving New Capabilities to Iodine-Based Anti-Mold Agent Yohtol™ DP95
Mitsui Chemicals Develops YOHTOL™ DP-CD as
Water-Soluble Antibacterial, Anti-Mold Agent
Granting Antibacterial and Anti-Mold Properties to Resins, Textiles, Paints, Adhesives**

Mitsui Chemicals, Inc. (Tokyo: 4183; President & CEO: Tsutomu Tannowa) announced that it has worked in conjunction with CycloChem Bio Co., Ltd. (Kobe, Japan; President: Kunihiro Terao) to develop YOHTOL™ DP-CD, a product formed by adding new capabilities to the YOHTOL™ DP95 of iodine-based anti-mold agents manufactured and sold by Mitsui Chemicals.

Made by combining Mitsui Chemicals' iodine-based anti-mold agent YOHTOL™ DP95 with cyclodextrin from CycloChem Bio, YOHTOL™ DP-CD is a new antibacterial, anti-mold aqueous solution with the properties of water solubility, light resistance, heat resistance and antibacterial performance. With these coming on top of the same high anti-mold capabilities provided by the existing YOHTOL™ DP95, expectations are for the product to find use in a variety of new applications. Mitsui Chemicals intends going forward to market this for use with the likes of resins, textiles, water-based paints and adhesives, helping to further improve living conditions.



■ **Overview of YOHTOL™ DP95** (active ingredient: diiodomethyl-p-tolyl sulfone (DMTS))

Mitsui Chemicals began production and sales in 1985 for YOHTOL™ DP95, an anti-mold agent that excels at inhibiting the breeding of a wide range of mold species. The product is used in wood preservation, paints, leather, wallpaper and more. YOHTOL™ DP95 is registered on a positive list for anti-mold agents by the Society of International Sustaining Growth for Antimicrobial Articles (SIAA), and its active ingredient, DMTS, is similarly registered on a positive list run by the U.S. Food and Drug Administration (FDA).

■ Overview of New Product YOHTOL™ DP-CD

YOHTOL™ DP-CD is a new antibacterial, anti-mold aqueous solution made by encapsulating YOHTOL™ DP95 with CycloChem Bio's cyclodextrin, which is a type of cyclic oligosaccharide. Cyclo-encapsulating in this manner has been found to successfully grant water solubility while also improving light resistance and heat resistance.

On top of its anti-mold properties, YOHTOL™ DP-CD has been found to also possess antibacterial qualities with regard to various bacteria, including *Escherichia coli* and *Staphylococcus aureus*. The one agent can therefore prove effective against a wide range of bacteria and mold varieties. And so in addition to the wood preservatives, dispersing agents, adhesives and other existing applications available with YOHTOL™ DP95, the new product also has potential in a wide range of other uses. Examples here are water-based paints, resin and textile applications.

■ Anti-Mold and Antibacterial Performance of YOHTOL™ DP Series

(Internal test data; MIC test by way of liquid culture; Test laboratory: Center for Fungal Consultation Japan)

Bacteria strain		Minimal inhibitory concentration (MIC)*, ppm	
		YOHTOL™ DP95	YOHTOL™ DP-CD
Anti-mold performance	<i>Aspergillus niger</i>	0.3	0.2
	<i>Cladosporium cladosporioides</i>	1.6	0.5
Antibacterial performance	<i>Bacillus subtilis</i>	2,000	16
	<i>Escherichia coli</i>	8,000	63
	<i>Staphylococcus aureus</i>	250	16
	<i>Methylobacterium sp.</i>	16	16

*MIC: The minimum concentration of a substance able to inhibit the breeding of microbes. The lower the value is, the lower the concentration needed to inhibit breeding.

-The above values refer to concentration of active ingredient DMTS. Further, these values represent data on the YOHTOL™ DP Series as a standalone product. If the product is combined with other ingredients, it will be necessary to remeasure antibacterial performance and other such values.

-These values are meant to serve as a reference; they are not a guarantee.

■ CycloChem Bio (URL: <http://www.cyclochem.com/cyclochembio/en/>)

An affiliate of CycloChem Co., Ltd., a leading seller of cyclodextrin, CycloChem Bio has a research and development laboratory, and engages in applied research on cyclodextrin as well as the development and sales of various cyclodextrin inclusion complexes, the contract manufacturing of health foods and cosmetics, and the development and sales of products incorporating cyclodextrin.