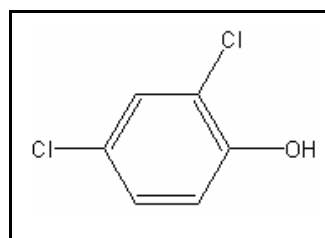




## TIER I HUMAN HEALTH NONCANCER CRITERIA

### 2,4-DICHLOROPHENOL

CAS RN:	120-83-2
Water Solubility:	0.45 g/100 mL
Log $K_{ow}$ :	1.85 <sup>P</sup>
Reference Dose:	$3 \times 10^{-3}$ mg/kg/day
Carcinogenicity Weight-of-Evidence Classification:	None



### Standard

The human health noncancer 2,4-dichlorophenol criterion for drinking water sources is 71  $\mu\text{g/L}$ .  
The human health noncancer criterion for nondrinking water sources is 450  $\mu\text{g/L}$ .

### Calculations

#### Bioaccumulation Factor:

BAF predicted based on Log  $K_{ow}$

Log  $K_{ow}$  = 2.92 (CLOGP),  $K_{ow}$  = 831.8

Trophic level 3 FCM = 1.028; trophic level 4 FCM = 1.007

$$f_{fd} = 1/(1+(0.00000024 \text{ kg/L})(K_{ow})) = 1.00$$

$$\text{Baseline BAF}_{T3} = (\text{FCM})(K_{ow}) = (1.0)(831.8) = 855.1$$

$$\text{Baseline BAF}_{T4} = (1.0)(831.8) = 837.6$$

$$\text{Human health BAF}_{T3} = [(855.1)(0.0182)+1](1.00) = 16.56$$

$$\text{Human health BAF}_{T4} = [(837.6)(0.0310)+1](1.00) = 26.96$$

Acceptable Daily Exposure:

From the IRIS database:

Critical Effect: Decreased delayed hypersensitivity response

$$\text{ADE} = \frac{\text{NOAEL}}{\text{UF}} = \frac{0.3 \text{ mg/kg-day}}{100} = 0.003 \text{ mg/kg/d}$$

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HNC} &= [(0.3)(70)(0.8)]/0.01 + [(0.0036)(16.56) + (0.0114)(26.96)] \\ &= 71 \mu\text{g/L} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HNC} &= [(0.05)(70)(0.8)]/2 + [(0.0036)(16.56) + (2.698)(26.96)] \\ &= 450 \mu\text{g/L} \end{aligned}$$

**References**

1. USEPA 1988. Integrated Risk Information System (IRIS database) chemical file for 2-methylphenol (120-83-2).
2. Leo, A. and D. Weininger 1997. Daylight Software CLogP Version 3.15+ for Unix Pomona Medical Chemistry Project, Pomona College, Claremont, CA. Distributed by Daylight Chemical Information Systems, Inc., 3952 Claremont St., Irving, CA 92714 (Reference for the Log K<sub>ow</sub>)

**Acronyms/Abbreviations**

ADE	Acceptable Daily Exposure
BAF	Bioaccumulation Factor
CAS RN	Chemical Abstract Service Registry Number
FCM	Food Chain Multiplier

IRIS	Integrated Risk Information System
K <sub>ow</sub>	Octanol-Water Partition Coefficient
LOAEL	Lowest observed adverse effect level
NOAEL	No observed adverse effect level
P (superscript)	Predicted value
UF	Uncertainty factor

## Revision History

September 9, 1999 - Criteria first developed

November 22, 1999 - Fact sheet updated to new design

## Contact Information

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