

# Triclosan

## WHAT IS TRICLOSAN?

Triclosan is an antibacterial chemical used to kill bacteria in a wide range of consumer products including soaps, deodorants, cosmetics, cleansing lotions, toothpaste, plastics, and fabrics.<sup>1,2</sup> Antimicrobial pesticides, such as triclosan, are made to destroy or suppress the growth of microorganisms and are regulated by the Environmental Protection Agency. However, when triclosan is used in products intended for contact with the human body (i.e. personal care products such as soaps, antiseptics, and toothpaste) or in food or food wrappers, it is not considered a "pesticide" by U.S. law and is regulated by the Food and Drug Administration.<sup>3</sup>

Triclosan is mostly used in consumer products that are disposed of down drains. Wastewater treatment plants do not completely remove triclosan from the water before it is released. Thus, triclosan is thought to be found everywhere throughout the environment and the water cycle. Between 1999 and 2000 the U.S. Geological Survey tested water samples for 95 different chemicals including triclosan, which was among the most often found chemicals and had some of the highest levels.<sup>4</sup>

## HOW ARE WE EXPOSED TO TRICLOSAN?

Although triclosan was developed more than 30 years ago, over the last 10 years there has been a big increase in consumer products that contain triclosan.<sup>5,6</sup> Daily exposure to consumer products that contain

triclosan (including at least one brand of toothpaste, skin-care products, and other household products) is most likely the main source of exposure for the U.S. population.<sup>7</sup> A number of companies that make toothpaste and soap products with triclosan claim that the active ingredient continues to work for up to 12 hours following use. As a result, consumers are exposed to triclosan long after the few minutes it takes to wash their hands or brush their teeth.<sup>2</sup> Triclosan can be absorbed through the skin, mouth, and nose.<sup>7,8</sup>

## TRICLOSAN IN OUR BODIES

In an on-going nationwide study of exposure of the U.S. population to environmental chemicals, scientists from the Centers for Disease Control and Prevention measured samples taken from 2003-2004 for triclosan in 2,517 people and found that 74.6% had detectable levels of triclosan in their urine.<sup>7</sup>

In a pilot study of 90 girls ages 6-9 years old, triclosan levels in their urine were detected in 67.8%.<sup>9</sup>

Triclosan has also been found in the breast milk and plasma of breast-feeding mothers. In one study that collected and tested the breast milk and plasma of 36 mothers for triclosan, those who used personal care products containing triclosan had higher levels suggesting that consumer products are a main source of exposure.<sup>10</sup>

## **SYMPTOMS & HEALTH OUTCOMES**

In acute toxicological studies, triclosan has been found to have low toxicity to humans and other mammals.<sup>11</sup> However, many cases of skin irritation and eczematous rash resulting from skin contact with products containing triclosan have been reported.<sup>12</sup> Long-term chronic exposures to triclosan may result in more serious health outcomes.

### **Thyroid Disruption:**

The thyroid gland regulates development and metabolism. Because triclosan is structurally similar to thyroid hormone and has been shown to build up in the bodies of certain fish, it may disrupt normal growth and development in humans and wildlife. One study showed that triclosan interfered

with the thyroid hormone in frogs and affected the timing of metamorphosis in tadpoles with levels commonly found in the environment.<sup>13</sup>

### **Allergies:**

The overuse of triclosan (and other antibacterial chemicals) may be linked to increased allergies and asthma.<sup>2</sup>

### **Follow Up Action**

- If you think your patient may have been exposed to triclosan, refer patient to a physician.
- Long-term exposure can be addressed by treating the symptoms and informing patients about ways to limit future exposure to triclosan (see "Reducing Your Exposure" section below).

## **Products Containing Triclosan**



**SOAP:** Dial® Liquid Soap; Softsoap® Antibacterial Liquid Hand Soap; Tea Tree Therapy™ Liquid Soap; Provon® Soap; Clearasil® Daily Face Wash; Dermatologica® Skin Purifying Wipes; Clean & Clear Oil Free Foaming Facial Cleanser; DermaKleen™ Antibacterial Lotion Soap; Naturade Aloe Vera 80® Antibacterial Soap; CVS Antibacterial Soap; pHisoderm Antibacterial Skin Cleanser;

Dawn® Complete Antibacterial Dish Liquid; Ajax® Antibacterial Dish Liquid.

**DENTAL CARE:** Colgate Total®; Breeze™ Triclosan Mouthwash; Reach® Antibacterial Toothbrush; Janina Diamond Whitening Toothpaste.

**COSMETICS:** Supre® Café Bronzer™; TotalSkinCare Makeup Kit; Garden Botanika® Powder Foundation; Mavala Lip Base; Jason Natural Cosmetics; Blemish Cover Stick; Movate® Skin Lightening Cream HQ; Paul Mitchell Detangler Comb; Revlon ColorStay LipSHINE Lipcolor Plus Gloss, Dazzle.

**DEODORANT:** Old Spice High Endurance Stick Deodorant; Right Guard Sport Deodorant; Queen Helene® Tea Tree Oil Deodorant and Aloe Deodorant; Nature De France Le Stick Natural Stick Deodorant; DeCleur Deodorant Stick; Epoch® Deodorant with Citrisomes; X Air Maximum Strength

Deodorant.

**OTHER PERSONAL CARE PRODUCTS:** Gillette® Complete Skin Care MultiGel Aerosol Shave Gel; Murad Acne Complex® Kit; Diabet-x™ Cream; T.Taio™ sponges and wipes, Aveeno Therapeutic Shave Gel.

**FIRST AID:** SyDERMA® Skin Protectant plus First Aid Antiseptic; Solarcaine® First Aid Medicated Spray; Nexcare™ First Aid, Skin Crack Care; First Aid/Burn Cream; HealWell® Night Splint; 11-1X1: Universal Cervical Collar with Microban.

**KITCHENWARE:** Farberware® Microban Steakknife Set and Cutting Boards; Franklin Machine Products FMP Ice Cream Scoop SZ 20 Microban; Hobart Semi-Automatic Slicer; Chix® Food Service Wipes with Microban; Compact Web Foot® Wet Mop Heads.

**COMPUTER EQUIPMENT:** Fellowes Cordless Microban Keyboard and Microban Mouse Pad.

**CLOTHES:** Teva® Sandals; Merrell Shoes; Sabatier Chef's Apron; Dickies Socks; Biofresh® socks.

**CHILDRENS TOYS:** Playskool®: Stack 'n Scoop Whale, Rockin' Radio, Hourglass, Sounds Around Driver, Roll 'n Rattle Ball, Animal Sounds Phone, Busy Beads Pal, Pop 'n Spin Top, Lights 'n Surprise Laptop.

**OTHER:** Bionare® Cool Mist Humidifier; Microban® All Weather Reinforced Hose; Thomasville® Furniture; Deciguard AB Ear Plugs; Bauer® 5000 Helmet; Aquatic Whirlpools; Miller

Paint Interior Paint; QVC® Collapsible 40-Can Cooler; Holmes Foot Buddy™ Foot Warmer; Blue Mountain Wall Coverings; California Paints®; EHC AMRail Escalator Handrails, Dupont™ Air Filters,

Durelle™ Carpet Cushions; Advanta One Laminate Floors; San Luis Blankets; J Cloth® towels, JERMEX mops.

## REDUCING OUR EXPOSURE

You can prevent or minimize your exposure to triclosan in the following ways:

- Keep clean without using antimicrobials: Wash hands often and thoroughly. Lather hands for at least 10 to 15 seconds and rinse with warm water. Regular soap lowers the surface tension of water and washes away unwanted bacteria.
- Wash hands often, especially when handling food, before you eat, after you go to the bathroom, or when you are around someone who is sick.
- Dry hands with a clean towel to help remove any germs that did not get washed away.
- Wash children's hands and toys often.
- Since triclosan is almost always found in personal care products, make sure to read all the ingredients when buying these products. **Triclosan is also called Microban, Irgasan, Lexol, Ster-Zac, Cloxifenolium, and Biofresh.**
- Australian tea tree oil and grapefruit seed extract have natural antimicrobial properties and are included in some soaps.

<sup>1</sup> National Library of Medicine. 2007. Household Products Database. Bethesda, MD:National Library of Medicine, National Institutes of Health. Available: <http://hpd.nlm.nih.gov/index.htm>. Accessed June 4, 2008.

<sup>2</sup> Glaser, Aviva. 2007. The ubiquitous triclosan: A common antibacterial agent exposed. *Pesticides and You* Vol. 24, No. 3: 12-17.

<sup>3</sup> Environmental Protection Agency. April 17, 2008. Memorandum. Subject: 5-Chloro-2-(dichlorophenoxy)phenol (Triclosan): Risk Assessment for the Reregistration Eligibility Decision (RED) Document. Case No 2340. PC Code: 054901. DP Barcode: 373535. Available : <http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&d=EPA-HQ-OPP-2007-0513-0002>. Accessed June 3, 2008.

<sup>4</sup> Kolpin, DW, Furlong ET, Meyer MT, Thurman EM, et al. 2002. Pharmaceuticals, Hormones, and other organic wastewater contaminants in U. S. streams, 1999-2000: A national reconnaissance. *Environmental Science Technology* 36:1202-1211.

<sup>5</sup> Ciba. Triclosan Information: History. June 2008. Available: [http://www.ciba.com/index/ind-index/ind-per\\_car/ind-pc-ah/ind-pc-triclosan/ind-pc-triclosan-triclosan-101/ind-pc-triclosaninfo-101-history.htm](http://www.ciba.com/index/ind-index/ind-per_car/ind-pc-ah/ind-pc-triclosan/ind-pc-triclosan-triclosan-101/ind-pc-triclosaninfo-101-history.htm). Accessed June 3, 2008.

<sup>6</sup> American Medical Association. 2000. Use of Antimicrobials in Consumer Products (CSA Rep. 2, A-00). Summaries and Recommendations of Council on Scientific Affairs Report.

<sup>7</sup> Calafat A, et al. 2008. Urinary Concentrations of Triclosan in the U.S. Population: 2003-2004. *Environmental Health Perspectives* 116(3):303-307.

<sup>8</sup> Environmental Protection Agency. April 17, 2008. Memorandum. Subject: 5-Chloro-2-(dichlorophenoxy)phenol (Triclosan): Risk Assessment for the Reregistration Eligibility Decision (RED) Document. Case No 2340. PC Code: 054901. DP Barcode: 373535. Available: <http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&d=EPA-HQ-OPP-2007-0513-0002>. Accessed June 3, 2008.

<sup>9</sup> Wolff MS, Teitelbaum SL, Windham G, Pinney SM, Britton JA, Chelimo C, et al. 2007. Pilot study of urinary biomarkers of phytoestrogens, phthalates, and phenols in girls. *Environ Health Perspect* 115:116-121.

<sup>10</sup> Allmyr M, et al. 2006. Triclosan in plasma and milk from nursing Swedish nursing mothers and their exposure via personal care products. *Science of the Total Environment* 372:87-93.

<sup>11</sup> Environmental Protection Agency. April 17, 2008. Memorandum. Subject: 5-Chloro-2-(dichlorophenoxy)phenol (Triclosan): Risk Assessment for the Reregistration Eligibility Decision (RED) Document. Case No 2340. PC Code: 054901. DP Barcode: 373535. Available: <http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&d=EPA-HQ-OPP-2007-0513-0002>. Accessed June 3, 2008.

<sup>12</sup> Wong, CSM and MH Beck. 2001. Allergic contact dermatitis from triclosan in antibacterial handwashes. *Contact Dermatitis* 45 (5) 307.

<sup>13</sup> Veldoen N, et al. 2006. The bactericidal agent triclosan modulates thyroid hormone-associated gene expression and disrupts postembryonic anuran development. *Aquatic Toxicology* 80(2006) 217-227.