

<p>COMPONENTS:</p> <p>1. N,N-Dimethylmethanamine (trimethylamine); C<sub>3</sub>H<sub>9</sub>N; [75-50-3]</p> <p>2. 1,4-Dioxane; C<sub>4</sub>H<sub>8</sub>O<sub>2</sub>; [123-91-1]</p>	<p>ORIGINAL MEASUREMENTS:</p> <p>Gerrard, W.</p> <p><i>Solubility of Gases and Liquids</i>, Plenum <u>1976</u>, Chapter 10.</p>								
<p>VARIABLES:</p>	<p>PREPARED BY:</p> <p>C. L. Young</p>								
<p>EXPERIMENTAL VALUES:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">T/K</th> <th style="text-align: left;">P/mmHg</th> <th style="text-align: left;">P/10<sup>5</sup>Pa</th> <th style="text-align: left;">Mole fraction of trimethylamine in liquid, x(CH<sub>3</sub>)<sub>3</sub>N</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">283.15</td> <td style="text-align: center;">760</td> <td style="text-align: center;">1.013</td> <td style="text-align: center;">0.680</td> </tr> </tbody> </table>		T/K	P/mmHg	P/10 <sup>5</sup> Pa	Mole fraction of trimethylamine in liquid, x(CH <sub>3</sub> ) <sub>3</sub> N	283.15	760	1.013	0.680
T/K	P/mmHg	P/10 <sup>5</sup> Pa	Mole fraction of trimethylamine in liquid, x(CH <sub>3</sub> ) <sub>3</sub> N						
283.15	760	1.013	0.680						
<p>AUXILIARY INFORMATION</p>									
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>Amine was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured by a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was manually controlled to within 0.2K. The apparatus and procedure are described by Gerrard [1,2].</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <ol style="list-style-type: none"> <li>British Drug Houses or Cambrian Gases sample.</li> <li>Purified and attested by conventional procedures.</li> </ol> <p>ESTIMATED ERROR:</p> <p><math>\delta T/K = \pm 0.1</math>; <math>\delta x/x = \pm 3\%</math> (estimated by compiler)</p> <p>REFERENCES:</p> <ol style="list-style-type: none"> <li>Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1972</u>, 22 623-650.</li> <li>Gerrard, W. <i>Solubility of Gases and Liquids</i>. Plenum Press, New York. <u>1976</u>. Chapter 1.</li> </ol>								

COMPONENTS:		ORIGINAL MEASUREMENTS:		
1. N,N-Dimethylmethanamine, (Trimethylamine); C <sub>3</sub> H <sub>9</sub> N; [75-50-3]		Halban, H.		
2. Acetic acid, ethyl ester (ethyl acetate); C <sub>4</sub> H <sub>8</sub> O <sub>2</sub> ; [141-78-6]		Z. Phys. Chem. <u>1913</u> , 84, 129-159.		
VARIABLES:		PREPARED BY:		
Concentration		P. G. T. Fogg		
EXPERIMENTAL VALUES:				
T/K	Concentration of C <sub>3</sub> H <sub>9</sub> N in solution/ mol dm <sup>3</sup>	p <sub>C<sub>3</sub>H<sub>9</sub>N</sub> /mmHg	Concentration of C <sub>3</sub> H <sub>9</sub> N in solution/ concentration in gas phase	Mole fraction in solution* x <sub>C<sub>3</sub>H<sub>9</sub>N</sub>
298.2	0.213	46.7	84.9	0.0205
	0.250	54.7	85.0	0.0240
	0.267	59.0	84.1	0.0256
<p>* Calculated by the compiler, using the density of the solvent given in ref. (1), on the assumption that dissolution of gas caused negligible change of volume of the liquid phase.</p>				
AUXILIARY INFORMATION				
METHOD / APPARATUS / PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
<p>The partial pressures of trimethylamine above solutions of concentrations determined by titration, were measured by a dynamic method (refs. (2) &amp; (3)). Mixtures of hydrogen and oxygen, produced by electrolysis of sodium hydroxide solution, were passed through each solution of trimethylamine. The trimethylamine in the gas stream was absorbed in hydrochloric acid and estimated from changes in electrical conductivity due to partial neutralisation of the acid. The volumes of hydrogen/oxygen gas mixture produced by electrolysis were found from the barometric pressure and changes in a copper voltameter in series with the cell for producing the gas. The partial pressures of trimethylamine were calculated on the assumption that equilibrium was established between trimethylamine in solution and that in the gas phase, during passage of hydrogen/oxygen mixture through the solution.</p>		1. Hydrated chloride from Kahlbaum; reacted with KOH; gas dried with NaOH. 2. Purified as indicated in ref. (4); distilled over phosphorus pentoxide; b.p. 76.2-77.1°C.		
		ESTIMATED ERROR:		
		REFERENCES:		
		1. Timmermans, J. <i>Physico-Chemical Constants of Pure Organic Compounds</i> Vol. 2, Elsevier, Amsterdam. 1965 2. Gaus, Z. <i>Anorg. Chem.</i> <u>1900</u> , 25, 236. 3. Abegg, R.; Riesenfeld, H. Z. <i>Phys. Chem.</i> <u>1902</u> , 40, 84. 4. Beckmann, E. Z. <i>Phys. Chem.</i> <u>1913</u> 82, 338.		

COMPONENTS:		ORIGINAL MEASUREMENTS:		
1. N,N-Dimethylmethanamine, (Trimethylamine); $C_3H_9N$ ; [75-50-3]		Halban, H.		
2. 1,1'-Oxybis-ethane, (ethyl ether) $C_4H_{10}O$ ; [60-29-7]		Z. Phys. Chem. <u>1913</u> , 84, 129-159.		
VARIABLES:		PREPARED BY:		
Concentration		P. G. T. Fogg		
EXPERIMENTAL VALUES:				
T/K	Concentration of $C_3H_9N$ in solution/ mol dm <sup>-3</sup>	$p_{C_3H_9N}$ /mmHg	Concentration of $C_3H_9N$ in solution/ concentration in gas phase	Mole fraction in solution* $x_{C_3H_9N}$
298.2	0.0868	29.5	54.7	0.0089
	0.1270	44.3	53.3	0.0130
	0.1310	46.9	51.9	0.0134
<p>* Calculated by the compiler, using the density of the solvent given in ref. (1), on the assumption that dissolution of gas caused negligible change of volume of the liquid phase.</p>				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
<p>The partial pressures of trimethylamine above solutions of concentrations determined by titration, were measured by a dynamic method (refs. (2) &amp; (3)). Mixtures of hydrogen and oxygen, produced by electrolysis of sodium hydroxide solution, were passed through each solution of trimethylamine. The trimethylamine in the gas stream was absorbed in hydrochloric acid and estimated from changes in electrical conductivity due to partial neutralisation of the acid. The volumes of hydrogen/oxygen gas mixture produced by electrolysis were found from the barometric pressure and changes in a copper voltameter in series with the cell for producing the gas. The partial pressures of trimethylamine were calculated on the assumption that equilibrium was established between trimethylamine in solution and that in the gas phase, during passage of hydrogen/oxygen mixture through the solution.</p>		1. Hydrated chloride from Kahlbaum; reacted with KOH; gas dried with NaOH.  2. Free from alcohol.		
		ESTIMATED ERROR:		
		REFERENCES:		
		1. Marsden, C. <i>Solvent Guide</i> , Cleaver-Hume, London, 1963. 2. Gaus, Z. <i>Anorg. Chem.</i> 1900, 25, 236. 3. Abegg, R.; Riesenfeld, H. <i>Z. Phys. Chem.</i> 1902, 40, 84.		

COMPONENTS:		ORIGINAL MEASUREMENTS:		
1. N,N-Dimethylmethanamine, (Trimethylamine); C <sub>3</sub> H <sub>9</sub> N; [75-50-3] 2. 1-Phenyl-ethanone, (acetophenone); C <sub>8</sub> H <sub>8</sub> O; [98-86-2]		Halban, H. Z. Phys. Chem. <u>1913</u> , 84, 129-159.		
VARIABLES:		PREPARED BY:		
Concentration		P. G. T. Fogg		
EXPERIMENTAL VALUES:				
T/K	Concentration of C <sub>3</sub> H <sub>9</sub> N in solution/ mol dm <sup>-3</sup>	p <sub>C<sub>3</sub>H<sub>9</sub>N</sub> /mmHg	Concentration of C <sub>3</sub> H <sub>9</sub> N in solution/ concentration in gas phase	Mole fraction in solution* x <sub>C<sub>3</sub>H<sub>9</sub>N</sub>
298.2	0.212	68.5	57.6	0.0243
	0.379	120.7	58.1	0.0426
<p>* Calculated by the compiler, using the density of the solvent given in ref. (1), on the assumption that dissolution of gas caused negligible change of volume of the liquid phase.</p>				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
<p>The partial pressures of trimethylamine above solutions of concentrations determined by titration, were measured by a dynamic method (refs. (2) &amp; (3)). Mixtures of hydrogen and oxygen, produced by electrolysis of sodium hydroxide solution, were passed through each solution of trimethylamine. The trimethylamine in the gas stream was absorbed in hydrochloric acid and estimated from changes in electrical conductivity due to partial neutralisation of the acid. The volumes of hydrogen/oxygen gas mixture produced by electrolysis were found from the barometric pressure and changes in a copper voltameter in series with the cell for producing the gas. The partial pressures of trimethylamine were calculated on the assumption that equilibrium was established between trimethylamine in solution and that in the gas phase, during passage of hydrogen/oxygen mixture through the solution.</p>		1. Hydrated chloride from Kahlbaum; reacted with KOH; gas dried with NaOH. 2. Kahlbaum; purified by freezing.		
		ESTIMATED ERROR:		
		REFERENCES:		
		1. Dreisbach, R.R. <i>Physical Properties of Chemical Compounds</i> , Vol. 1, A.C.S. Washington, 1955. 2. Gaus, Z. Anorg. Chem. <u>1900</u> , 25, 236. 3. Abegg, R.; Riesenfeld, H. Z. Phys. Chem. <u>1902</u> , 40, 84.		

COMPONENTS:			ORIGINAL MEASUREMENTS:	
1. N,N-Dimethylmethanamine (trimethylamine); C <sub>3</sub> H <sub>9</sub> N; [75-50-3]			Gerrard, W.  <i>Solubility of Gases and Liquids</i> , <i>Plenum 1976</i> , Chapter 10.	
2. 1-Phenylethanone (methyl phenyl ketone); C <sub>8</sub> H <sub>8</sub> O; [98-86-2]				
VARIABLES:			PREPARED BY:	
Pressure			C. L. Young	
EXPERIMENTAL VALUES:				
			Mole fraction of trimethylamine in liquid, $x_{(\text{CH}_3)_3\text{N}}$	
T/K	P/mmHg	P/10 <sup>5</sup> Pa		
298.15	100	0.133	0.039	
	200	0.267	0.080	
	300	0.400	0.117	
	400	0.533	0.157	
	500	0.667	0.202	
	600	0.800	0.252	
	700	0.933	0.310	
	760	1.013	0.353	
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:			SOURCE AND PURITY OF MATERIALS:	
Amine was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured by a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was manually controlled to within 0.2K. The apparatus and procedure are described by Gerrard [1,2].			1. British Drug Houses or Cambrian Gases sample.  2. Purified and attested by conventional procedures.	
			ESTIMATED ERROR:	
			$\delta T/K = \pm 0.1$ ; $\delta x/x = \pm 3\%$ (estimated by compiler)	
			REFERENCES:	
			1. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1972</u> , 22 623-650. 2. Gerrard, W. <i>Solubility of Gases and Liquids</i> . <i>Plenum Press, New York.</i> <u>1976</u> . Chapter 1.	

<p>COMPONENTS:</p> <ol style="list-style-type: none"> <li>1. N,N-Dimethylmethanamine (trimethylamine); C<sub>3</sub>H<sub>9</sub>N; [75-50-3]</li> <li>2. Ethoxybenzene (ethyl phenyl ether); C<sub>8</sub>H<sub>10</sub>O; [103-73-1]</li> </ol>	<p>ORIGINAL MEASUREMENTS:</p> <p>Gerrard, W.</p> <p><i>Solubility of Gases and Liquids</i>, Plenum <u>1976</u>, Chapter 10.</p>																													
<p>VARIABLES:</p> <p style="text-align: center;">Pressure</p>	<p>PREPARED BY:</p> <p style="text-align: center;">C. L. Young</p>																													
<p>EXPERIMENTAL VALUES:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">T/K</th> <th style="text-align: left;">P/mmHg</th> <th style="text-align: left;">P/10<sup>5</sup>Pa</th> <th style="text-align: left;">Mole fraction of trimethylamine in liquid, (CH<sub>3</sub>)<sub>3</sub>N</th> </tr> </thead> <tbody> <tr> <td rowspan="8" style="vertical-align: top;">283.15</td> <td>100</td> <td>0.133</td> <td>0.076</td> </tr> <tr> <td>200</td> <td>0.267</td> <td>0.160</td> </tr> <tr> <td>300</td> <td>0.400</td> <td>0.255</td> </tr> <tr> <td>400</td> <td>0.533</td> <td>0.354</td> </tr> <tr> <td>500</td> <td>0.667</td> <td>0.460</td> </tr> <tr> <td>600</td> <td>0.800</td> <td>0.566</td> </tr> <tr> <td>700</td> <td>0.933</td> <td>0.680</td> </tr> <tr> <td>760</td> <td>1.013</td> <td>0.750</td> </tr> </tbody> </table>		T/K	P/mmHg	P/10 <sup>5</sup> Pa	Mole fraction of trimethylamine in liquid, (CH <sub>3</sub> ) <sub>3</sub> N	283.15	100	0.133	0.076	200	0.267	0.160	300	0.400	0.255	400	0.533	0.354	500	0.667	0.460	600	0.800	0.566	700	0.933	0.680	760	1.013	0.750
T/K	P/mmHg	P/10 <sup>5</sup> Pa	Mole fraction of trimethylamine in liquid, (CH <sub>3</sub> ) <sub>3</sub> N																											
283.15	100	0.133	0.076																											
	200	0.267	0.160																											
	300	0.400	0.255																											
	400	0.533	0.354																											
	500	0.667	0.460																											
	600	0.800	0.566																											
	700	0.933	0.680																											
	760	1.013	0.750																											
<p>AUXILIARY INFORMATION</p>																														
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>Amine was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured by a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was manually controlled to within 0.2K. The apparatus and procedure are described by Gerrard [1,2].</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <ol style="list-style-type: none"> <li>1. British Drug Houses or Cambrian Gases sample.</li> <li>2. Purified and attested by conventional procedures.</li> </ol> <p>ESTIMATED ERROR:</p> <p style="text-align: center;"><math>\delta T/K = \pm 0.1</math>; <math>\delta x/x = \pm 3\%</math> (estimated by compiler).</p> <p>REFERENCES:</p> <ol style="list-style-type: none"> <li>1. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1972</u>, <i>22</i>, 623-650.</li> <li>2. Gerrard, W. <i>Solubility of Gases and Liquids</i>. Plenum Press, New York. <u>1976</u>, Chapter. 1.</li> </ol>																													

COMPONENTS:		ORIGINAL MEASUREMENTS:		
1. N,N-Dimethylmethanamine, (Trimethylamine); C <sub>3</sub> H <sub>9</sub> N; [75-50-3] 2. Benzoic acid, ethyl ester (ethyl benzoate) C <sub>9</sub> H <sub>10</sub> O <sub>2</sub> ; [93-89-0]		Halban, H. <i>Z. Phys. Chem.</i> <u>1913</u> , 84, 129-159.		
VARIABLES:		PREPARED BY:		
Concentration		P. G. T. Fogg		
EXPERIMENTAL VALUES:				
T/K	Concentration of C <sub>3</sub> H <sub>9</sub> N in solution/ mol dm <sup>-3</sup>	p <sub>C<sub>3</sub>H<sub>9</sub>N</sub> /mmHg	Concentration of C <sub>3</sub> H <sub>9</sub> N in solution/ concentration in gas phase	Mole fraction in solution* <sup>x</sup> C <sub>3</sub> H <sub>9</sub> N
298.2	0.1561	38.1	76.2	0.0220
	0.1622	39.6	76.2	0.0228
* Calculated by the compiler, using the density of the solvent given in ref. (1), on the assumption that dissolution of gas caused negligible change of volume of the liquid phase.				
AUXILIARY INFORMATION				
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:		
The partial pressures of trimethylamine above solutions of concentrations determined by titration, were measured by a dynamic method (refs. (2) & (3)). Mixtures of hydrogen and oxygen, produced by electrolysis of sodium hydroxide solution, were passed through each solution of trimethylamine. The trimethylamine in the gas stream was absorbed in hydrochloric acid and estimated from changes in electrical conductivity due to partial neutralisation of the acid. The volumes of hydrogen/oxygen gas mixture produced by electrolysis were found from the barometric pressure and changes in a copper voltmeter in series with the cell for producing the gas. The partial pressures of trimethylamine were calculated on the assumption that equilibrium was established between trimethylamine in solution and that in the gas phase, during passage of hydrogen/oxygen mixture through the solution.		1. Hydrated chloride from Kahlbaum; reacted with KOH; gas dried with NaOH. 2. Kahlbaum; b.p. 212.4-212.9°C (764 mmHg).		
		ESTIMATED ERROR:		
		REFERENCES:		
		1. Timmermans, J. <i>Physico-Chemical Constants of Pure Organic Compounds</i> Vol. 2, Elsevier, Amsterdam, 1965. 2. Gaus, <i>Z. Anorg. Chem.</i> <u>1900</u> , 25, 236. 3. Abegg, R.; Riesenfeld, H. <i>Z. Phys. Chem.</i> <u>1902</u> , 40, 84.		

COMPONENTS:			ORIGINAL MEASUREMENTS:
1. N,N-Dimethylmethanamine (trimethylamine); C <sub>3</sub> H <sub>9</sub> N; [75-50-3]			Gerrard, W.
2. Benzoic acid, ethyl ester (ethyl benzoate); C <sub>9</sub> H <sub>10</sub> O <sub>2</sub> ; [93-89-0]			<i>Solubility of Gases and Liquids</i> , <i>Plenum 1976</i> , Chapter 10.
VARIABLES:			PREPARED BY:
Temperature, pressure			C. L. Young
EXPERIMENTAL VALUES:			
T/K	P/mmHg	P/10 <sup>5</sup> Pa	Mole fraction of trimethylamine in liquid, x(CH <sub>3</sub> ) <sub>3</sub> N
293.15	760	1.013	0.506
298.15	100	0.133	0.051
	200	0.267	0.103
	300	0.400	0.152
	400	0.533	0.205
	500	0.667	0.256
	600	0.800	0.292
	700	0.933	0.376
	760	1.013	0.423
AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
<p>Amine was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured by a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was manually controlled to within 0.2K. The apparatus and procedure are described by Gerrard [1,2].</p>		1. British Drug Houses or Cambrian Gases sample. 2. Purified and attested by conventional procedures.	
		ESTIMATED ERROR:	
		$\delta T/K = \pm 0.1$ ; $\delta x/x = \pm 3\%$ (estimated by compiler)	
		REFERENCES:	
		1. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1972</u> , 22 623-650. 2. Gerrard, W. <i>Solubility of Gases and Liquids</i> . <i>Plenum Press, New York.</i> <u>1976</u> . Chapter 1.	



EXPERIMENTAL VALUES:			Mole fraction of trimethylamine in liquid, $x_{(\text{CH}_3)_3\text{N}}$
T/K	P/mmHg	P/10 <sup>5</sup> Pa	
293.15	400	0.533	0.376
	500	0.667	0.452
	600	0.800	0.524
	700	0.933	0.595
	760	1.013	0.630
298.15	100	0.133	0.148
	200	0.267	0.232
	300	0.400	0.302
	400	0.533	0.366
	500	0.667	0.426
	600	0.800	0.482
	700	0.933	0.536
760	1.013	0.567	

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. N,N-Dimethylmethanamine (trimethylamine); C <sub>3</sub> H <sub>9</sub> N; [75-50-3]	Gerrard, W. <i>Solubility of Gases and Liquids</i> ,
2. 1,1'-Oxybisoctane (dioctyl ether); C <sub>16</sub> H <sub>34</sub> O; [629-82-3]	Plenum <u>1976</u> , Chapter 10.
VARIABLES:	PREPARED BY:
Temperature, pressure	C. L. Young

AUXILIARY INFORMATION			
METHOD/APPARATUS/PROCEDURE:		SOURCE AND PURITY OF MATERIALS:	
<p>Amine was passed into a known weight of pure liquid in a bubbler tube at a total pressure measured by a manometer assembly. The amount of absorbed gas was estimated by weighing. The temperature was manually controlled to within 0.2K. The apparatus and procedure are described by Gerrard [1,2].</p>		<p>1. British Drug Houses or Cambrian Gases sample.</p> <p>2. Purified and attested by conventional procedures.</p>	
		ESTIMATED ERROR:	
		$\delta T/K = \pm 0.1$ ; $\delta x/x = \pm 3\%$ (estimated by compiler)	
		REFERENCES:	
		<p>1. Gerrard, W. <i>J. Appl. Chem. Biotechnol.</i> <u>1972</u>, 22 623-650.</p> <p>2. Gerrard, W. <i>Solubility of Gases and Liquids</i>. Plenum Press, New York. <u>1976</u>. Chapter 1.</p>	