### NJDEP - Toxicity Factors for Endosulfan (alpha and beta)

These are the human health toxicity data that were used by the Department to derive its health based criteria.

#### 115-29-7

<table>
<thead>
<tr>
<th></th>
<th>Drinking water</th>
<th>Ground water</th>
<th>Surface water</th>
<th>Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carcinogen Group</strong></td>
<td>Oral Slope Factor:</td>
<td>Oral Slope Factor:</td>
<td>Oral Slope Factor:</td>
<td>Oral Slope Factor:</td>
</tr>
<tr>
<td></td>
<td>(mg/kg/day)$^{-1}$</td>
<td>(mg/kg/day)$^{-1}$</td>
<td>(mg/kg/day)$^{-1}$</td>
<td>(mg/kg/day)$^{-1}$</td>
</tr>
<tr>
<td>Oral Reference Dose:</td>
<td>(mg/kg/day)</td>
<td>0.006 (mg/kg/day)</td>
<td>0.006 (mg/kg/day)</td>
<td>0.006 (mg/kg/day)</td>
</tr>
<tr>
<td>Basis:</td>
<td>IRIS</td>
<td>IRIS</td>
<td>IRIS</td>
<td>IRIS</td>
</tr>
</tbody>
</table>

### Oral

<table>
<thead>
<tr>
<th></th>
<th>Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carcinogen Group</strong></td>
<td>Carcinogen Group:</td>
</tr>
<tr>
<td>Slope Factor:</td>
<td>Unit Risk Factor $(\text{ug/m}^3)^1$</td>
</tr>
<tr>
<td>Reference Dose:</td>
<td>Reference Concentration: $(\text{ug/m})^3$</td>
</tr>
<tr>
<td>Basis:</td>
<td>Basis:</td>
</tr>
</tbody>
</table>

* Reference Doses for Group C chemicals are shown with uncertainty factor of 10 for possible carcinogenicity included. These are the Reference Doses used to derive criteria for all media. In the Basis and Background documents for these criteria, these Reference Doses may or may not be shown with this uncertainty factor incorporated.
Soil - Footnotes

1. Carcinogen Classification - All classifications are based on IRIS unless stated otherwise

1999 Cancer Draft Guidelines:
- KNOWN = Known carcinogen
- CANTDET = Can not determine carcinogenic classification
- LIK = Likely to be a human carcinogen
- NLIK = Not likely to be a carcinogen
- INAD = Inadequate data
- ORL = Oral exposure route
- INHL = Inhalation exposure route
- Ground Water - Footnotes

1. Reference Doses for Group C chemicals are shown with uncertainty factor of 10 for possible carcinogenicity included. These are the Reference Doses used to derive criteria for all media. In the Basis and Background documents for these criteria, these Reference Doses may or may not be shown with this uncertainty factor incorporated.

Ground Water - Footnotes

b = existing drinking water Maximum Contaminant Level Goal (MCLG) (CFR Part 141 - National Primary Drinking Water Regulations). For beryllium see Section IV-o in this Basis and Background.
c = developed by the Department for calculating ISCs. For details on developing specific RID, slope factor, or carcinogen class equivalent to USEPA categorization, see support document available by request to the Department.
d = Slope factor and carcinogen group of arsenic are those listed in IRIS under arsenic (inorganic); RIDs of chromium, mercury, and nickel are those listed in IRIS under chromium (VI), mercuric chloride, and nickel (soluble salts), respectively. The RID for thallium was developed by the Department based on the RID of thallium(I) sulfite in IRIS.
e = derived by multiplying the IRIS slope factor of B(a)P of 7.3 (mg/kg-day)-1 with the "estimated order of potential potency" for the individual Group B2 PAHs recommended in USEPA "Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons", Office of Research and Development, EPA/600/R-93/089. The relative potencies based on that of benzo(a)pyrene as 1.0 are as follows: benz(a)anthracene, 0.1; benzo(b)fluoranthene, 0.1; benzo(k)fluoranthene, 0.01; chrysene, 0.001; dibenz(a,h)anthracene, 1.0; indeno(1,2,3-c,d)pyrene, 0.1.
f = Group D categorization of mercury based on USEPA National Primary Drinking Water Regulations; Final Rule. 56 FR 3537, Jan 30, 1991. For detailed discussion on Group D categorization of mercury, see Section IV-o in this Basis and Background.

Surface Water - Footnotes

^ The carcinogen group assigned to acrolein in IRIS is the descriptor, "data are inadequate for an assessment of human carcinogenic potential" which is equivalent to Group D.

Soil - Footnotes

1. The Reference Doses for the Group C chemicals incorporate an additional uncertainty factor of 10 for possible carcinogenicity.
2. Toxicity factors were developed by the NJDWQI under the A-280 process for the following chemicals, but MCLs were not adopted for unrelated reasons, such as lack of a standardized analytical method for drinking water: Ethylene glycol, formaldehyde, hexane, methyl ethyl ketone, and 2,4,6-trichlorophenol.
3. The New Jersey MCL for 1,4-Dichlorobenzene was adopted from USEPA, but New Jersey did not necessarily agree with the USEPA RID, so it is not included on this table.

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