

<p>COMPONENTS:</p> <p>(1) Praseodymium chloride; PrCl_3; [10361-79-2]</p> <p>(2) Hexachloro-1,3-butadiene; C_4Cl_6; [87-68-3]</p>	<p>ORIGINAL MEASUREMENTS:</p> <p>Shevtsova, Z.N.; Korshunov, B.G.; Safonov, V.V.; Kogan, L.M.; Gudkova, V.I.</p> <p><i>Zh. Neorg. Khim.</i> <u>1968</u>, <i>13</i>, 3096-9; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> <u>1968</u>, <i>13</i>, 1596-8.</p>																														
<p>VARIABLES:</p> <p>Temperature</p>	<p>PREPARED BY:</p> <p>T. Mioduski and M. Salomon</p>																														
<p>EXPERIMENTAL VALUES:</p> <p>Composition, densities, viscosities and refractive indices of saturated solutions.</p> <table border="1" data-bbox="216 604 1232 850"> <thead> <tr> <th rowspan="2">t/°C</th> <th colspan="2">solubility^a</th> <th rowspan="2">d/g cm⁻³</th> <th rowspan="2">η/p</th> <th rowspan="2">n_D²⁰</th> <th rowspan="2">nature of the solid phase</th> </tr> <tr> <th>mass %</th> <th>mol kg⁻¹</th> </tr> </thead> <tbody> <tr> <td>25</td> <td>0.039</td> <td>0.00158</td> <td>1.679</td> <td>0.0386</td> <td>1.5565</td> <td>$\text{PrCl}_3 \cdot 4.5\text{H}_2\text{O}$</td> </tr> <tr> <td>50</td> <td>0.041</td> <td>0.00166</td> <td>1.646</td> <td>0.0309</td> <td>1.5554</td> <td>"</td> </tr> <tr> <td>75</td> <td>0.062</td> <td>0.00251</td> <td>1.612</td> <td>0.0249</td> <td>1.5550</td> <td>$\text{PrCl}_3 \cdot 2\text{H}_2\text{O}$</td> </tr> </tbody> </table> <p>^aMolalities calculated by the compilers.</p>		t/°C	solubility ^a		d/g cm ⁻³	η/p	n _D ²⁰	nature of the solid phase	mass %	mol kg ⁻¹	25	0.039	0.00158	1.679	0.0386	1.5565	$\text{PrCl}_3 \cdot 4.5\text{H}_2\text{O}$	50	0.041	0.00166	1.646	0.0309	1.5554	"	75	0.062	0.00251	1.612	0.0249	1.5550	$\text{PrCl}_3 \cdot 2\text{H}_2\text{O}$
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<p>AUXILIARY INFORMATION</p>																															
<p>METHOD/APPARATUS/PROCEDURE:</p> <p>Isothermal method. Equilibrium attained after 12 d at 25°C, 10 d at 50°C, and 7 d at 75°C.</p> <p>Initial salt, liquid phases and solid phases analysed for Pr by the oxalate method or by titration with Trilon B using Xylene Orange indicator, and for chloride by the Volhard method. Presumably water was found by difference. Solid phase compositions confirmed by X-ray analysis.</p>	<p>SOURCE AND PURITY OF MATERIALS:</p> <p>$\text{PrCl}_3 \cdot 7\text{H}_2\text{O}$ prepd by dissolving 99.5% Pr_2O_3 in HCl, evaporating and cooling, recrystallizing, and drying in a desiccator. The oxide contained oxide impurities of other rare earths and Fe (0.01%), Ca ((0.01-0.05%), and Cu (0.01%). The product was analysed for metal and halide (mass %): Pr 37.70%, Cl 28.85%, H_2O 33.45%.</p> <p>Purified solvent (method not specified) had the following properties: $d_4^{20} = 1.6807 \text{ g cm}^{-3}$, and $n_D^{20} = 1.5543$.</p> <p>ESTIMATED ERROR:</p> <p>Soly: nothing specified.</p> <p>Temp: accuracy $\pm 0.1 \text{ K}$ (authors).</p> <p>REFERENCES:</p>																														

COMPONENTS: (1) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Methanol; CH_4O ; [67-56-1]	ORIGINAL MEASUREMENTS: Grigorovich, Z.I. <i>Zh. Neorg. Khim.</i> <u>1963</u> , 8, 986-9.															
VARIABLES: Temperature	PREPARED BY: T. Mioduski															
EXPERIMENTAL VALUES: <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3" style="text-align: center;">solubility^a</th> </tr> <tr> <th style="text-align: center;">$t/^\circ\text{C}$</th> <th style="text-align: center;">mass %</th> <th style="text-align: center;">mol kg^{-1}</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">45.02</td> <td style="text-align: center;">3.312</td> </tr> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">53.69</td> <td style="text-align: center;">4.689</td> </tr> <tr> <td style="text-align: center;">50</td> <td style="text-align: center;">59.94</td> <td style="text-align: center;">6.051</td> </tr> </tbody> </table> <p>^aMolalities calculated by the compiler. At 25°C the solid phase is $\text{PrCl}_3 \cdot 3.5\text{CH}_3\text{OH}$.</p>		solubility ^a			$t/^\circ\text{C}$	mass %	mol kg^{-1}	0	45.02	3.312	25	53.69	4.689	50	59.94	6.051
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COMPONENTS: (1) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Ethanol; $\text{C}_2\text{H}_6\text{O}$; [64-17-5]	ORIGINAL MEASUREMENTS: Grigorovich, Z. I. <i>Zh. Neorg. Khim.</i> <u>1963</u> , 8, 986-9.																				
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VARIABLES: Temperature	PREPARED BY: T. Mioduski and M. Salomon																																																	
EXPERIMENTAL VALUES: solubility of $\text{PrCl}_3 \cdot 6\text{H}_2\text{O}$ in 96.8 % $\text{C}_2\text{H}_5\text{OH}^a$ <table border="1" data-bbox="174 531 1270 850"> <thead> <tr> <th></th> <th>sample 1</th> <th>sample 2</th> <th>sample 3</th> <th>sample 4</th> <th colspan="2">mean solubilities</th> </tr> <tr> <th>t/°C</th> <th>g/100 g^b</th> <th>g/100 g</th> <th>g/100 g</th> <th>g/100 g</th> <th>g/100 g</th> <th>mol kg^{-1c}</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>43.22</td> <td>43.49</td> <td>43.26</td> <td>43.08</td> <td>43.32</td> <td>1.219</td> </tr> <tr> <td>30</td> <td>45.01</td> <td>45.21</td> <td>44.90</td> <td>45.00</td> <td>45.03</td> <td>1.267</td> </tr> <tr> <td>40</td> <td>48.35</td> <td>48.46</td> <td>48.23</td> <td>48.14</td> <td>48.29</td> <td>1.359</td> </tr> <tr> <td>50</td> <td>54.42</td> <td>54.41</td> <td>54.20</td> <td>54.46</td> <td>54.37</td> <td>1.530</td> </tr> <tr> <td>60</td> <td>63.02</td> <td>62.98</td> <td>63.11</td> <td>63.06</td> <td>63.04</td> <td>1.774</td> </tr> </tbody> </table> <p>^aIt is not clearly stated whether the mixture is 96.8 mass % or 96.8 volume % ethanol.</p> <p>^bSolubilities reported as grams of hexahydrate in 100 g of solvent.</p> <p>^cMolalities calculated by the compilers.</p>			sample 1	sample 2	sample 3	sample 4	mean solubilities		t/°C	g/100 g ^b	g/100 g	g/100 g	g/100 g	g/100 g	mol kg ^{-1c}	20	43.22	43.49	43.26	43.08	43.32	1.219	30	45.01	45.21	44.90	45.00	45.03	1.267	40	48.35	48.46	48.23	48.14	48.29	1.359	50	54.42	54.41	54.20	54.46	54.37	1.530	60	63.02	62.98	63.11	63.06	63.04	1.774
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METHOD/APPARATUS/PROCEDURE: Isothermal method used. Equilibrium was reached after 3-4 h. Identical results obtained by approaching equilibrium from above and below. Two of the data points in the table were obtained after 3 h of equilibration, and the remaining two data points were obtained after 4 h of equilibration. The metal content in each aliquot taken for analysis was determined by complexometric titration with Trilon B. Analyses of the solids withdrawn at 20°C, 40°C and 60°C showed the solid phase to be the hexahydrate: i.e. ethanol was not found in any of the solid phases. The hexahydrate melted at 113.4 - 114°C.	SOURCE AND PURITY OF MATERIALS: $\text{PrCl}_3 \cdot 6\text{H}_2\text{O}$ prep'd by dissolving c.p. grade oxide in dil (1:3) HCl followed by evapn and crystn. The crystals were dried in a desiccator over CaCl_2 , P_2O_5 and NaOH. The crystals analysed for the metal by titrn with Trilon B, and for Cl by the Volhard method. Found (%) for Pr: 39.50, 39.55 (calcd 39.64). Found (%) for Cl: 29.80, 30.10 (calcd 29.97). 96.8% ethanol prep'd by prolonged boiling of c.p. grade 93.5% ethanol with anhydr CuSO_4 followed by distn. Ethanol concn determined refractometrically and pycnometrically.																																																	
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COMPONENTS: (1) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Alcohols	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="1" data-bbox="168 492 1282 743"> <thead> <tr> <th rowspan="2">solvent</th> <th rowspan="2"></th> <th rowspan="2">PrCl₃ solubility^a</th> <th colspan="2">nature of the solid phase</th> </tr> <tr> <th>mass %</th> <th>mol kg⁻¹</th> </tr> </thead> <tbody> <tr> <td>1,2-ethanediol;</td> <td>C₂H₆O₂; [107-21-1]</td> <td>30.2</td> <td>1.75</td> <td>PrCl₃·3C₂H₆O₂</td> </tr> <tr> <td>1-propanol;</td> <td>C₃H₈O; [71-23-8]</td> <td>23.5</td> <td>1.24</td> <td>PrCl₃·C₃H₈O</td> </tr> <tr> <td>2-propen-1-ol^b;</td> <td>C₃H₆O; [107-18-6]</td> <td>39.5</td> <td>2.64</td> <td>PrCl₃·C₃H₆O</td> </tr> </tbody> </table> <p>^aMolalities calculated by the compilers.</p> <p>^bIn the original paper the solvent was specified simply as C₃H₅OH. Upon request, the author kindly identified the solvent as allyl alcohol.</p>		solvent		PrCl ₃ solubility ^a	nature of the solid phase		mass %	mol kg ⁻¹	1,2-ethanediol;	C ₂ H ₆ O ₂ ; [107-21-1]	30.2	1.75	PrCl ₃ ·3C ₂ H ₆ O ₂	1-propanol;	C ₃ H ₈ O; [71-23-8]	23.5	1.24	PrCl ₃ ·C ₃ H ₈ O	2-propen-1-ol ^b ;	C ₃ H ₆ O; [107-18-6]	39.5	2.64	PrCl ₃ ·C ₃ H ₆ O
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AUXILIARY INFORMATION																							
METHOD/APPARATUS/PROCEDURE: Only the nature of the solid phase was reported. 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> <u>1962</u> , 24, 387.																						

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COMPONENTS: (1) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) 1-Butanol; $\text{C}_4\text{H}_{10}\text{O}$; [71-36-3]	ORIGINAL MEASUREMENTS: Grigorovich, Z.I. <i>Zh. Neorg. Khim.</i> <u>1963</u> , <i>8</i> , 986-9.															
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COMPONENTS: (1) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) 1-Pentanol; $\text{C}_5\text{H}_{12}\text{O}$; [71-41-0]	ORIGINAL MEASUREMENTS: Grigorovich, Z.I. <i>Zh. Neorg. Khim.</i> <u>1963</u> , 8, 986-9.															
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AUXILIARY INFORMATION																
METHOD/APPARATUS/PROCEDURE: Isothermal method used. Solutions were thermostated and equilibrated for 3 days. Both the saturated solutions and the solid phase were analyzed for PrCl_3 (no details were given). The alcohol adduct was studied thermographically.	SOURCE AND PURITY OF MATERIALS: PrCl_3 prepared by dissolving "experimental" grade oxide in distilled HCl. The resulting chloride was dehydrated by treatment with thionyl chloride (1). The alcohol was purified and dried by "standard methods." ESTIMATED ERROR: Soly: authors claim accuracy to be about 0.5 %. Temp: nothing specified. REFERENCES: 1. Freeman, I. H. <i>J. Inorg. Nucl. Chem.</i> <u>1958</u> , 7, 286.															

COMPONENTS: (1) Praseodymium chloride; PrCl ₃ ; [10361-79-2] (2) Ethers	ORIGINAL MEASUREMENTS: Kirmse, E.M.; Zwietasch, K.J.; Tirschmann, J.; Oelsner, L.; Niedergesaess, 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 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: right; border-bottom: none;">PrCl₃ solubility^{a,b}</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;">1-ethoxy-2-methoxyethane;</td> <td style="border-top: none;">C₅H₁₂O₂;</td> <td style="border-top: none;">[5137-45-1]</td> <td style="text-align: center; border-top: none;">0.04</td> <td style="text-align: center; border-top: none;">0.0016</td> </tr> <tr> <td style="border-top: none;">1,3-dioxolane;</td> <td style="border-top: none;">C₃H₆O₂;</td> <td style="border-top: none;">[646-06-0]</td> <td style="text-align: center; border-top: none;">0.9</td> <td style="text-align: center; border-top: none;">0.037</td> </tr> <tr> <td style="border-top: none;">1,4-dioxane;</td> <td style="border-top: none;">C₄H₈O₂;</td> <td style="border-top: none;">[123-91-1]</td> <td style="text-align: center; border-top: none;">0.04</td> <td style="text-align: center; border-top: none;">0.0016</td> </tr> </tbody> </table> <p>^aMolalities calculated by the compilers.</p> <p>^bNature of solid phases not specified.</p>		solvent			PrCl ₃ solubility ^{a,b}					mass %	mol kg ⁻¹	1-ethoxy-2-methoxyethane;	C ₅ H ₁₂ O ₂ ;	[5137-45-1]	0.04	0.0016	1,3-dioxolane;	C ₃ H ₆ O ₂ ;	[646-06-0]	0.9	0.037	1,4-dioxane;	C ₄ H ₈ O ₂ ;	[123-91-1]	0.04	0.0016
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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. Pr 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) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Alkoxy-ethanols	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																	
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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 authors 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) Praseodymium chloride; PrCl_3 ; [10361-79-2] (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="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: right; border-bottom: none;">PrCl_3 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: right; border-top: none;">mass %</th> <th style="text-align: right; border-top: none;">mol kg⁻¹</th> </tr> </thead> <tbody> <tr> <td style="border-top: none;">1-methoxyheptane;</td> <td style="border-top: none;">$\text{C}_8\text{H}_{18}\text{O}$;</td> <td style="border-top: none;">[629-32-3]</td> <td style="text-align: right; border-top: none;">0.8^b</td> <td style="text-align: right; border-top: none;">0.033</td> </tr> <tr> <td style="border-top: none;">1-methoxyoctane;</td> <td style="border-top: none;">$\text{C}_9\text{H}_{20}\text{O}$;</td> <td style="border-top: none;">[929-56-6]</td> <td style="text-align: right; border-top: none;">0.07</td> <td style="text-align: right; border-top: none;">0.0028</td> </tr> <tr> <td style="border-top: none;">1-methoxynonane;</td> <td style="border-top: none;">$\text{C}_{10}\text{H}_{22}\text{O}$;</td> <td style="border-top: none;">[7289-51-2]</td> <td style="text-align: right; border-top: none;">0.06</td> <td style="text-align: right; border-top: none;">0.0024</td> </tr> </tbody> </table> <p>^a Molalities calculated by the compilers.</p> <p>^b Solid phase dried in a vacuum desiccator over P_2O_5. Analysis yielded the composition $\text{PrCl}_3 \cdot 2\text{C}_8\text{H}_{18}\text{O}$. Compositions of other solid phases not specified.</p>		solvent			PrCl_3 solubility ^a					mass %	mol kg ⁻¹	1-methoxyheptane;	$\text{C}_8\text{H}_{18}\text{O}$;	[629-32-3]	0.8 ^b	0.033	1-methoxyoctane;	$\text{C}_9\text{H}_{20}\text{O}$;	[929-56-6]	0.07	0.0028	1-methoxynonane;	$\text{C}_{10}\text{H}_{22}\text{O}$;	[7289-51-2]	0.06	0.0024
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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} . Pr 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) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Tetrahydrofuran; $\text{C}_4\text{H}_8\text{O}$; [109-99-9]	ORIGINAL MEASUREMENTS: Rossmannith, K.; Auer-Weisbach, C. <i>Monatsch. Chem.</i> <u>1965</u> , 96, 602-5.
VARIABLES: Room Temperature: T/K about 293	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: <p>The solubility of PrCl_3 in tetrahydrofuran at 20°C (room temperature) was reported to be</p> <p style="text-align: center;">0.590 g per 100 ml of solution (0.0239 mol dm^{-3}, compiler).</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Isothermal method employed. The solution was equilibrated in an extractor with agitation for 60-80 hours at room temperature. Praseodymium 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 $\text{PrCl}_3 \cdot 2.00\text{C}_4\text{H}_8\text{O}$.	SOURCE AND PURITY OF MATERIALS: Sources and purities of initial materials not specified. PrCl_3 was prepared by conversion of the oxide by high temperature reaction with an excess of NH_4Cl followed by heating the product in a stream of dry nitrogen, and then in vacuum to remove unreacted NH_4Cl . Tetrahydrofuran was distilled from LiAlH_4 . ESTIMATED ERROR: Nothing specified. REFERENCES:

COMPONENTS: (1) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Tributylphosphate; $\text{C}_{12}\text{H}_{27}\text{O}_4\text{P}$; [126-73-8]	ORIGINAL MEASUREMENTS: Korovin, S.S.; Galaktionova, O.V.; Lebedeva, E.N.; Voronskaya, G.N. <i>Zh. Neorg. Khim.</i> 1975, 20, 908-14; <i>Russ. J. Inorg. Chem. Engl. Transl.</i> 1975, 20, 508-11.												
VARIABLES: One Temperature: 25°C	PREPARED BY: T. Mioduski and M. Salomon												
EXPERIMENTAL VALUES: <p style="text-align: center;">Composition of saturated solution</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">mass %</th> <th style="text-align: left;">mol/kg sln</th> <th style="text-align: left;">g dm⁻³</th> <th style="text-align: left;">mol dm⁻³</th> <th style="text-align: left;">mol kg⁻¹ (compiler)</th> <th style="text-align: left;">density/g cm⁻³</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">30.0</td> <td style="text-align: center;">1.21</td> <td style="text-align: center;">356.5</td> <td style="text-align: center;">1.45</td> <td style="text-align: center;">1.73</td> <td style="text-align: center;">1.24</td> </tr> </tbody> </table> <p>The solid phase is PrCl_3</p>		mass %	mol/kg sln	g dm ⁻³	mol dm ⁻³	mol kg ⁻¹ (compiler)	density/g cm ⁻³	30.0	1.21	356.5	1.45	1.73	1.24
mass %	mol/kg sln	g dm ⁻³	mol dm ⁻³	mol kg ⁻¹ (compiler)	density/g cm ⁻³								
30.0	1.21	356.5	1.45	1.73	1.24								
AUXILIARY INFORMATION													
METHOD/APPARATUS/PROCEDURE: Saturated solutions prepared isothermally with magnetic stirring. Equilibrium was attained after 25-30 d. The solution was centrifuged and an aliquot for analysis taken and added to methanol and pptd with aq NH_3 . The pptd $\text{Pr}(\text{OH})_3$ was washed repeatedly and heated to the oxide for gravimetric analysis. The solid phase was analyzed (no details given) for phosphorous and only anhydrous PrCl_3 was found. All operations were performed in a dry box through which a stream of argon was passed. The major objective of this work was to establish the nature of complexation between TBP and PrCl_3 in solution. Additional studies with unsaturated solutions (IR spectra, viscosity, molar conductivities) are discussed in the source paper.	SOURCE AND PURITY OF MATERIALS: Anhydrous PrCl_3 prepared by chlorination of Pr_2O_3 with CCl_4 vapor (1,2). Source and purity of materials not given. Pr was analyzed gravimetrically and Cl by Volhard's method. Tributylphosphate (TBP) was purified "by the standard method." No additional details given. ESTIMATED ERROR: No estimates possible. REFERENCES: 1. Korshunov, B.G.; Drobot, D.V.; Bukhtiyarov, V.V.; Shevtsova, Z.N. <i>Zh. Neorg. Khim.</i> 1964, 9, 1427. 2. Novikov, G.I.; Tolmacheva, V.D. <i>Zh. Prikl. Khim.</i> 1965, 38, 1160.												

COMPONENTS: (1) Praseodymium chloride; PrCl_3 [10361-79-2] (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: 1px solid black;">solvent</th> <th colspan="2" style="text-align: right; border-bottom: 1px solid black;">PrCl_3 solubility^a</th> </tr> <tr> <th style="border-bottom: 1px solid black;"></th> <th style="text-align: right; border-bottom: 1px solid black;">mass %</th> <th style="text-align: right; border-bottom: 1px solid black;">mol kg^{-1}</th> </tr> </thead> <tbody> <tr> <td>1-propanamine; $n\text{-C}_3\text{H}_9\text{N}$; [107-10-8]</td> <td style="text-align: right;">22.2</td> <td style="text-align: right;">1.15</td> </tr> <tr> <td>2-propanamine; $\text{iso-C}_3\text{H}_9\text{N}$; [75-31-0]</td> <td style="text-align: right;">0.08</td> <td style="text-align: right;">0.0032</td> </tr> <tr> <td>2-propen-1-amine^b $\text{C}_3\text{H}_7\text{N}$; [107-11-9]</td> <td style="text-align: right;">0.05</td> <td style="text-align: right;">0.0020</td> </tr> </tbody> </table> <p>^aMolalities calculated by the compilers.</p> <p>^bThe original paper simply specifies the solvent as $\text{C}_3\text{H}_5\text{NH}_2$, and upon request the author kindly identified the solvent as allylamine.</p>		solvent	PrCl_3 solubility ^a			mass %	mol kg^{-1}	1-propanamine; $n\text{-C}_3\text{H}_9\text{N}$; [107-10-8]	22.2	1.15	2-propanamine; $\text{iso-C}_3\text{H}_9\text{N}$; [75-31-0]	0.08	0.0032	2-propen-1-amine ^b $\text{C}_3\text{H}_7\text{N}$; [107-11-9]	0.05	0.0020
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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. 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) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Hexamethylphosphorotriamide; $\text{C}_6\text{H}_{18}\text{N}_3\text{OP}$; [680-31-9]	ORIGINAL MEASUREMENTS: Mikheev, N.B.; Kamenskaya, A.N.; Konovalova, N.A.; Zhilina, T.A. <i>Zh. Neorg. Khim.</i> 1977, 22, 1761-6; <i>Russ. J. Inorg. Chem. (Engl. Transl.)</i> 1977, 22, 955-8.
VARIABLES: Room temperature: $T/K = 298 \pm 3$	PREPARED BY: T. Mioduski
EXPERIMENTAL VALUES: The solubility of the anhydrous salt at $25 \pm 3^\circ\text{C}$ was given as $0.113 \pm 0.003 \text{ mol dm}^{-3}$ Starting with the solvate $\text{PrCl}_3 \cdot 3((\text{CH}_3)_2\text{N})_3\text{PO}$, the solubility at $25 \pm 3^\circ\text{C}^a$ was given as $0.128 \pm 0.001 \text{ mol dm}^{-3}$ <p>^aTable 3 in the English translation of the source paper states the temperature to be $23 \pm 3^\circ\text{C}$. This is probably a typographical error as the text clearly states that all measurements were carried out at $25 \pm 3^\circ\text{C}$.</p>	
AUXILIARY INFORMATION	
METHOD/APPARATUS/PROCEDURE: Isothermal method used. Salt and solvent were placed in a test-tube in a dry box, and the tube agitated at room temperature ($25 \pm 3^\circ\text{C}$) until equilibrium was reached. Aliquots were withdrawn periodically and analysed for the metal content. Rare earth concentration was determined by complexometric titration, and by the radiometric method using the isotope Tm-170 ($t_{1/2} = 169 \text{ d}$). Authors state that results for both methods agreed. Although not clearly stated, it appears that equilibrium was reached in several weeks to several months. Solid phase samples washed three times with benzene or ether and dried on a steam bath in an argon atmosphere. The solid phase was analyzed and found to be $\text{PrCl}_3 \cdot 3\text{C}_6\text{H}_{18}\text{N}_3\text{OP}$. The solvate was analysed for metal content by complexometric titrn, for chloride by the Volhard method, and the solvent was obtained by difference. IR spectra confirmed the absence of water. Structural studies of the solvate also carried out by X-ray analysis.	SOURCE AND PURITY OF MATERIALS: Anhyd PrCl_3 prepd similarly to that in (1) by subliming NH_4Cl from a mixt of PrCl_3 and 6 moles of NH_4Cl in a stream of inert gas at $200\text{--}400^\circ\text{C}$ (PrOCl content less than 3 %). The solvent was purified as in (2). $\text{PrCl}_3 \cdot 3\text{C}_6\text{H}_{18}\text{N}_3\text{OP}$ prepd by dissolving the hydrate in $\text{C}_3\text{H}_7\text{N}$ and heating to $140\text{--}145^\circ\text{C}$ for 5 m. The solvate was pptd by addition of abs ether, washing 7 times with ether, and drying over P_2O_5 in a stream of dry nitrogen. Yield was about 90 %. ESTIMATED ERROR: Soly: precision $\pm 0.001 \text{ mol dm}^{-3}$ at a 95 % level of confidence (authors). Temp: precision $\pm 3 \text{ K}$. REFERENCES: 1. Taylor, M.D.; Carter, C.P. <i>J. Inorg. Nucl. Chem.</i> 1962, 24, 387. 2. Fomicheva, M.G.; Kessler, Yu.M.; Zabusova, S.E.; Alpatova, N.M. <i>Elektrokhimiya</i> 1975, 11, 163.

COMPONENTS: (1) Praseodymium chloride; PrCl_3 ; [10361-79-2] (2) Tetrachlorostannate; SnCl_4 ; [7646-78-8] (3) Phosphorus oxychloride; POCl_3 ; [10025-87-3]	ORIGINAL MEASUREMENTS: Lyubimov, E.I.; Batyaev, I.M. <i>Zh. Prikl. Khim.</i> <u>1972</u> , 45, 1176-8.																								
VARIABLES: T/K = 293 Concentration of SnCl_4	PREPARED BY: T. Mioduski																								
EXPERIMENTAL VALUES: <table border="1" data-bbox="268 470 1142 764"> <thead> <tr> <th>$\text{SnCl}_4:\text{POCl}_3$ ratio (by volume)</th> <th>SnCl_4 concentration mol dm^{-3}</th> <th>Pr_2O_3 solubility^a moles Pr dm^{-3}</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td><td>0.013</td></tr> <tr><td>1:250</td><td>0.035</td><td>0.10</td></tr> <tr><td>1:100</td><td>0.085</td><td>0.20</td></tr> <tr><td>1:50</td><td>0.17</td><td>0.31</td></tr> <tr><td>1:25</td><td>0.33</td><td>0.27</td></tr> <tr><td>1:15</td><td>0.59</td><td>0.12</td></tr> <tr><td>1:10</td><td>0.78</td><td>0.11</td></tr> </tbody> </table> <p>^aThis is also the solubility of PrCl_3 in the SnCl_4-POCl_3 mixtures because the oxide is quantitatively converted to the chloride according to</p> $\text{Pr}_2\text{O}_3 + 6\text{POCl}_3 = 2\text{PrCl}_3 + 3\text{P}_2\text{O}_3\text{Cl}_4$ <p>Thus the equilibrated solutions should actually be considered to be a four component system containing SnCl_4, PrCl_3, $\text{P}_2\text{O}_3\text{Cl}_4$ and POCl_3 (the compiler assumes $\text{P}_2\text{O}_3\text{Cl}_4$ is soluble).</p>		$\text{SnCl}_4:\text{POCl}_3$ ratio (by volume)	SnCl_4 concentration mol dm^{-3}	Pr_2O_3 solubility ^a moles Pr dm^{-3}	0	0	0.013	1:250	0.035	0.10	1:100	0.085	0.20	1:50	0.17	0.31	1:25	0.33	0.27	1:15	0.59	0.12	1:10	0.78	0.11
$\text{SnCl}_4:\text{POCl}_3$ ratio (by volume)	SnCl_4 concentration mol dm^{-3}	Pr_2O_3 solubility ^a moles Pr dm^{-3}																							
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1:25	0.33	0.27																							
1:15	0.59	0.12																							
1:10	0.78	0.11																							
AUXILIARY INFORMATION																									
METHOD/APPARATUS/PROCEDURE: Isothermal method used. $\text{POCl}_3 + \text{SnCl}_4$ solutions were prepared by volume in a dry box. The SnCl_4 content was verified by chemical analysis for Sn. This solution and Pr_2O_3 were placed in sealed ampoules, heated to 20-250°C to increase the rate of solution, and then rotated in an air thermostat at 20°C for 2-200 hours. Without preheating, equilibrium was established after 200 hours. Preheating to 120°C lowered the equilibration time at 20°C to 2 hours. Pr was determined by colorimetric analysis, and in some cases by the oxalate method. The reported solubilities are mean values based on 3-5 parallel determinations.	SOURCE AND PURITY OF MATERIALS: Pr_6O_{11} of "the first sort" was reduced to Pr_2O_3 with hydrogen at 950°C. "Pure" grade SnCl_4 and POCl_3 were dehydrated with P_2O_5 and distilled under vacuum. ESTIMATED ERROR: Soly: authors state the "coefficient of variance" to be less than 7%. Temp: precision presumably $\pm 0.2\text{K}$ (compiler). REFERENCES:																								