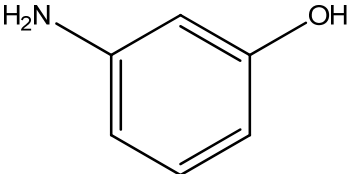


2	CAS No: 591-27-5	Substance: <i>m</i> -aminophenol
Chemical Substances Control Law Reference No.: 3-675 (aminophenol)		
PRTR Law Cabinet Order: 1-24		
Molecular Formula: C <sub>6</sub> H <sub>7</sub> NO		Structural formula:
Molecular Weight: 109.13		

### 1. General information

The aqueous solubility of this substance is  $2.56 \times 10^4$  mg/1,000g (20°C), the partition coefficient (1-octanol/water) ( $\log K_{ow}$ ) is 0.21 (pH = 5.6), and the vapor pressure is  $1.86 \times 10^{-3}$  mmHg (= 0.248 Pa) (calculated value). Biodegradability (aerobic degradation) is characterized by a BOD degradation rate of 0%, and bioaccumulation is judged to be non-existent or low. The substance does not have any hydrolyzable groups.

This substance is designated as 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). The main uses of this substance are as a raw material for dyestuffs, pharmaceuticals, heat sensitive dyes, agricultural chemicals, and aramid fibers. The production and import quantity as *m*-aminophenol in fiscal 2009 was 651 t and as aminophenol in fiscal 2012 was less than 1,000 t. The production and import category under the PRTR Law is more than 100 t.

### 2. Exposure assessment

Total release to the environment in fiscal 2012 under the PRTR Law was approximately 0.21 t, of which approximately 0.18 t or 87% of overall releases were reported. All reported releases were to public water bodies. In addition, 0.008 t was transferred to sewage and approximately 3.8 t was transferred to waste materials. The main source of reported releases was the chemical industry. The largest release among releases to the environment including those unreported was to water bodies. A multi-media model used to predict the proportions distributed to individual media in the environment indicated that in regions where the largest quantities were estimated to have been released to the environment overall or to public water bodies in particular, the predicted proportion distributed to water bodies was 96.9%. In regions where the largest estimated releases were to soil, the predicted proportion distributed to water bodies was 85.3%.

The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was generally less than 0.007 µg/L for both public freshwater bodies and seawater. When releases to public freshwater bodies in fiscal 2012 reported according to the PRTR Law were divided by the ordinary water discharge of the national river channel structure database, estimating the concentration in rivers by taking into consideration only dilution gave a maximum value of 0.014 µg/L.

### 3. Initial assessment of ecological risk

With regard to acute toxicity, the following reliable data were obtained: a 72-h EC<sub>50</sub> of 160,000 µg/L for growth inhibition in the green alga *Pseudokirchneriella subcapitata*, a 48-h EC<sub>50</sub> of 450 µg/L for swimming inhibition in the crustacean *Daphnia magna*, and a 96-h LC<sub>50</sub> of 121,000 µg/L for the fish species *Oryzias latipes* (medaka). Accordingly, based on these acute toxicity values and an assessment factor of 100, a predicted no effect concentration (PNEC) of 4.5 µg/L was obtained.

With regard to chronic toxicity, the following reliable data were obtained: a 72-h NOEC of 25,000 µg/L for

growth inhibition in the green alga *P. subcapitata*, and a 21-d NOEC of 50 µg/L for reproductive inhibition in the crustacean *D. magna*. Accordingly, based on these chronic toxicity values and an assessment factor of 100, a PNEC of 0.5 µg/L was obtained.

The value of 0.5 µg/L obtained from the chronic toxicity to the crustacean was used as the PNEC for this substance.

The PEC/PNEC ratio is less than 0.01 for both freshwater bodies and seawater. In addition, the river concentration (as phenylenediamine) estimated by using releases reported according to the PRTR Law and taking only dilution into consideration is 0.014 µg/L, resulting in a PEC/PNEC ratio of less than 0.1. Accordingly, further work on this substance is considered unnecessary at this time.

Hazard assessment (basis for PNEC)			Assessment coefficient	Predicted no effect concentration PNEC (µg/L)	Exposure assessment		PEC/PNEC ratio	Judgment based on PEC/PNEC ratio	Assessment result
Species	Acute/ chronic	End point			Water body	Predicted environmental concentration PEC (µg/L)			
Crustacean <i>Daphnia magna</i>	Chronic	NOEC reproductive inhibition	100	0.5	Freshwater	<0.007	<0.01	○	○
					Seawater	<0.007	<0.01		

#### 4. Conclusions

	Conclusions	Judgment
Ecological risk	No need for further work at present.	○

[Risk judgments] ○: No need for further work      ▲: Requiring information collection  
 ■: Candidates for further work      ×: Impossibility of risk characterization  
 (○) : Although risk characterization could not be confirmed, collection of further information would not be required.  
 (▲) : Further information collection would be required for risk characterization.