COMPONENTS:	ORIGINAL MEASUREMENTS:
(1) Mercury; Hg; [7439-97-6] (2) Sea water	Sanemasa, I. *Bull. Chem. Soc. Jpn.* <u>1975</u>, *48*, 1795 - 8.

VARIABLES:	PREPARED BY:
$T/K = 278.15 - 303.15$	S. H. Johnson H. L. Clever M. Iwamoto

EXPERIMENTAL VALUES:

Temperature		Mercury Solubility	
$t/°C$	T/K	Sea water $10^8 c_1/g$ dm^{-3}	Water $10^8 c_1/g$ dm^{-3}
5	278.15	17.2	19.2
10	283.15	23.6	27.4
15	288.15	31.6	
20	293.15	40.6	45.0
25	298.15	54.9	63.9
30	303.15	69.7	81.3

AUXILIARY INFORMATION

METHOD/APPARATUS/PROCEDURE:

The solubility apparatus is a closed system which consists of several flasks connected by tubing. A 20 g portion of Hg is placed in one flask immersed in thermostat I, and up to 200 ml of water are placed in a second flask immersed in thermostat II. The Hg vapor pressure is controlled by the temperature of thermostat I. Nitrogen gas at atm pressure is circulated by the pump. The gas passes over the Hg and bubbles through the water (or solution). One hour circulation saturates both the gas space and water.

The Hg is determined by cold-vapor atomic absorption. The method is based on a reduction-aeration method found by Kimura and Miller (ref. 1). The procedure used is similar to that reported by Omang (ref. 2). The sample and working standard are put through the same procedure. Analyses are done in triplicate. Measurements were made at up to six Hg pressures at each temperature.

SOURCE AND PURITY OF MATERIALS:

(1) Mercury. Metallic mercury purified by distillation under reduced pressure.

(2) Sea water.

ESTIMATED ERROR:
$$\delta T/K = \pm 0.05$$
$$\delta 10^8 c_1/g \text{ dm}^{-3} = \pm 0.1$$

REFERENCES:

1. Kimura, Y.; Miller, V. L. *Anal. Chim. Acta* <u>1962</u>, *27*, 325.

2. Omang, S. H. *Anal. Chim. Acta* <u>1971</u>, *53*, 415.