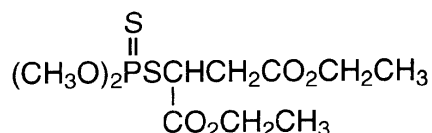


## NOME COMUNE: MALATHION

### FORMULA DI STRUTTURA:



**Classe chimica:** fosfororganici-ditiofosfati  
**N.ro CAS** [121-75-5]

**USO** insetticida utilizzato oltre che per lotta a numerosi insetti anche per disinfestazione di derrate, ambienti domestici, rurali e del bestiame.

**DOSE MASSIMA DI IMPIEGO (g p.a./ha):** 3000 (Muccinelli, 1993)

### PROPRIETA' FISICO-CHIMICHE

**Peso molecolare:** 330,36

#### Solubilità in acqua (mg/L) (25°C):

130 (20-25°C, Wauchope *et al.*, 1992; Lohninger, 1994; Hornsby *et al.*, 1996; Halfon *et al.*, 1996);  
141, 109 (calc., Kühne *et al.*, 1995);  
143 (20°C, Bowman & Sans, 1983a; Shiu *et al.*, 1990; Howard, 1991; Patil, 1994);  
144 (Yalkowsky & Banerjee, 1992);  
**145** (20°C, Macy, 1948; Chiou *et al.*, 1977; 20°C, Melnikov, 1971; Spencer, 1973; Freed *et al.*, 1977; Belluck & Felsot, 1981; Shiu *et al.*, 1990; T. amb., Spencer, 1973; Worthing, 1979; Kenaga, 1980; Karickhoff, 1981; Bowman & Sans 1983a; Kim *et al.*, 1984; Pait *et al.*, 1992; Spiller, 1961; 20°C, Suntio *et al.*, 1988; Majewski & Capel, 1995; 22°C, Khan, 1980; Lyman, 1982; Nash, 1988; USDA, 1989; Neary *et al.*, 1993; Willis & McDowell, 1982; Agrochemicals Handbook 1987; Tomlin 1994; Schomburg *et al.*, 1991);  
150 (Hartley & Graham-Bryce, 1980; Beste & Humburg, 1983; Taylor & Glotfelty, 1988; Shiu *et al.*, 1990);

#### Tensione di vapore (Pa) (25°C):

1,67E<sup>-04</sup> (20°C, Montgomery, 1993; 20°C, Wolfdietrich, 1965; Kim *et al.*, 1984; 20°C, Melnikov, 1971; Freed *et al.*, 1977);  
6,0E<sup>-04</sup> (20°, Kim, 1985);  
6,7E<sup>-04</sup> (20°C, Kim *et al.*, 1984; Kim, 1985);  
7,33E<sup>-04</sup> (20°C, Gückel *et al.*, 1973; Freed 1976; Suntio *et al.*, 1988);  
9,20E<sup>-04</sup> (20°C, Seiber *et al.*, 1981; Suntio *et al.*, 1988);  
1,00E<sup>-03</sup> (20°C, Suntio *et al.*, 1988; Majewski & Capel 1995);  
1,05E<sup>-03</sup> (20°C, Kim *et al.*, 1984; Howard, 1991);  
1,06E<sup>-03</sup> (Kim *et al.*, 1984; Kim 1985; Suntio *et al.*, 1988; Hinckley *et al.*, 1990);  
1,07E<sup>-03</sup> (Halfon *et al.*, 1996; 20-25°C, Wauchope *et al.*, 1992; Hornsby *et al.*, 1996);  
**1,30E<sup>-03</sup>** (20°C, Hartley & Graham-Bryce, 1980; Taylor & Glotfelty, 1988; Taylor Spencer 1990; 20°C, Taylor & Spencer, 1990);

2,90E<sup>-03</sup> (Woolford, 1975; Hinckley *et al.*, 1990);  
4,70E<sup>-03</sup> (Hinckley *et al.*, 1990);  
5,30E<sup>-03</sup> (30°C, Agrochemicals Handbook, 1987; Tomlin, 1994; 30°C, Khan, 1980);  
6,0E<sup>-01</sup> (20°C, Kim *et al.*, 1984);

**Coefficiente di ripartizione n-ottanolo/acqua (log Kow):**

2,18 (Sicbaldi & Finizio, 1993);  
2,18, 2,31, 3,06 (Finizio *et al.*, 1997);  
2,36 (Hansch & Leo, 1979; Fisher *et al.*, 1993; Hansch & Leo 1985; Howard, 1991; Rao & Davidson, 1980; Kim *et al.*, 1984; Suntio *et al.*, 1988; Hansch *et al.*, 1995);  
2,36-2,89 (Montgomery 1993);  
2,68 (Saito *et al.*, 1993);  
2,75 (Worthing, 1991; Tomlin, 1994);  
2,80 (Suntio *et al.*, 1988);  
2,82 (Hermens & Leeuwangh, 1982; Hermens *et al.*, 1985; Verhaar *et al.*, 1992);  
**2,838** (Bowman & Sans, 1983b; Suntio *et al.*, 1988; De Bruijn & Hermens, 1991; Sicbaldi & Finizio, 1993; Patil, 1994; Finizio *et al.*, 1997);  
2,84, 2,79 (Patil, 1994);  
2,89 (20°C, Chiou *et al.*, 1977; Kenaga & Goring, 1980; Karickhoff, 1981; Yoshioka *et al.*, 1986; Suntio *et al.*, 1988; De Bruijn & Hermens, 1991; Finizio *et al.*, 1997; Lyman 1982; Freed *et al.*, 1979; Yoshioka *et al.*, 1986; Travis & Arms, 1988);  
2,90 (Thomann, 1989);  
2,94 (De Bruijn *et al.*, 1991; Verhaar *et al.*, 1992);  
3,23 (Belluck & Felsot, 1981);

**Coefficiente di ripartizione su carbonio organico (log Koc):**

9,03E<sup>-01</sup> (USDA, 1989; Neary *et al.*, 1993);  
2,36 (Bomberger *et al.*, 1983; Howard, 1991);  
2,45 (Kenaga, 1980a; Nash, 1988; Howard, 1991; Schomburg *et al.*, 1991);  
2,50, 2,83, 3,29 (Karickhoff, 1981);  
2,61 (Montgomery, 1993);  
**3,25** (Rao & Davidson, 1980; Howard, 1991; Schomburg *et al.*, 1991; Jury *et al.*, 1987b);  
3,26 (Rao & Davidson, 1980; Lyman, 1982; 20-25°C, Wauchope *et al.*, 1992; Dowd *et al.*, 1993; Lohninger, 1994; Hornsby *et al.*, 1996);

**Costante di Henry (Pa m<sup>3</sup>/mol):**

**3,80E<sup>-02</sup>** (calc., Mackay & Shiu, 1981; Suntio *et al.*, 1988);  
2,30E<sup>-03</sup> (20°C, calc. Suntio *et al.*, 1988; Fisher *et al.*, 1993; Majewski & Capel, 1995);  
3,22E<sup>-03</sup> (calc., Taylor & Glotfelty, 1988);  
2,03E<sup>-03</sup> (calc., Howard, 1991);  
4,9E<sup>-03</sup> (23°C, Schomburg *et al.*, 1991; Montgomery, 1993);

**Tempo di dimezzamento nel suolo (giorni):**

11 (Pait *et al.*, 1992).

## DISTRIBUZIONE AMBIENTALE:

Il modello di Mackay (livello I) suggerisce la seguente distribuzione (moli) nei comparti ambientali:

COMPARTO	% di Distribuzione
Aria	0,09
Acqua	85,81
Suolo	7,03
Sedimenti	6,56
Solidi sospesi	0,01
Biomassa acquatica	0,00
Biomassa vegetale	0,50
<b>Somma delle moli introdotte</b>	<b>100</b>

## PARAMETRI TOSSICOLOGICI

### Daphnia LC50 (mg/L)

5,6E<sup>-04</sup> (riproduzione, Deneer *et al.*, 1988);  
9,0E<sup>-04</sup> (26h, Frear & Boyd, 1967);  
1,0E<sup>-03</sup>-3,5E<sup>-03</sup> (RIVM, 1994);  
1,8E<sup>-03</sup> (48h, *D. pulex*, Verschueren, 1996);  
7,92E<sup>-03</sup> (Vighi *et al.*, 1991);

### Daphnia NOEL (mg/L)

6,0E<sup>-04</sup> (21d, NOEC, Verschueren, 1996);

### Pesci LC50 (mg/L)

6,2E<sup>-02</sup>-12,9 (RIVM, 1994);  
1,0E<sup>-01</sup>, 2,8E<sup>-01</sup> (96h, b. sunfish, l. bass, Tomlin, 1997);  
9, 1,1E<sup>-01</sup>, 1,7E<sup>-01</sup>, 1,2E<sup>-01</sup>, 1,0E<sup>-01</sup> (96h, *Pimephales promelas*, *Lepomis macrochirus*, *Salmo gairdneri*, bluegill, r. trout, Verschueren, 1996);

### Api LD50 (µg/ape)

3,8E<sup>-01</sup> (orale, Stevenson, 1978);  
3,8E<sup>-01</sup> (orale, RIVM 1994);  
3,97E<sup>-01</sup> (orale, Vighi *et al.*, 1991);  
2,7E<sup>-01</sup> (contatto, Stevenson, 1978);  
2,7E<sup>-01</sup> (contatto, RIVM 1994);  
7,1E<sup>-01</sup> (topico, Tomlin, 1997);

### Uccelli LD50 (mg/kg peso corporeo)

1485, 3497, 2369 (m. ducks, b. quail, pheasant, National Research Council, 1977);  
1485 (WHO, 1975);

### Uccelli LC50 (mg/kg dieta)

3497-4320 (RIVM, 1994);  
3500, 4320 (5d, b. quail, ringneck pheasant, Tomlin, 1997);

### Mammiferi LD50 orale (mg/kg)

1375-2800, 775-3320 (ratto, topo, Tomlin, 1997);  
1000-1375 (WHO, 1975);

**Mammiferi LD50 dermale (mg/kg)**

4100 (24h, coniglio, Tomlin, 1997);

4100 (coniglio, WHO, 1975);

>4444 (ratto, WHO, 1975);