

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) 1,2-Diethoxyethane; $\text{C}_6\text{H}_{14}\text{O}_2$; [629-14-1]	ORIGINAL MEASUREMENTS: Kirmse, E.M. <i>Tr. II Vses. Kong. po Teor. Rastvorov</i> 1971, 200-6.
VARIABLES: T/K = 298	PREPARED BY: T. Mioduski and M. Salomon
EXPERIMENTAL VALUES: <p>The solubility of NdBr_3 in 1,2-diethoxyethane at 25°C was reported as</p> <p style="text-align: center;">0.5 mass %</p> <p>The corresponding molality calculated by the compiler is</p> <p style="text-align: center;">0.013 mol kg^{-1}</p> <p>The nature of the solid phase was not specified.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Experimental details not given, but were probably similar to previous works of the author which are compiled throughout this volume.	SOURCE AND PURITY OF MATERIALS: Nothing specified, but based on previous work by the author the anhydrous salt was probably prepared by the method of Taylor and Carter (1). ESTIMATED ERROR: Nothing specified. REFERENCES: 1. Taylor, M.D.; Carter, C.P. <i>J. Inorg. Nucl. Chem.</i> 1962, 24, 387.

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) Alkyl ethers	ORIGINAL MEASUREMENTS: Kirmse, E.M.; Dressler, H. Z. Chem. <u>1975</u> , 15, 239-40.																									
VARIABLES: Room Temperature: (293-298 K)	PREPARED BY: T. Mioduski and M. Salomon																									
EXPERIMENTAL VALUES: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">solvent</th> <th colspan="3" style="text-align: right;">solubility^a</th> </tr> <tr> <th></th> <th>mass %</th> <th>mol kg⁻¹</th> </tr> </thead> <tbody> <tr> <td>1-methoxybutane; $\text{C}_5\text{H}_{12}\text{O}$; [628-28-4]</td> <td>1.6</td> <td>0.042</td> </tr> <tr> <td>1-methoxypentane; $\text{C}_6\text{H}_{14}\text{O}$; [628-80-8]</td> <td>6.1</td> <td>0.169</td> </tr> <tr> <td>1-methoxyheptane; $\text{C}_8\text{H}_{18}\text{O}$; [629-32-3]</td> <td>7.1^b</td> <td>0.199</td> </tr> <tr> <td>1-methoxyoctane; $\text{C}_9\text{H}_{20}\text{O}$; [929-56-6]</td> <td>6.9^c</td> <td>0.193</td> </tr> <tr> <td>1-methoxynonane; $\text{C}_{10}\text{H}_{22}\text{O}$; [7289-51-2]</td> <td>2.1</td> <td>0.056</td> </tr> <tr> <td>1-methoxydecane; $\text{C}_{11}\text{H}_{24}\text{O}$; [7289-52-3]</td> <td>3.6</td> <td>0.097</td> </tr> </tbody> </table> <p>^aMolalities calculated by the compilers. Composition of most solid phases were not specified.</p> <p>^bSolid phase is $\text{NdBr}_3 \cdot 2\text{C}_8\text{H}_{18}\text{O}$.</p> <p>^cSolid phase is $\text{NdBr}_3 \cdot 2\text{C}_9\text{H}_{20}\text{O}$.</p>		solvent	solubility ^a				mass %	mol kg ⁻¹	1-methoxybutane; $\text{C}_5\text{H}_{12}\text{O}$; [628-28-4]	1.6	0.042	1-methoxypentane; $\text{C}_6\text{H}_{14}\text{O}$; [628-80-8]	6.1	0.169	1-methoxyheptane; $\text{C}_8\text{H}_{18}\text{O}$; [629-32-3]	7.1 ^b	0.199	1-methoxyoctane; $\text{C}_9\text{H}_{20}\text{O}$; [929-56-6]	6.9 ^c	0.193	1-methoxynonane; $\text{C}_{10}\text{H}_{22}\text{O}$; [7289-51-2]	2.1	0.056	1-methoxydecane; $\text{C}_{11}\text{H}_{24}\text{O}$; [7289-52-3]	3.6	0.097
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AUXILIARY INFORMATION																										
METHOD/APPARATUS/PROCEDURE: The solute-solvent mixtures were isothermally agitated (at room temperature) until equilibrium was attained. The anhydrous reagents were handled in a dry box containing P_4O_{10} . Nd was determined by complexometric titration using Xylenol Orange indicator. The reported solubilities are mean values based on four determinations.	SOURCE AND PURITY OF MATERIALS: Nothing specified. ESTIMATED ERROR: Nothing specified. REFERENCES:																									

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) Tetrahydrofuran; $\text{C}_4\text{H}_8\text{O}$; [109-99-9]	ORIGINAL MEASUREMENTS: Rossmannith, K. <i>Monatsh. Chem.</i> <u>1966</u> , 97, 1357-64.
VARIABLES: Room Temperature: $T/K = 294-296$	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: The solubility of NdBr_3 in tetrahydrofuran at $21-23^\circ\text{C}$ was reported to be 0.71 g per 100 ml of solution ($0.018 \text{ mol dm}^{-3}$, compiler).	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Isothermal method employed. The solution was equilibrated in an extractor with agitation for 60-80 hours at room temperature. Neodymium was determined by the oxalate method and by titration with EDTA using Xylenol Orange indicator. The solvent was determined by difference. Anhydrous materials were handled in a dry box through which was passed a stream of nitrogen free of carbon dioxide. The solid phase is $\text{NdBr}_3 \cdot 3.5\text{C}_4\text{H}_8\text{O}$.	SOURCE AND PURITY OF MATERIALS: Sources and purities of initial materials not specified. NdBr_3 was prepared by conversion of the oxide by high temperature reaction with an excess of NH_4Br followed by heating the product in a stream of dry nitrogen, and then in vacuum to remove unreacted NH_4Br . Tetrahydrofuran was distilled from LiAlH_4 . ESTIMATED ERROR: Nothing specified. REFERENCES:

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) 1,4-Dioxane; $\text{C}_4\text{H}_8\text{O}_2$; [123-91-1]	ORIGINAL MEASUREMENTS: Kirmse, E.M.; Zwietasch, K.J.; Tirschmann, J.; Oelsner, L.; Niedergeases, U. <i>Z. Chem.</i> <u>1968</u> , <i>8</i> , 472-3. Kirmse, E.M. <i>Tr. II Vses. Konf. po Teor. Rastvorov.</i> <u>1971</u> , 200-6.
VARIABLES: Room temperature: T/K around 298	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: <p>The solubility of NdBr_3 in p-dioxane at about 25°C was given as</p> <p style="text-align: center;">0.9₅ mass %</p> <p>The corresponding molality calculated by the compiler is</p> <p style="text-align: center;">0.025 mol kg⁻¹</p> <p>The nature of the solid phase was not specified.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The solute-solvent mixtures were isothermally agitated at 25°C or at room temperature. Authors state that the difference found for the solubility was within experimental error limits. Nd was determined by complexometric titration. No other details given.	SOURCE AND PURITY OF MATERIALS: The anhydrous salt was prepared by the method of Taylor and Carter (1). No other information given. ESTIMATED ERROR: Nothing specified. REFERENCES: 1. Taylor, M.D.; Carter, C.P. <i>J. Inorg. Nucl. Chem.</i> <u>1962</u> , <i>24</i> , 387.

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) 1,2-Ethanediamine; $\text{C}_2\text{H}_8\text{N}_2$; [107-15-3]	ORIGINAL MEASUREMENTS: Moeller, T.; Zimmerman, P.A. <i>J. Am. Chem. Soc.</i> <u>1953</u> , <i>75</i> , 3940-5.
VARIABLES: T/K = 303.15	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: The solubility of NdBr_3 in $\text{H}_2\text{NCH}_2\text{CH}_2\text{NH}_2$ at 30°C was given as $0.936 \text{ g}/100\text{g solvent}$ The corresponding molality calculated by the compiler is $0.0244 \text{ mol kg}^{-1}$ Solid phase composition not determined.	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The isothermal method was used. Reaction mixtures were sealed in 25 x 200 mm test tubes and thermostated for one week at $30 \pm 0.05^\circ\text{C}$ with frequent agitation. The density of the supernatant liquid was determined pycnometrically (but not reported in the source paper), and the neodymium content determined by precipitating the hydrous hydroxide from an aliquot by adding excess water, igniting to the oxide and weighing. All anhydrous substances were handled in a dry box through which a current of nitrogen was passed. The nitrogen was freed of CO_2 and moisture by passage through concentrated sulfuric acid, soda lime, and Drierite. All solutions were prepared in the dry box, and were sealed before being removed.	SOURCE AND PURITY OF MATERIALS: Nd_2O_3 was converted to the bromide by high temperature reaction with NH_4Br . Unreacted NH_4Br was removed by heating in N_2 and then in vacuo. The oxide labeled Nd-28 from University stocks contained traces of other rare earth metals. Ethylenediamine (Carbide and Carbon Chemicals) purified as in (1). The product had an electrolytic resistivity of $2.65 \times 10^5 \text{ ohm cm}^{-1}$. The solvent was stored under nitrogen in glass stoppered flasks sealed with wax. ESTIMATED ERROR: Soly: precision probably 1% at best (compiler). Temp: precision $\pm 0.05\text{K}$ (authors). REFERENCES: 1. Putnam, G.L.; Kobe, K.A. <i>Trans. Electrochem. Soc.</i> <u>1938</u> , <i>74</i> , 609.

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) Alkyl amines	ORIGINAL MEASUREMENTS: Kirmse, E. M. <i>Tr. II Vses. Konf. po Teor. Rastvorov</i> <u>1971</u> , 200-6.																														
VARIABLES: T/K = 298	PREPARED BY: T. Mioduski and M. Salomon																														
EXPERIMENTAL VALUES: <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: none;">solvent</th> <th style="border-bottom: none;"></th> <th style="border-bottom: none;"></th> <th colspan="2" style="text-align: center; border-bottom: none;">solubility^a</th> </tr> <tr> <th style="border-top: none;"></th> <th style="border-top: none;"></th> <th style="border-top: none;"></th> <th style="text-align: center; border-top: none;">mass %</th> <th style="text-align: center; border-top: none;">mol kg⁻¹</th> </tr> </thead> <tbody> <tr> <td style="border-top: none;">2-propanamine;</td> <td style="border-top: none;">iso-C₃H₉N;</td> <td style="border-top: none;">[75-31-0]</td> <td style="text-align: center; border-top: none;">15.9</td> <td style="text-align: center; border-top: none;">0.492</td> </tr> <tr> <td style="border-top: none;">1-butanamine;</td> <td style="border-top: none;">n-C₄H₁₁N;</td> <td style="border-top: none;">[109-73-9]</td> <td style="text-align: center; border-top: none;">10.8</td> <td style="text-align: center; border-top: none;">0.315</td> </tr> <tr> <td style="border-top: none;">2-butanamine;</td> <td style="border-top: none;">sec-C₄H₁₁N;</td> <td style="border-top: none;">[13952-84-6]</td> <td style="text-align: center; border-top: none;">18.1</td> <td style="text-align: center; border-top: none;">0.576</td> </tr> <tr> <td style="border-top: none;">di-2-butylamine;</td> <td style="border-top: none;">(sec-C₄H₉)₂NH;</td> <td style="border-top: none;">[626-23-3]</td> <td style="text-align: center; border-top: none;">0.02</td> <td style="text-align: center; border-top: none;">5 x 10⁻⁴</td> </tr> </tbody> </table> <p>^aMolalities calculated by the compilers.</p>		solvent			solubility ^a					mass %	mol kg ⁻¹	2-propanamine;	iso-C ₃ H ₉ N;	[75-31-0]	15.9	0.492	1-butanamine;	n-C ₄ H ₁₁ N;	[109-73-9]	10.8	0.315	2-butanamine;	sec-C ₄ H ₁₁ N;	[13952-84-6]	18.1	0.576	di-2-butylamine;	(sec-C ₄ H ₉) ₂ NH;	[626-23-3]	0.02	5 x 10 ⁻⁴
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METHOD/APPARATUS/PROCEDURE: Experimental details not given, but were probably similar to previous works of the author which are compiled throughout this volume. Nature of solid phases not specified.	SOURCE AND PURITY OF MATERIALS: Nothing specified, but based on previous work by the author the anhydrous salt was probably prepared by the method of Taylor and Carter (1). ESTIMATED ERROR: Nothing specified. REFERENCES: 1. Taylor, M.D.; Carter, C.P. <i>J. Inorg. Nucl. Chem.</i> <u>1962</u> , 24, 387.																														

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) Ethanolamine; $\text{C}_2\text{H}_7\text{NO}$; [75-39-8]	ORIGINAL MEASUREMENTS: Moeller, T.; Zimmerman, P.A. <i>J. Am. Chem. Soc.</i> <u>1953</u> , 75, 3940-5.
VARIABLES: T/K = 303.15	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: <p>The solubility of NdBr_3 in $\text{H}_2\text{NCH}_2\text{CH}_2\text{OH}$ at 30°C was given as</p> <p style="text-align: center;">3.20 g/100g solvent</p> <p>The corresponding molality calculated by the compiler is</p> <p style="text-align: center;">$0.0833 \text{ mol kg}^{-1}$</p> <p>Solid phase composition not determined.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The isothermal method was used. Reaction mixtures were sealed in 25 x 200 mm test tubes and thermostated for one week at $30 \pm 0.05^\circ\text{C}$ with frequent agitation. The density of the supernatant liquid was determined pycnometrically (but not reported in the source paper), and the neodymium content determined by precipitating the hydrous hydroxide from an aliquot by adding excess water, igniting to the oxide and weighing.	SOURCE AND PURITY OF MATERIALS: Nd_2O_3 was converted to the bromide by high temperature reaction with NH_4Br . Unreacted NH_4Br was removed by heating in N_2 and then in vacuo. The oxide labeled Nd-28 from University stocks contained traces of other rare earth metals. Ethanolamine (Carbide and Carbon Chemicals) purified as in (1). The product boiled at 168°C (uncor), had a density of 1.0108 g/ml at 26.5°C and had an electrolytic conductivity of $1.93 \times 10^{-5} \text{ S cm}^{-1}$ at 20°C . It was stored under N_2 in flasks sealed with wax.
All anhydrous substances were handled in a dry box through which a current of nitrogen was passed. The nitrogen was freed of CO_2 and moisture by passage through concentrated sulfuric acid, soda lime, and Drierite. All solutions were prepared in the dry box, and were sealed before being removed.	ESTIMATED ERROR: Soly: precision probably 1% at best (compiler). Temp: precision $\pm 0.05 \text{ K}$ (authors).
	REFERENCES: 1. Dirkse, T.P.; Briscoe, H.T. <i>Metal Ind.</i> <u>1938</u> , 36, 284.

COMPONENTS: (1) Neodymium bromide; NdBr_3 ; [13536-80-6] (2) Morpholine; $\text{C}_4\text{H}_9\text{NO}$; [110-91-8]	ORIGINAL MEASUREMENTS: Moeller, T.; Zimmerman, P.A. <i>J. Am. Chem. Soc.</i> <u>1953</u> , 75, 3940-5.
VARIABLES: $T/K = 303.15$	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: <p>The solubility of NdBr_3 in morpholine at 30°C was given as</p> <p style="text-align: center;">$0.099 \text{ g}/100\text{g solvent}$</p> <p>The corresponding molality calculated by the compiler is</p> <p style="text-align: center;">$2.58 \times 10^{-3} \text{ mol kg}^{-1}$</p> <p>Solid phase composition not determined.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: The isothermal method was used. Reaction mixtures were sealed in 25 x 200 mm test tubes and thermostated for one week at $30 \pm 0.05^\circ\text{C}$ with frequent agitation. The density of the supernatant liquid was determined pycnometrically (but not reported in the source paper), and the neodymium content determined by precipitating the hydrous hydroxide from an aliquot by adding excess water, igniting to the oxide and weighing. All anhydrous substances were handled in a dry box through which a current of nitrogen was passed. The nitrogen was freed of CO_2 and moisture by passage through concentrated sulfuric acid, soda lime, and Drierite. All solutions were prepared in the dry box, and were sealed before being removed.	SOURCE AND PURITY OF MATERIALS: Nd_2O_3 was converted to the bromide by high temperature reaction with NH_4Br . Unreacted NH_4Br was removed by heating in N_2 and then in vacuo. The oxide labeled Nd-28 from University stocks contained traces of other rare earth metals. Morpholine was purified as in (1), and had a density of 0.9863 g/ml at 27°C , and an electrolytic conductivity of $3.368 \times 10^{-8} \text{ S cm}^{-1}$. The solvent was stored under nitrogen in glass stoppered flasks sealed with wax. ESTIMATED ERROR: Soly: precision probably 1% at best (compiler). Temp: precision $\pm 0.05 \text{ K}$ (authors). REFERENCES: 1. Dermer, V.H.; Dermer, O.C. <i>J. Am. Chem. Soc.</i> <u>1937</u> , 59, 1148.