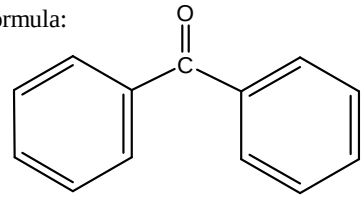
| 7 | CAS No.: 119-61-9 | Substance: Benzophenone |
|---|---|---|

Chemical Substances Control Law Reference No.: 3-1258 and 4-125
PRTR Law Cabinet Order No.:

Structural Formula:



Molecular Formula: $C_{13}H_{10}O$
Molecular Weight: 182.22

**1. General Information**

The aqueous solubility of this substance is 137 mg/L (25°C) and the partition coefficient (1-octanol/water) (log Kow) is 3.18. The vapor pressure is 1.93 x $10^{-3}$ mmHg (= 0.257 Pa) (25°C, extrapolated value). Degradability (aerobic degradation) in terms of BOD-based degradation percentage is estimated to be 0%. This substance is determinated to be non or not highly bioaccumulative. Ketone is generally not highly hydrolyzed, and hydrolysis of the substance in the environment is not expected to be of importance.

This substance is mainly used for materials for pharmaceutical synthesis, aroma retaining agents, and ultraviolet absorbing agents. The production (shipment) and imports in FY2004 was 100 to less than 1,000 tons/yr.

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**2. Exposure assessment**

As this substance is not a Class 1 Designated Chemical Substance under the Law concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law), release and transfer quantities could not be obtained. When predictions of distribution ratios by medium were made using the Mackay-Type Level III Fugacity Model, in the event of equal release to the atmosphere, water, and soil, the distribution ratio was highest for soil.

The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was estimated to be approximately 0.31 μg/L for freshwater and approximately 0.02 μg/L for seawater public water bodies.

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**3. Initial assessment of ecological risk**

With regard to acute toxicity, reliable information of a 72-hour median effective concentration ($EC_{50}$) growth inhibition value of 3,530 μg/L was found for the algae *Pseudokirchneriella subcapitata*, a 24-hour median lethal concentration ($LC_{50}$) value of 7,600 μg/L was found for the crustacea *Ceriodaphnia dubia* (water flea), a 96-hour $LC_{50}$ value exceeding 10,000 μg/L was found for the fish *Oryzias latipes* (medaka), and a 24-hour $LC_{50}$ value of 56,800 μg/L was found for another organism, the nematode *Caenorhabditis elegans*. Accordingly, an assessment factor of 100 was used, and a predicted no effect concentration (PNEC) of 35 μg/L was obtained based on the acute toxicity values. With regard to chronic toxicity, reliable information of a 72-hour no observed effect concentration (NOEC) growth inhibition value of 1,000 μg/L was found for the algae *P. subcapitata*, a 21-day NOEC reproduction value of 200 μg/L was found for the crustacea *D. magna* (water flea), and a 35-38-day NOEC growth inhibition value of 540 μg/L was found for the fish *Pimephales promelas* (fathead minnow). Accordingly, an assessment factor of 10 was used, and a PNEC value of 20 μg/L was obtained based on the chronic toxicity values. As the PNEC for the substance, a value of 20 μg/L obtained from the chronic toxicity for the crustacea was used.

The PEC/PNEC ratio was 0.02 for freshwater bodies and 0.001 for seawater bodies. 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) | | |
| Crustacea (water flea) | Chronic | NOEC reproduction | 10 | 20 | Freshwater | 0.31 | 0.02 | ○ |
| | | | | | Seawater | 0.02 | 0.001 | |

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4. **Conclusion**

| | 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.