

<b>COMPONENTS:</b> (1) Mercury; Hg; [7439-97-6] Mercury-203; $^{203}\text{Hg}$ ; [13982-78-0] (2) Sunflower Seed Oil	<b>ORIGINAL MEASUREMENTS:</b> Hursh, J. B. <i>JAT, J. Appl. Toxicol.</i> <u>1985</u> , 5, 327 - 32.													
<b>VARIABLES:</b>  $T/K = 295$	<b>PREPARED BY:</b>  H. L. Clever													
<b>EXPERIMENTAL VALUES:</b> <table border="1" data-bbox="230 527 1052 705"> <thead> <tr> <th>Temperature</th> <th>Carrier Gas</th> <th>Ostwald Coefficient<sup>a</sup></th> <th>Concentration<sup>b</sup></th> </tr> <tr> <th><math>t/^{\circ}\text{C}</math></th> <th><math>T/K</math></th> <th>Av. <math>\pm</math> SE (no.)</th> <th><math>10^7 c_1/\text{mol dm}^{-3}</math></th> </tr> </thead> <tbody> <tr> <td>22</td> <td>295.15</td> <td>Air</td> <td><math>80.8 \pm 0.8(5)</math></td> <td>65.5</td> </tr> </tbody> </table> <p data-bbox="230 725 1052 807"><sup>a</sup> The Ostwald coefficient is ((ng Hg/mL fluid)/(ng Hg/mL air)). Given above is the average <math>\pm</math> standard error (number of determinations).</p> <p data-bbox="230 827 1052 970"><sup>b</sup> The concentrations were calculated by the compiler for mercury vapor in equilibrium with pure liquid mercury from the vapor pressure evaluation of Ambrose and Sprake (ref. 1). At 295.15 K, the mercury vapor pressure is 19.90 Pa, and the vapor concentration is 16.27 ng Hg/mL air.</p> <p data-bbox="230 991 1052 1093">The author states that the mercury partition coefficient between sunflower seed oil and water is 28 at 295.15 K. The compiler estimates this implies a mercury Ostwald coefficient of 2.89 for water at 295.15 K</p> <p data-bbox="230 1113 1052 1195">Sunflower seed oil is a semi-drying oil containing 21.3 % oleic acid, 66.2 % linoleic acid, and smaller amounts of several other acids. (Merck Index, 10th Ed., 1983.)</p>		Temperature	Carrier Gas	Ostwald Coefficient <sup>a</sup>	Concentration <sup>b</sup>	$t/^{\circ}\text{C}$	$T/K$	Av. $\pm$ SE (no.)	$10^7 c_1/\text{mol dm}^{-3}$	22	295.15	Air	$80.8 \pm 0.8(5)$	65.5
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<b>AUXILIARY INFORMATION</b>														
<b>METHOD/APPARATUS/PROCEDURE:</b> The equilibrium cell is a 50 mL syringe thermostated in a Dewar flask. A 10 mL liquid sample and a 40 mL carrier gas with Hg vapor sample are drawn into the cell. The cell is turned and rolled on the cylinder axis for 120 to 300 sec. Equilibrium is rapidly attained through the large contact area between liquid and vapor phases. Both the liquid and vapor phases are sampled. The liquid phase is aerated and the Hg adsorbed on Hopcalite. The Hg radioactivity is measured on a liquid scintillation counter. Corrections are applied for the counter efficiency, and for radioactive decay of the Hg.	<b>SOURCE AND PURITY OF MATERIALS:</b> (1) Mercury. Prepared by reduction of $^{203}\text{HgCl}_2$ . The Hg vapor is swept into a leak-proof Saran bag. (2) Sunflower seed oil. Purchased at local grocery store. Handbook value of 0.923 specific gravity used.  <b>ESTIMATED ERROR:</b>  <b>REFERENCES:</b> 1. Ambrose, D.; Sprake, C. H. S. <i>J. Chem. Thermodynam.</i> <u>1972</u> , 4, 603.													