5	CAS No.: 124-28-7	Substance: *N*,*N*-Dimethyloctadecylamine

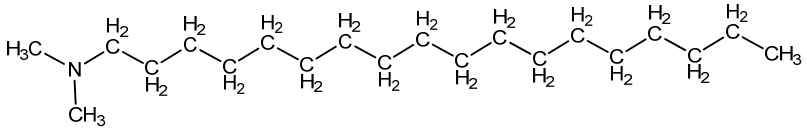
Chemical Substances Control Law Reference No.: 2-176（*N*,*N*,*N*-Tri-alkyl (or alkenyl, of which at least one alkyl or alkenyl group is C8–24 and the others are H or C1–5) amine), 2-185 (*N*-Alkyl or alkenyl (C16–28))-*N*,*N*-dialkyl (C1–5 or H) amine)

PRTR Law Cabinet Order No.:

Molecular Formula: $C_{20}H_{43}N$

Molecular Weight: 297.56

Structural Formula:



1. General information

The aqueous solubility of this substance is 7 mg/L (20°C), the partition coefficient (1-octanol/water) (log K_{ow}) is 8.4 (calculated value), and the vapor pressure is 6.7 mmHg (8.9×10^{-4} Pa) (20°C). Biodegradability (aerobic degradation) is judged to be good.

The main uses of this substance are as a raw material for amphoteric surfactants, amine oxides, quaternary ammonium salts, resin processing agents, disinfectants, and cationic dyestuffs, and as a pigment flashing agent and quasi-drug additive (medicated soaps, cosmetics, etc.). The production and import quantity of *N*,*N*,*N*-tri-alkyl (or alkenyl, alkyl, or alkenyl, of which at least one alkyl or alkenyl group is C8–24 and the others are H or C1–5) amine in fiscal 2013 was 6,000 t, The production and import quantity of *N*-alkyl (or alkenyl (C=16–28))-*N*,*N*-dialkyl (C=1–5 or H) amine was not disclosed because the number of reporting businesses was not more than two.

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2. Exposure assessment

Because this substance is not classified as a Class 1 Designated Chemical Substance under the PRTR Law, release and transfer quantities could not be obtained. Predictions of proportions distributed to individual media by 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 largest.

The predicted environmental concentration (PEC), which indicates exposure to aquatic organisms, was reported to be around 0.015 μg/L for public freshwater bodies and generally less than 0.0008 μg/L for seawater.

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3. Initial assessment of ecological risk

With regard to acute toxicity, the following reliable data were obtained: a 72-h EC_{50} of 1.8 μg/L for growth inhibition in the green algae *Pseudokirchneriella subcapitata*, a 48-h EC_{50} of 15.5 μg/L for swimming inhibition in the crustacean *Daphnia magna*, and a 96-h LC_{50} of 79.3 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 0.018 μg/L was obtained.

With regard to chronic toxicity, the following reliable data were obtained: a 72-h NOEC of 0.99 μg/L for growth inhibition in the green algae *P. subcapitata*, and a 21-d NOEC of 2.74 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 0.0099 μg/L was obtained.

The value of 0.0099 μg/L obtained from the chronic toxicity to the alga was used as the PNEC for this substance.

The PEC/PNEC ratio is 1.5 for freshwater bodies and less than 0.08 for seawater; accordingly, the substance is considered as a candidate for further work.

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	Endpoint			Water body	Predicted environmental concentration PEC (μg/L)			
Green algae	Chronic	NOEC growth inhibition	100	0.0099	Freshwater	0.015	1.5	■	■
					Seawater	<0.0008	<0.08		

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4. Conclusions

	Conclusions	Judgment
Ecological risk	Candidates for further work.	■

［Risk judgments］ ○: No need for further work ▲: Requiring information collection

■: Candidates for further work ×: Impossibility of risk characterization

（○）: Although risk to human health could not be confirmed, collection of further information would not be required.

（▲）: Further information collection would be required for risk characterization.