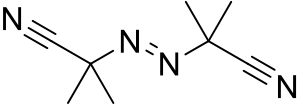| 1	CAS No.: 78-67-1	Substance: 2,2'-Azobis(2-methylpropanenitrile)

Chemical Substances Control Law Reference No.: 2-1531

PRTR Law Cabinet Order No.: 1-16

Molecular Formula: $C_8H_{12}N_4$ Structural Formula:

Molecular Weight: 164.21

1. General information

The aqueous solubility of this substance is 350 mg/L (25°C), the partition coefficient (1-octanol/water) (log Kow) is 1.10, and the vapor pressure is $6.1×10^{-3}$ mmHg (=0.81 Pa) (25°C). The biodegradability (aerobic degradation) is characterized by a BOD degradation rate of 0%, and bioaccumulation is judged to be non-existent or low. Its half-life for hydrolysis is 304 d (pH=7, 25°C) and 210 d (pH=9, 25°C).

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 use of this substance is as a blowing agent for rubbers and synthetic resins. The production and import quantity in fiscal 2010 was 2,000 t.

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2. Exposure assessment

Total release to the environment in fiscal 2010 under the PRTR Law was 0.018 t, of which approximately 0.013 t or 72% of overall releases were reported. The major destination of reported releases was public water bodies. In addition, 6.1 t was transferred to waste materials and 0.0003 t was transferred to sewage. The only 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 estimated releases were to the environment overall or to public water bodies in particular, the predicted proportion distributed to water bodies was 99.5%. In regions where the largest quantity was estimated to have been released to the atmosphere, the predicted proportion distributed to water bodies was 97.5%.

The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was reported to be generally less than 0.04 µg/L for public freshwater bodies and less than 0.04 µg/L for seawater. When reported releases to public freshwater bodies in fiscal 2010 according to the PRTR Law were divided by the ordinary water discharge of the national river channel structure database, estimating the concentration in rivers while taking into consideration only dilution gave a maximum value of 0.041 µg/L.

3.Initial assessment of ecological risk

With regard to acute toxicity, the following reliable data were obtained: a 72-h EC_{50} in excess of 7,800 µg/L for growth inhibition in the green alga *Pseudokirchneriella subcapitata*, a 48-h EC_{50} in excess of 10,000 µg/L for swimming inhibition in the crustacean *Daphnia magna*, and a 96-h LC_{50} exceeding 10,000 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) exceeding 78 µg/L was obtained.

With regard to chronic toxicity, the following reliable data were obtained: a 72-h NOEC of 3,900 µg/L for growth inhibition in the green alga *P. subcapitata*, and a 21-d NOEC of 2,200 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 22 µg/L was obtained.

The value of 22 µg/L obtained from the chronic toxicity to the crustacean was used as the PNEC for this substance.

The PEC/PNEC ratio was less than 0.002 for both freshwater bodies and seawater. In addition, the maximum river concentration was estimated to be 0.041 µg/L from reported releases under the PRTR Law. The ratio of this value to the PNEC is less than 0.1. Accordingly, further work on this substance is considered unnecessary at this time.

Hazard assessment (basis for PNEC)			Assessment factor	Predicted no effect concentration PNEC (µg/L)	Exposure assessment		PEC/PNEC ratio	Judgment based on PEC/PNEC ratio	Assessment result
Species	Acute/ chronic	Endpoint			Water body	Predicted environmental concentration PEC (µg/L)			
Crustacean *Daphnia magna*	Chronic	NOEC Reproductive inhibition	100	22	Freshwater	<0.04	<0.002		
					Seawater	<0.04	<0.002		

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4. Conclusions

	Conclusions	Judgment
Ecological risk	No need of further work at present.	

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.