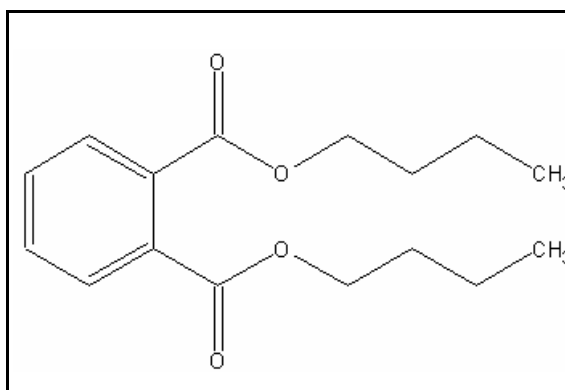




## TIER II HUMAN HEALTH NONCANCER VALUES

### DIBUTYL PHTHALATE

CAS RN:	84-74-2
Water Solubility:	13 mg/L
Log $K_{ow}$ :	5.15
Reference Dose:	0.125 mg/kg/day
Carcinogenicity Weight-of-Evidence Classification:	None



### Standard

The human health noncancer di-n-butyl phthalate value for drinking water sources is 31  $\mu\text{g/L}$ .  
The human health noncancer value for nondrinking water sources is 31  $\mu\text{g/L}$ .

### Calculations

#### Bioaccumulation Factor:

BAF predicted based on Log  $K_{ow}$  (from Stephan 1993)

Log  $K_{ow}$  = 5.15 (RPLC method),  $K_{ow}$  = 141,254

Trophic level 3 FCM = 4.188; trophic level 4 FCM = 3.873

$$f_{fd} = 1/(1+(0.00000024 \text{ kg/L})(K_{ow})) = 0.967$$

$$\text{Baseline BAF}_{T3} = (\text{FCM})(K_{ow}) = (4.188)(141,254) = 591,572$$

$$\text{Baseline BAF}_{T4} = (3.873)(141,254) = 547,077$$

$$\text{Human health BAF}_{T3} = [(591,572)(0.0182)+1](0.967) = 10,412$$

$$\text{Human health BAF}_{T4} = [(547,077)(0.0310)+1](0.967) = 16,401$$

Acceptable Daily Exposure:

From the IRIS database:

Critical Effect: Increased mortality

$$\text{ADE} = \frac{\text{NOAEL}}{\text{UF}} = \frac{125 \text{ mg/kg-day}}{1000} = 0.125 \text{ mg/kg/d}$$

Calculation of Criteria:

$$\begin{aligned} \text{Non Drinking Water HNV} &= [(0.125)(70)(0.8)]/0.01+[(0.0036)(10,412)+(0.0114)(16,401)] \\ &= 31 \mu\text{g/L} \end{aligned}$$

$$\begin{aligned} \text{Drinking Water HNV} &= [(0.125)(70)(0.8)]/2+[(0.0036)(10,412)+(0.0114)(16,401)] \\ &= 31 \mu\text{g/L} \end{aligned}$$

## References

1. Stephen, C.E. 1993. Derivation of Proposed Human Health and Wildlife Bioaccumulation Factors for the Great Lakes Initiative. Environmental Research Laboratory, Office of Research and Development, U.S. EPA, Duluth, MN.
2. USEPA 1990. Integrated Risk Information System (IRIS database) chemical file for dibutyl phthalate (CAS # 84-74-2).
3. Veith, G.D., N.M. Austin, and R.T. Morris 1979. A rapid method for estimating Log P for organic chemicals. Water Res. 13: 43-47.

## Acronyms/Abbreviations

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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

July 9, 1997 - Values first developed

April 13, 2000 – Fact sheet updated. No modifications made to values.

## Contact Information

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