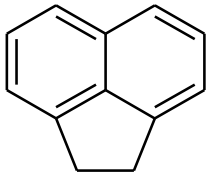


|   |                  |                         |
|---|------------------|-------------------------|
| 1   | CAS No.: 83-32-9 | Substance: Acenaphthene |
| <p>Chemical Substances Control Law Reference No.: 4-645<br/> PRTR Law Cabinet Order No.: – (Cabinet Order No. after revision*: 1-15)</p> <p style="text-align: center;">Structural Formula:</p> <p>Molecular Formula: C<sub>12</sub>H<sub>10</sub><br/> Molecular Weight: 154.21</p> <div style="text-align: center;">  </div> <p>*Note: No. according to revised order enacted on October 1, 2009.</p>  |                  |                         |
| <p><b>1. General information</b></p> <p>The aqueous solubility of this substance is 3.80 mg/1000 g (25°C), the partition coefficient (1-octanol/water) (log K<sub>ow</sub>) is 3.96, and the vapor pressure is 2.50×10<sup>-3</sup> mmHg (=0.333 Pa) (25°C). The biodegradability (aerobic degradation) is characterized by a BOD degradation rate of 0%, and bioaccumulation is thought to be nonexistent or low. The substance does not have any hydrolyzable groups.</p> <p>The substance is designated as a Type II and III Monitoring Chemical Substance under the Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances. Furthermore, based on a revision of substances regulated by the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law) (enacted on October 1, 2009), it was newly designated as a Class 1 Designated Chemical Substance. The main applications are as a dyestuff raw material, and as a bactericide and pesticide. The production and import category under the PRTR Law was greater than 1 t and less than 100 t.</p> <p>-----</p> <p><b>2. Exposure assessment</b></p> <p>Because this substance was not classified as a Class 1 Designated Chemical Substance prior to revision of substances regulated by the PRTR Law, release and transfer quantities could not be obtained. Predictions of distribution by medium using a Mackay-type level III fugacity model indicated that if equal quantities were released to the atmosphere, water bodies, and soil, the proportion distributed to soil would be higher.</p> <p>The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was estimated to be around 0.11 µg/L for public freshwater bodies and less than around 0.02 µg/L for seawater.</p> <p>-----</p> <p><b>3. Initial assessment of ecological risk</b></p> <p>With regard to acute toxicity, the following reliable data were obtained: a 72-h median effective concentration (EC<sub>50</sub>) of 1,360 µg/L for growth inhibition in the green algae <i>Pseudokirchneriella subcapitata</i>; a 48-h EC<sub>50</sub> of 1,310 µg/L for swimming inhibition in the crustacean <i>Daphnia magna</i>; a 96-h median lethal concentration (LC<sub>50</sub>) of 580 µg/L for the fish species <i>Salmo trutta</i> (brown trout); and a 48-h LC<sub>50</sub> of more than 1,800 µg/L for the non-biting midge <i>Paratanytarsus parthenogeneticus</i>. Accordingly, based on these acute toxicity values and an assessment factor of 100, a predicted no effect concentration (PNEC) of 5.8 µg/L was obtained. With regard to chronic toxicity, the following reliable data were obtained: a 72-h no observed effect concentration (NOEC) of 90.3 µg/L for growth inhibition in the green algae <i>P. subcapitata</i>; a 21-d NOEC of 83.5 µg/L for reproductive inhibition in the crustacean <i>D. magna</i>; and a 30-d NOEC of 77.5 µg/L for developmental inhibition in the fish species <i>Pimephales promelas</i> (fathead minnow). Accordingly, based on these chronic toxicity values and an assessment factor of 10, a predicted no effect concentration (PNEC) of 7.8 µg/L was obtained. The value of 5.8 µg/L obtained from the acute toxicity to the fish was used as the</p> |                  |                         |

PNEC for this substance.

The PEC/PNEC ratio was 0.02 for freshwater bodies and less than 0.003 for seawater. Accordingly, further work is thought to be unnecessary at this time.

| Hazard assessment (basis for PNEC) |               |                            | Assessment factor | Predicted no effect concentration PNEC (µg/L) | Exposure assessment |  | PEC/PNEC ratio | Result of assessment |
|------------------------------------|---------------|----------------------------|-------------------|---|---------------------|--|----------------|----------------------|
| Species                            | Acute/chronic | Endpoint                   |                   |   | Water body          | Predicted environmental concentration PEC (µg/L) |                |                      |
| Fish (brown trout)                 | Acute         | LC <sub>50</sub> Mortality | 100               | 5.8   | Freshwater          | 0.11   | 0.02           | ○                    |
|                                    |               |                            |                   |   | Seawater            | <0.02  | <0.003         |                      |

#### 4. Conclusions

|                 | Conclusions               | Judgment |
|-----------------|---------------------------|----------|
| Ecological risk | No need for further work. | ○        |

- [Risk judgments] ○: No need for further work      ▲: Requiring information collection  
 ■: Candidates for further work      ×: Impossibility of risk characterization  
 (○) : Though a risk characterization cannot be determined, there would be little necessity of collecting information.  
 (▲) : Further information collection would be required for risk characterization.