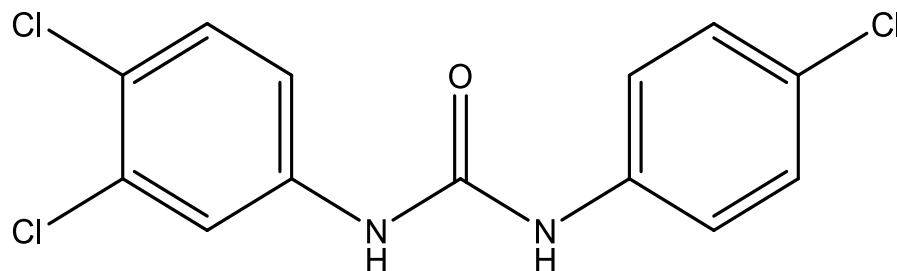


Potential Designated Chemical Triclocarban (TCC)



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Use and exposure

- ▶ Widely used antibacterial agent
 - Bar and liquid soaps and body washes
 - Production/import volume
 - 2002: 1–10 million pounds
 - 2005: <500,000 pounds
- ▶ Primary human exposure via personal care products

Environmental occurrence

Incomplete removal by wastewater treatment processes

- ▶ Found in surface waters
- ▶ Most sequestered in sewage sludge
 - Incomplete degradation
 - Biosolids land application

Known or suspected health effects

- ▶ Studies relevant to endocrine disruption
 - Amplification of steroid hormone action
 - *In vitro* studies
 - In rats, amplification of testosterone effects
 - Estrogenic effects in freshwater mudsnail
- ▶ Possible presence of chloroanilines

Physical chemical properties

Property	Value
Molecular weight	315.59 g/mol
Vapor pressure	3.45×10^{-13} mm Hg at 25°C (experimental) 3.61×10^{-9} mm Hg at 25°C (estimated)
Water solubility	0.046±0.004 mg/L at 25°C (experimental) 0.11 mg/L at 20°C (experimental) 0.0237 mg/L at 25°C (estimated)
Octanol/water partition coefficient (Log K _{ow})	3.5±0.06 (experimental) 4.2 (experimental) 4.9 (estimated)

Persistence and bioaccumulation

▶ Persistence:

- Half-life of 87–231 days in soil

▶ Bioaccumulation

- Aquatic organisms:
 - Catfish (low bioconcentration factor reported)
 - Algae
 - Freshwater snail
 - Sediment-dwelling worm
- Terrestrial organisms: no studies identified

Pharmacokinetics and metabolism

Findings of early studies:

- ▶ Dermal absorption after showering
 - 0.39% of applied dose in urine and feces
- ▶ Excretion
 - After oral or dermal dose
 - N- and N'-glucuronides primary urinary metabolites
 - ~25% of dose excreted in urine

Biomonitoring studies

After showering with TCC soap:

- ▶ N- and N'-glucuronides identified in urine
- ▶ Gruenke et al. (1987)
 - Average levels, 30 $\mu\text{g/L}$
- ▶ UC Davis, current research
 - Detected in all subjects (n=6)
 - Peak concentration 6–24 hours after showering
 - Concentration at peak: ~ 35 – ~ 300 $\mu\text{g/L}$

Biomonitoring studies (cont.)

- ▶ TCC not detected in breast milk (Ye et al., 2006)
- ▶ CDC has not included TCC in biomonitoring studies released to the public

Laboratory analysis

- ▶ Biomonitoring California would need to develop analytical methods
 - Methods for urine sample preparation developed
- ▶ Analysis could be bundled with triclosan and certain other environmental phenols

Need to assess efficacy of public health actions

- ▶ Widely used, persistent in the environment
- ▶ Absorption from common products established
- ▶ Concerns for endocrine disruption
- ▶ Biomonitoring would:
 - Help assess extent and level of exposure in California
 - Evaluate the need for further action