COMPONENTS:	EVALUATOR:
(1) 2,3-Dimethylnaphthalene; $C_{12}H_{12}$; [581-40-8] (2) Water; H_2O; [7732-18-5]	G.T. Hefter, School of Mathematical and Physical Sciences, Murdoch University, Perth, W.A., Australia. A. Maczynski, Institute of Physical Chemistry, Polish Academy of Sciences, Warszawa, Poland. June 1986.

CRITICAL EVALUATION:

Quantitative solubility data for 2,3-dimethylnaphthalene (1) in water (2) have been reported in the publications listed in Table 1. No data have been reported on the solubility of water in 2,3-dimethylnaphthalene.

TABLE 1: Quantitative Solubility Studies of 2,3-Dimethylnaphthalene (1) in Water (2)

Reference	*T*/K	Method
Eganhouse and Calder (ref 1)	298	GLC
Mackay and Shiu (ref 2)	298	spectrofluorometric

The original data and related information in both of these publications are compiled in the Data Sheets immediately following this Critical Evaluation.

The two values available (Table 1), obtained by different methods, are in reasonable agreement and their mean can be considered as a Tentative value (Table 2).

TABLE 2: Tentative Value of the Solubility of 2,3-Dimethylnaphthalene (1) in Water (2)

T/K	Solubility values		
	Reported values	"Best" value ($\pm \sigma_n$)[a]	
	$10^4 g(1)/100g$ sln	$10^4 g(1)/100g$ sln	$10^7 x_1$
298	1.99 (ref 1), 3.0 (ref 2)	2.5 ± 0.5	2.9

[a] Obtained by averaging; σ_n has no statistical significance.

REFERENCES

1. Eganhouse, R.P.; Calder, J.A. *Geochim. Cosmochim. Acta* 1976, *40*, 555-61.

2. Mackay, D.; Shiu, W.Y. *J. Chem. Eng. Data* 1977, *22*, 399-402.

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) 2,3-Dimethylnaphthalene; $C_{12}H_{12}$; [581-40-8] (2) Water; H_2O; [7732-18-5]	Eganhouse, R.P.; Calder, J.A. *Geochim. Cosmochim. Acta* 1976, *40*, 555-61.
VARIABLES:	**PREPARED BY:**
One temperature: 25°C	A. Maczynski

EXPERIMENTAL VALUES:

The solubility of 2,3-dimethylnaphthalene in water at 25°C was reported to be 1.99 mg(1)/kg(2) and 1.3×10^{-5} mol(1) dm^{-3}(2).

The corresponding mass percent and mole fraction, x_1, calculated by the compiler are 1.99×10^{-4} g(1)/100 g sln and 2.29×10^{-7}.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
A mixture of 500 mL (2) and 0.001 mol (1) was equilibrated in an Erlenmeyer flask for 12 h (agitation) + 24 h (stationary). The saturated solution, 100 mL, was extracted with hexane, concentrated by evaporation under nitrogen and analyzed by glc. A 5700 A Hewlett-Packard instrument equipped with dual compensating columns and flame ionization detectors was employed.	(1) source not specified; analytical grade; used as received; no impurities by glc. (2) doubly distilled; free of trace organics.
	ESTIMATED ERROR: temp. ± 0.5°C soly. ± 0.02 mg(1)/kg(2) (from eight determinations)
	REFERENCES:

COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) 2,3-Dimethylnaphthalene; $C_{12}H_{12}$; [581-40-8] (2) Water; H_2O; [7732-18-5]	Mackay, D.; Shiu, W.Y. *J. Chem. Eng. Data* 1977, *22*, 399-402.
VARIABLES:	**PREPARED BY:**
One temperature: 25°C	M.C. Haulait-Pirson

EXPERIMENTAL VALUES:

The solubility of 2,3-dimethylnaphthalene in water at 25°C was reported to be 3.0 mg(1) dm^{-3} sln and $x_1 = 3.47 \times 10^{-7}$.

The corresponding mass percent calculated by the compiler is 3.0×10^{-4} g(1)/100 g sln.

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

A saturated solution of (1) in (2) was vigorously stirred in a 250 mL flask for 24 hrs. and subsequently settled at 25°C for at least 48 hrs. Then the saturated solution was decanted and filtered and 50-100 mL extracted with approximately 5 mL of cyclohexane in a separatory funnel. After shaking for 2 hrs. the cyclohexane extract was removed for analysis. An Aminco-Browman spectrophotofluorometer (American Instruments Ltd.) was used for analysis. Many details are given in the paper.

SOURCE AND PURITY OF MATERIALS:

(1) Aldrich Chemicals, Eastman Kodak, or K and K Laboratories, commercial highest grade; used as received.

(2) doubly distilled.

ESTIMATED ERROR:

soly. ± 0.01 mg(1) dm^{-3} sln (maximum deviation from several determinations).

REFERENCES: