COMPONENTS:	ORIGINAL MEASUREMENTS:	
1. Krypton; Kr; 7439-90-9	Clever, H.L.: Savlor. J.H.:	
	Gross, P.M.	
 Undecafluoro (trifluoromethyl) - 		
cyclohexane (Perfluoromethyl-		
cyclonexane); $C_7 F_{14}$; 355-02-2	T Dhug Cham 1050 (2) 80 01	
	<u>J. Phys. Chem</u> . 1958, <u>62</u> , 89-91.	
VARIABLES:	PREPARED BY:	
T/K: 289.15 - 316.25		
Total P/kPa: 101.325 (1 atm)	P.L. Long	
	, s	
EXPERIMENTAL VALUES.		
W/K Mol Exaction	Bungon Octuald	
T/K MOI Fraction	Coefficient Coefficient	
	-	
×1 × 10	α L	
289.15 9.06	1.058 1.12	
303.15 8.08	0.925 1.027	
316.25 7.77	0.872 1.01	
	· · · · · · · · · · · · · · · · · · ·	
Smoothed Data: $\Delta G^{2}/J \mod 1 = -RT \ln I$	$X_1 = -4302.3 + 54.078 \text{ T}$	
$S+d$ Dow $AC^{0} - AC^{1}$	Coef Corr = 0.0000	
$5td: Dev: \Delta G = 40.1$	-1 -1	
$\Delta H^{\circ}/J \text{ mol}^{-1} = -4302.3$	$\Delta S^{\circ}/J K^{-1} mol^{-1} = -54.078$	
	$\Delta c^{0} (T_{rol}^{-1})$	
T/K MOLFIG		
x ₁ x	105	
200.15 0.0	11 290	
288.15 9.0	75 11,200	
298.15 8.4	49 11,321	
303.15 8.2	25 12,091	
308.15 8.0	12,362	
313.15 7.6	12,632	
318.15 /.6	51 12,903	
The solubility values were adjusted to	a partial pressure of krypton of	
101.325 kPa (1 atm) by Henry's law.		
The Bunsen coefficients were calculate	d by the compiler	
	a by the complicit.	
AUXILIARY	INFORMATION	
METHOD.	COURCE AND DUDING OF MATERIALC.	
Volumetric The apparatus (1) is a	Source and PURITY OF MATERIALS;	
modification of that used by Morrison	standard and research grades were	
and Billett (2). Modifications in-	used.	
clude the addition of a spiral		
solvent storage tubing, a manometer	2. Perfluoromethylcyclohexane.	
for constant reference pressure, and	du Pont FCS-326, shaken with con-	
an extra gas buret for highly	centrated H ₂ SO ₄ , washed, dried	
soluble gases.	over Drierite and distilled.	
	$h_{1}p_{2}$, 75,95 to 76,05° at 753 mm.	
	lit. b.p. 76.14 at 760 mm.	
	-	
	ESTIMATED ERROR:	
APPARATUS/PROCEDURE:	$\delta T/K = 0.05$	
(a) Degassing. 700 ml of solvent	$\delta P/mmHg = 3$	
is shaken and evacuated while attached	$\delta x_1 / x_1 = 0.03$	
seen: solvent is then transferred		
through a 1 mm capillary tubing, re-	REFERENCES:	
leased as a fine mist into a con-	 Clever, H.L.; Battino, R.; 	
tinuously evacuated flask. (b) Sol-	Saylor, J.H.; Gross, P.M.	
vent is saturated with gas as it flows	<u>J. Phys. Chem</u> . 1957, <u>61</u> , 1078.	
through 8 mm x 180 cm of tubing at-	2. Morrison, T.J.: Billett, F	
maintained at 1 atm as the gas is	J. Chem. Soc. 1948, 2033;	
absorbed.	<u>ibid. 1952, 3819.</u>	

COMPONENTS:		ORIGINAL MEASUREMENTS:				
1. Krypton: Kr: $7439-90-9$		Steinberg, M.; Manowitz. B.:				
1. Krypton; Kr; 7459-90-9		Pruzansky, J.				
2 Dichlor	odifluorometh	ano				
Z. DICHIOL		75-71-8		US AEC B	NL-542 (T-140).
(rreon-	$1277 CC12^{2}2^{2}$, J , I = 0		Chem_ Ah	str. 1959. 57	21242a
1				<u></u>	<u></u> , <u></u> , <u></u> ,	
			<u> </u>		**	
VARIABLES:				PREPARED B	Υ:	
m /12	. 100 15 - 2	72 15			H.L. Clever	
1/1	.: 190.15 - 2	/3.13				
PUPPPPTAT			_			
EXPERIMENTAL	VALUES:					
m /1/	Absorption	Nonrule	M_1	Fraction	Bunsen	Ostwald
1/1	Coofficient	Constant		2	Coefficient	Coefficient
	COELLICIENC	V/atm	X	, x 10 ⁻	00001110100	L
		K/atin		±		
100 15	12.0			1 32	13.2	9.2
190.15	13.9			3 76	11 9	8.4
193.12	12.0			3.10	10 7	7.7
197.65	11.3			3 00	TO • 1	<u> </u>
203.15		32.5		3.00	 / 0	4 3
244.15	5.1			1.12	4.8	
260.85		86		1.10		
273.15	2.4	108		10.925	2.3	2.3
1 2,3.23				(0.89		
		,-1	1	V - 777	2 6 + 67 246 1	
Smoothed Da	ita: \G'/J mo	1 = - RT	τn	x ₁ = -///	2.0 + 0/.340 1	
	<i></i>	100 00	-	Case Com	- 0 0007	
	Std. Dev	$\Delta G = 69$.	э,	coer. cor	r 0.9997	
		,-1	-	AC0/T 7	-1 - 1 - 1 - 0 - 0	007
	$\Delta H^{-}/J mc$	= -/, //	2.0	, 45 / J K		551
	-		-	ation AC	0/T mol ⁻¹	
1		T/K MOI	ГГ¢		, /0 m01	
		Х,	х	10 ²		
	-	<u> </u>	·		<u></u>	
	1	.93.15	3.8	4	5,235.4	
	2	03.15	3.0	2	5,908.8	
	2	13.15	2.4	4	6,582.3	
	2	23.15	2.0	0	7,225.8	
	2	33.15	1.6	57	7,929.2	
	2	43.15	1.4	1	8,602.7	
	2	253.15	1.2	22	9,276.2	
	2	63.15	1.0)6	9,949.7	
	2	273.15	0.9	3 1	.0,623	
l.	-			,		
		AUXILIA	ÀŔŸ	INFORMATI	ION	
METTION ADD	DAMILE /DDOOEDT	IPF.		SOURCE	ND PURITY OF M	ATERIALS:
APPP	MAIUS/ PROCEDU	• •				
Dunamia +m-	acer technique	(1) The		1. Krvr	oton.	
Honryla acr	netant ie	. (1). 1110				
nenry s cor	iscant 13			2. Dich	lorodifluorome	ethane.
v -	(P/a+m)/Y					
× =	··/ ····//~1·			1		
The Honry's	a constante av	e probably				
from data	monthed by +1	e authore				
LIUM Gald &	smoothed by th	.c auchord.				
The report	is discussed	further in	а			
later paper	r (2)	THE CHICK AN	~	ESTIMATED	ERROR:	
I Lacer Paper	- (-/•					
					8 V / V - 0 /	03 - 0.05
					$v_{X/X} = 0.0$	JJ - 0.0J
				1		(Compiler)
				DECENSION	0	
				REFERENCE	5:	
				1. Stei	inberg, M.; Man	nowitz, B.
				Ind	Eng. Chem. 19	959, <u>51</u> , 47.
				2. Stei	inberg, M.	
1				US Z	AEC TID-7593.	L959, 217-218.
				Cher	n. Abstr. 1961	, 55, 9083e.

COMPONENTS :	ORIGINAL MEASUREMENTS:
1. Krypton; Kr; 7439-90-9	Körösy, F.
2 Halogonatod Mothanog	
z. nalogenateu methanes	
	<u>Trans. Faraday Soc</u> . 1937, <u>33</u> , 416-425.
VARIABLES:	PREPARED BY:
P/kPa: 101.325 (1 atm)	H.L. Clever
EXPERIMENTAL VALUES:	Pup con
1/K MOI FFACTION	Coefficient Coefficient
$x_1 \times 10^3$	α L
Trichloromethane (Chlor	coform); CHCl ₃ ; 67-66-3
273.15 3.4	0.97 0.97
294.15 3.35	0.938 1.01
Tetrachloromethane (Car CCl ₄ ; 56-23-5	bon Tetrachloride);
273.15 5.02	1.20 1.20
294.15 5.22	1.22 1.31
Tribromomethane (Bromof	orm); CHBr ₃ ; 75-25-2
295.15 3.01	0.43 0.46
AUXILIARY	INFORMATION
METHOD: The apparatus and method of Winkler (1) were used. However, the apparatus was usually not thermostated, and de- gassing was by evacuating and shaking the solvent, not by evacuating and boiling the solvent as was done by Winkler.	 SOURCE AND PURITY OF MATERIALS: 1. Krypton. Source not given. The gas contained 5% xenon and 1% non-inert gases. 2. Solvents. No information.
APPARATUS/PROCEDURE:	ESTIMATED ERROR:
	$\delta x_1 / x_1 = 0.05$
	REFERENCES:
	1. Winkler, L.W. <u>Ber</u> . 1891, <u>24</u> , 89.

COMPONENTS :	ORIGINAL MEASUREMENTS:
1. Krypton; Kr; 7439-90-9	Saylor, J.H.; Battino, R.
2. Fluorobenzene: C_H_F: 462-06-6	
21 Flactorenzone, 0 ₆ .5., 102 et e	T Drug Chart 1050 (2) 1224 1227
	<u>J. Phys. Chem</u> . 1958, <u>62</u> , 1334-1337.
VARIABLES:	PREPARED BY:
T/K: 288.15 - 328.15 P/kPa: 101.325 (1 atm)	H.L. Clever, A.L. Cramer
EXPERIMENTAL VALUES:	
T/K MOI Fraction	Bunsen Ostwald Coefficient Coefficient
$x_{1} \times 10^{3}$	α L
288.15 3.47	0.834 0.880
298.15 3.36 313.15 3.13	0.798 0.871 0.731 0.838
328.15 2.96	0.678 0.814
Smoothed Data: $\Delta G^{O}/J \text{ mol}^{-1} = - RT \ln X$	= -3210.3 + 58.186 T
Std. Dev. $\Delta G^{\circ} = 13.2$, C	oef. Corr. = .9999
$\Delta H^{O}/J mol^{-1} = -3210.3,$	$\Delta S^{O}/J K^{-1} mol^{-1} = -58.186$
T/K Mol Frac	tion $\Delta G^{O}/J \text{ mol}^{-1}$
x ₁ x 1	0 ³
288.15 3.49	13,556
293.15 3.41 298.15 3.33	13,847 14,138
303.15 3.26	14,429
313.15 3.13	14,720
318.15 3.07	15,302
328.15 2.96	15,884
Solubility values were adjusted to a p	artial pressure of krypton of
by the compiler.	
AUXILIARY	INFORMATION
METHOD /APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
The solvent was degassed by evacu-	1. Krypton. Linde Air Products Co.
ating the space above it, shaking, and	
another evacuated container. The de-	white label. Dried over P ₄ O ₁₀ ,
gassed liquid was saturated as it	distilled, b.p. 84.28 - 84.68°C.
helix which contained the solute gas	
plus solvent vapor at a total pres-	
liquid and the volume of gas absorbed	
are determined in a system of burets.	
	ESTIMATED ERROR:
	$\delta T/K = 0.03$ $\delta P/mmHq = 1.0$
	$\delta x_1 / x_1 = 0.005$ (authors)
	REFERENCES :
	Morrison T. T. Billott F
	J. Chem. Soc. 1948, 2033.
	2. Clever, H.L.: Battino, R.:
	Saylor, J.H.; Gross, P.M.
	J. Phys. Chem. 1957, 61, 1078.

COMPONENTS :	URIGINAL MEASUREMENTS:
1. Krypton; Kr; 7439-90-9	Evans, F. D.; Battino, R.
2. Hexafluorobenzene; C ₆ F ₆ ; 392-56-3	<u>J. Chem. Thermodyn</u> . 1971, <u>3</u> , 753-760.
VARIABLES: T/K: 282.91 - 297.92 P/kPa: 101.325 (1 atm)	PREPARED BY: H. L. Clever
EXPERIMENTAL VALUES:	
T/K Mol Fraction $x_1 \times 10^3$	Bunsen Ostwald Coefficient Coefficient
282.91 6.45 283.09 6.42 297.76 5.92	1.286 1.332 1.279 1.326 1.155 1.259
297.92 5.89	1.148 1.252
Smoothed Data: $\Delta G^{\circ}/J \mod^{-1} = -RT \ 1$ Std. Dev. $\Delta G^{\circ} = 4.9$,	n $X_1 = -4,063.6 + 56.302$ T Coef. Corr. = 0.9999
$\Delta H^{\circ}/J \mod 1 = -4063.$	6, $\Delta S^{\circ}/J K = mol^{-1} = -56.302$
T/K Mol Frac X ₁ x 1	tion $\Delta G^{\circ}/J \text{ mol}^{-1}$
278.15 6.64	11.597
283.15 6.44	11,878
288.15 6.25	12,160
293.15 6.07	12,441
298.15 5.90	12,723
The solubility values were adjusted 101.325 kPa (1 atm) by Henry's law. The Bunsen coefficients were calcula	to a partial pressure of krypton of ted by the compiler.
AUXILIARY	INFORMATION
METHOD /APPARATUS/PROCEDURE: The solubility apparatus is based on the design of Morrison and Bil- lett (1) and the version used is described by Battıno, Evans, and Danforth (2). The degassing appara- tus is that described by Battıno, Banzhof, Bogan, and Wilhelm (3). Degassing. Up to 500 cm ³ of sol- vent is placed in a flask of such size that the liquid is about 4 cm deep. The liquid is rapidly stirred and the vacuum is applied intermit- tently through a liquid N ₂ trap	 SOURCE AND PURITY OF MATERIALS: 1. Krypton. Either Air Products & Chemicals or Matheson. Better than 99 mol % (usually 99.9+) 2. Hexafluorobenzene. Imperial Smelting Co., Avonmouth, U.K. GC purity 99.7%, density at 25° C 1.60596 g cm⁻³. Purified by method in Anal. Chem. 1968, 40, 224.
until the permanent gas residual pressure drops to 5 microns.	$\delta \pi / \kappa = 0.03$
Solubility Determination. The de-	$\delta P/mmHq = 0.5$
gassed solvent is passed in a thin	$\delta x_1 / x_1 = 0.015$
tilm down a glass spiral tube con-	
vapor at a total pressure of one	KEFERENCES;
atm. The volume of gas absorbed is	J. Chem. Soc. 1948. 2033.
found by difference between the ini-	2. Battino, R.; Evans, F. D.; Dan-
tial and final volumes in the buret	forth, W. F.
system. The solvent is collected	J. Am. U11 Chem. Soc. 1968, 45, 830.
In a caled flask and weighed.	3. Battino, R.; Banzhof, M.; Bogan,
	M.; Wilhelm, E. Anal. Chem. 1971, 43, 806.

COMPONENTS:	ORIGINAL MEASUREMENTS.	
1. Krypton; Kr; 7439-90-9	Saylor, J.H.; Battino, R.	
2 Chloroborgono C = H Cl. 109-90-7		
2. Chlorobenzene; C_{65}		
	J. Phys. Chem. 1958, 62, 1334-1337.	
VARIABLES:	PREPARED BY:	
P/kPa: 101.325 (1 atm)	H.L. Clever, A.L. Cramer	
EXPERIMENTAL VALUES:	Lannan	
T/K Mol Fraction	Bunsen Ostwald	
v w 10 ³	Coefficient Coefficient	
<u> </u>	α <u> </u>	
288.15 2.84	0.629 0.664	
298.15 2.75 313.15 2.56	0.604 0.659 0.553 0.634	
328.15 2.44	0.520 0.625	
Smoothed Data: $\sqrt{C^0/(1 \text{ mol}^{-1})} = -RT$ in	v3070 0 ± 50 /12 m	
Smoothed bata: $\Delta G = 13$	$x_1 = -5075.6 \pm 55.412$	
$5ta. \text{ Dev. } \Delta G = 13.0,$	Coef. corr. = $.9999$	
$\Delta H / J mol = -30.9.8$	$\Delta S'/J K mol = -59.412$	
T/K Mol Fra	action $\Delta G^{O}/J$ mol ⁻¹	
x, x	10 ³	
288.15 2.0 293.15 2.0	35 14,040 79 14,337	
298.15 2.3	73 14,634	
303.15 2.6	57 14,931	
	52 15,228	
318.15 2.5	57 15,325	
323.15 2.4	48 16,119	
328.15 2.4	44 16,416	
Solubility values were adjusted to a p	partial pressure of krypton of	
by the compiler.	Sunsen Coerrictents were curcurated	
AUXILIARY	INFORMATION	
MERION ANDADABILE ADOODDIDE .		
METHOD / APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:	
The solvent was degassed by evacu-	1. Krypton. Linde Air Products co.	
and then passing it as a fine mist	2. Chlorobenzene. Eastman Kodak	
into another evacuated container.	Co., white label. Dried over	
The degassed liquid was saturated as	P ₄ O ₁₀ , distilled, b.p. 131.6/ -	
glass helix which contained the	131.71°C.	
solute gas plus solvent vapor at a		
total pressure of 1 atm (1,2). The		
of gas absorbed were determined in		
a system of burets.		
	ESTIMATED ERROR:	
	$\delta T/K = 0.03$	
	$\delta P/mmHg = 1.0$	
	0×1/×1 - 0.000 (authors)	
	REFERENCES :	
	1 Morrison T.I.: Billett F	
	J. Chem. <u>Soc</u> . 1948, 2033.	
	2. Clever, H.L.; Battino, K.; Savlor. J.H.: Gross, P.M.	
	J. Phys. Chem. 1957, 61, 1078.	

COMPONENTS:		ORIGINAL ME	ASUREMENTS:	
1. Krypton; Kr; 743	39-90-9	Clever, H	I. L.	
2. 1,4-Dimethylbenz C ₈ H ₁₀ ; 106-42-3	zene (p-Xylene);			
3. 1,4-Dichlorobenz 106-46-7	zene; C ₆ H ₄ Cl ₂ ;	J. Phys.	<u>Chem</u> . 1957, <u>6</u>	1, 1082 - 1083.
VARIABLES:	. 1 5	PREPARED BY	ζ:	
P/kPa: 101	1.325 (1 atm)		C. E. Eddel	man
1,4-Dichlorobenzene	$e/X_3: 0 - 0.455$		A. D. CIAME	Ľ
EXPERIMENTAL VALUES:		·		
Т/К	l,4-Dichloro- Mol benzene Mol Fraction X X ₃	Fraction 1 × 10 ³	Bunsen Coefficient α	Ostwald Coefficient L
303.15	0.0	3.81 3.56	0.687	0.724
	0.310	3.32	0.566	0.628
	0.455	3.10	0.583	0.647
The mole linear func the mixed s	fraction solubility ction with the mole solvent.	of kryptc fraction c	on correlates of 1,4-dichlor	well in a obenzene in
	$X_1 \times 10^3 = 3.$	815 - 1.57	$73 X_{2} (r =$	0.9996)
	T		3	
The solubility values were adjusted to a partial pressure of krypton of 101.325 kPa (1 atm) by Henry's law. The Bunsen coefficients were calculated by the compiler.		essure of iler.		
· · · · · · · · · · · · · · · · · · ·		<u>.</u> .		
	AUXILIARY	INFORMATION		
METHOD:		SOURCE AND	PURITY OF MATER	IALS:
Volumetric. The	e solvent is satu-	1. Krypton. Linde Air Products Co.		
rated with gas as it flows through an 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of		2. 1,4-D Kodak) imethylbenzen white label	e. Eastman . Distilled.
solute gas plus sol	lvent vapor is main-	2 1 4-5	lichlorobenzen	o Fastman
tained at 1 atm as	the gas is absorbed	Kodak twice	white label. from methano	Recrytalized l, dried in air.
		ESTIMATED	EBROR:	
APPARATUS/PROCEDURE:			$\frac{1}{\sqrt{2}}$	5
The apparatus is	a modification of orrison and Billett		$\delta P/mmHq = 3$	
(1). The modificat:	ions include the		$\delta x_1 / x_1 = 0.$	03
addition of a helic	cal storage for the	REFERENCES	•	
pressure, a manometer	xtra buret for	1		lott. F
highly soluble gase	es. The solvent is	J. Che	em, Soc. 1948.	2033;
degassed by a modi:	fication of the	ībid.	1952, 3819.	
method of Baldwin a	anu Daniei (2).	2		al 5.6
		2. Baldwind \underline{J} . App	<u>ol. Chem</u> . 1952	2, <u>2</u> , 161.

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Krypton; Kr; 7439-90-9	Saylor, J.H.; Battino, R.
2. Bromobenzene; C ₆ H ₅ Br; 108-86-1	
	J. Phys. Chem. 1958, 62, 1334-1337.
VARIABLES:	PREPARED BY:
T/K: 288.15 - 328.15 P/kPa: 101.325 (1 atm)	H.L. Clever, A.L. Cramer
_,	
EXPERIMENTAL VALUES:	
T/K Mol Fraction	Bunsen Ostwald
x x 10 ³	a L
$\frac{1}{288.15}$ $\frac{1}{2.38}$	0.510 0.538
298.15 2.29	0.487 0.532
313.15 2.14	0.448 0.514
$\frac{520.15}{100}$ 2.04	
Smoothed Data: $\Delta G^{\prime}/J \mod = -RT \ln$	$x_1 = -3085.7 + 60.924 T$
Sta. Dev. $\Delta G = 9.1, C$	$45^{\circ}/1 \text{ k}^{-1} \text{ mol}^{-1}60 \text{ and}$
$\Delta n / J mot = -3085.7,$	
T/K Mol Fra	$\Delta G / J mol$
	13 14,774
298.15 2.2	8 15,079
303.15 2.2 308.15 2.1	4 15,383 9 15,688
313.15 2.1	5 15,993
318.15 2.1 323.15 2.0	1 16,297 7 16.602
328.15 2.0	4 16,907
Solubility values were adjusted to a p	partial pressure of krypton of
by the compiler.	bunsen coefficients were calculated
AUXT.T.ARY	INFORMATION
	CONDER AND DUDITY OF MATERIALS.
The solvent was decased by evacu-	1. Krypton. Linde Air Products Co.
ating the space above it, shaking, and	1. Arypeon. Binde Air Froduces co.
then passing it as a fine mist into another evacuated container. The de-	2. Bromobenzene. Eastman Kodak Co., white label. Dried over P.O
gassed liquid was saturated as it	distilled. b.p. 155.86 -
passed as a thin film inside a glass	155.90°C.
plus solvent vapor at a totalpres-	
sure of 1 atm (1,2). The volume of	
are determined in a system of burets.	
_	ESTIMATED ERROR.
	$\delta T/K = 0.03$
	$\delta P/mmHg = 1.0$
	$^{0x}1/x_1 = 0.005 (authors)$
	REFERENCES:
	1. Morrison, T.J.; Billett, F.
	<u>J. Cnem. Soc</u> . 1948, 2033.
	2. Clever, H.L.; Battino, R.;
	J. Phys. Chem. 1957, 61, 1078.
1	

COMPONENTS:	ORIGINAL MEASUREMENTS:	
1. Krypton; Kr; 7439-90-9	Clever, H.L.	
<pre>2. 1,4-Dimethylbenzene (p-Xylene); C₈H₁₀; 106-42-3</pre>		
3. 1,4-Dibromobenzene; C ₆ H ₄ Br ₂ ; 106-37-6	<u>J</u> . <u>Phys</u> . <u>Chem</u> . 1957, <u>61</u> , 1082-1083.	
VARIABLES: T/K: 303.15	PREPARED BY:	
P/kPa: 101.325 (1 atm) 1,4-Dibromobenzene/X ₃ : 0-0.255	C.E. Eddleman A.L. Cramer	
EXPERIMENTAL VALUES:		
T/K 1,4-Dibromo- Mol Fract benzene Mol Fraction X ₁ x 10 X ₃	$\begin{array}{cccc} \text{Lion} & \text{Bunsen} & \text{Ostwald} \\ \text{G} & \text{Coefficient} & \text{Coefficient} \\ \alpha & \text{L} \end{array}$	
303.15 0.0 3.81 0.130 3.41 0.255 3.13	0.687 0.762 0.618 0.686 0.569 0.631	
The solubility values were adjusted to 101.325 kPa (1 atm) by Henry's law. The Bunsen coefficients were calculate	o a partial pressure of krypton of ed by the compiler.	
AUXILIARY	INFORMATION	
	SOURCE AND PURITY OF MATERIALS:	
Volumetric. The solvent is satu-	1. Krypton. Linde Air Products Co.	
8 mm x 180 cm glass helix attached to a gas buret. The total pressure of	 1,4-Dimtheylbenzene. Eastman Kodak white label. Distilled. 	
solute gas plus solvent vapor is main-	2 1 4-Dibromobongono Eastman	
absorbed.	Kodak white label. Recrystal- lized twice and dried in air.	
	ESTIMATED ERROR.	
APPARATUS/PROCEDURE:	$\delta T/K = 0.05$	
The apparatus is a modification of the apparatus of Morrison and Billett (1). The modifications include the	$\begin{array}{rcl} \delta \mathbf{P}/\mathbf{mHg} &= 3\\ \delta \mathbf{X}_1/\mathbf{X}_1 &= 0.03 \end{array}$	
addition of a helical storage for the	DEFEDENCIC .	
solvent, a manometer for a reference pressure, and an extra buret for highly soluble gases. The solvent is degassed by a modification of the method of Baldwin and Daniel (2).	<pre>I. Morrison, T.J.; Billett, F. J. Chem. Soc. 1948, 2033; ibid. 1952, 3819.</pre>	
	 Baldwin, R.R.; Daniel, S.G. J. <u>Appl. Chem</u>. 1952, <u>2</u>, 161. 	

COMPONENTS:	ORIGINAL MEASUREMENTS:
1. Krypton; Kr; 7439-90-9	Saylor, J.H.; Battino, R.
2. Iodobenzene: C_H_I ; 591-50-4	
65	
	<u>J. Phys</u> . <u>Chem</u> . 1958, <u>62</u> , 1334-1337.
VARIABLES:	PREPARED BY:
T/K: 288.15 - 328.15	
P/KPa: 101.325 (1 atm)	H.L. Clever, A.L. Cramer
EXPERIMENTAL VALUES:	· · · · · · · · · · · · · · · · · · ·
T/K Mol Fraction	Bunsen Ostwald
$x_1 \times 10^{\circ}$	α L
288.15 1.73	0.349 0.368
298.15 1.70	0.339 0.370
313.15 1.63	0.322 0.369
328.15 1.58	0.309 0.371
Smoothed Data: $\Delta G^{O}/J \text{ mol}^{-1} = - RT \ln In$	$X_1 = -1841.9 + 59.241 T$
Std. Dev. $\Lambda G^{O} = 8.8$	\downarrow Coef. Corr. = .9999
$A u^{O} (I m c l^{-1} - l 0.01) 0$	$AS^{O}(T, T^{-1}) = 1^{-1} = 50.241$
$\Delta H / J M D I = -1841.9,$	$\Delta S / J K mol = -59.241$
T/K Mol Fra	ction $\Delta G^{O}/J \text{ mol}^{-1}$
X- X	10 ³
288.15 1.7	4 15,228
303.15 1.6	57 16.117
308.15 1.6	16,413
313.15 1.6	16,709
	17,006
323.15 1.5	50 17,302 58 17,598
Solubility values were adjusted to a p	artial processo of krypton of 101 225
kPa (1 atm) by Henry's law. Bunsen co	efficients were calculated by the
compiler.	
AUXILIARY	INFORMATION
METHOD /APPARATUS/PROCEDURE:	SOURCE AND PUPITY OF MATERIALS.
The solvent was decased by every	1 Krupton Linde Air Broducts Co
ating the space above it, shaking, and	T. Arypton. Binde All Products Co.
then passing it as a fine mist into	2. Iodobenzene. Eastman Kodak white
another evacuated container. The de-	label. Shaken with aq. Na ₂ S ₂ O ₃ ,
gassed liquid was saturated as it passed as a thin film inside a glass	dried over P4010, distilled.
helix which contained the solute gas	b.p. $77.40 - 77.60^{\circ}C$ (20 mmHg).
plus solvent vapor at a total pres-	
sure of 1 atm (1,2). The volume of	
liquid and the volume of gas absorbed	
are determined in a system of burets.	
	ESTIMATED ERROR:
	$\delta T/K = 0.03$
	$\delta P/mmHg = 1.0$
	$\delta x_{1} / x_{1} = 0.005$ (authors)
	DEFEDENCIES
	REFERENCES:
	J. Chem. Soc. 1948. 2033.
	2. Clever, H.L.; Battino, R.;
	J. Phys. Chem. 1957. 61. 1079
	<u> </u>

·····	lanzazura	
COMPONENTS :	ORIGINAL MEASUREMENTS:	
1. Krypton; Kr; 7439-90-9	Clever, H.L.	
2. 1,4-Dimethylbenzene (p-Xylene); CoH.c; 106-42-3		
8 10	J. Phys. Chem. 1957, 61, 1082-1083.	
3. 1,4-Diiodobenzene; C ₆ H ₄ I ₂ ;	<u>d. 11173. chem</u> . 1937, <u>01</u> , 1002 1003.	
624-38-4		
VARIABLES:	PREPARED BY:	
T/K: 303.15	C.E. Eddleman	
P/kPa: 101.325 (1 atm)	A.L. Cramer	
1,4-Dilodobenzene/x ₃ : 0-0.078		
EXPEDIMENTAL VALUES.		
	tion Bunson Ostwald	
benzene	Coefficient Coefficient	
Mol Fraction X, x 1	0^3 α L	
X ₂		
303.15 0.0 3.81	0.687 0.762	
0.078 3.48	0.626 0.695	
The solubility values were adjusted t	o a partial pressure of krypton of	
101.325 kPa (1 atm) by Henry's law.		
The Bunsen coefficients were calculat	ed by the compiler.	
AUXILIARY	INFORMATION	
AUXILIARY	INFORMATION	
AUXILIARY METHOD:	INFORMATION SOURCE AND PURITY OF MATERIALS:	
AUXILIARY METHOD: Volumetric. The solvent is satu-	INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co.	
AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through ar	INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co.	
AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through an 8 mm x 180 cm glass helix attached to	INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman	
AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through an 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of	INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman Kodak white label. Distilled.	
AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through an 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of solute gas plus solvent vapor is main	INFORMATION SOURCE AND PURITY OF MATERIALS; 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman Kodak white label. Distilled.	
AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through ar 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of solute gas plus solvent vapor is main tained at 1 atm as the gas is ab-	INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman Kodak white label. Distilled. 3. 1,4-Diiodobenzene. Eastman Kodak white label. Becrystal-	
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AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through ar 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of solute gas plus solvent vapor is mair tained at 1 atm as the gas is ab- sorbed.	INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman Kodak white label. Distilled. 3. 1,4-Diiodobenzene. Eastman Kodak white label. Recrystal- lized twice and dried in air.	
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AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through an 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of solute gas plus solvent vapor is main tained at 1 atm as the gas is ab- sorbed. APPARATUS/PROCEDURE: The apparatus of Morrison and Billet	<pre>INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman Kodak white label. Distilled. 3. 1,4-Diiodobenzene. Eastman Kodak white label. Recrystal- lized twice and dried in air. ESTIMATED ERROR:</pre>	
AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through an 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of solute gas plus solvent vapor is main tained at 1 atm as the gas is ab- sorbed. APPARATUS/PROCEDURE: The apparatus is a modification of the apparatus of Morrison and Billett (1). The modifications include the	<pre>INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman Kodak white label. Distilled. 3. 1,4-Diiodobenzene. Eastman Kodak white label. Recrystal- lized twice and dried in air. ESTIMATED ERROR:</pre>	
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AUXILIARY METHOD: Volumetric. The solvent is satu- rated with gas as it flows through an 8 mm x 180 cm glass helix attached to a gas buret. The total pressure of solute gas plus solvent vapor is main tained at 1 atm as the gas is ab- sorbed. APPARATUS/PROCEDURE: The apparatus is a modification of the apparatus of Morrison and Billett (1). The modifications include the addition of a helical storage for the solvent, a manometer for a reference pressure, and an extra buret for	<pre>INFORMATION SOURCE AND PURITY OF MATERIALS: 1. Krypton. Linde Air Products Co. 2. 1,4-Dimethylbenzene. Eastman Kodak white label. Distilled. 3. 1,4-Diiodobenzene. Eastman Kodak white label. Recrystal- lized twice and dried in air. ESTIMATED ERROR:</pre>	
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	ODICINAL MEACUDENCENTES
COMPONENTS:	UKIGINAL MEASUREMENTS:
1. Krypton; Kr; 7439-90-9	Powell, R.J.
<pre>2. 1,1,2,2,3,3,4,4,4-nonafluoro-N, N-bis (nonafluorobuty1)-1- butanamine (Perfluorotributy1- amine); (C₄F₉)₃N; 311-89-7</pre>	<u>J. Chem. Eng. Data</u> 1972, <u>17</u> , 302-304.
VARIABLES:	PREPARED BY:
T/K: 298.15 P/kPa: 101.325 (1 atm)	P.L. Long
EXPERIMENTAL VALUES:	
T/K Mol Fraction Bunse Coeffic	$\begin{array}{llllllllllllllllllllllllllllllllllll$
$\underline{\qquad}$	ـــــــــــــــــــــــــــــــــــــ
298.15 11.15 0.70	18 0.773 -3.30
The author implies that solubility mea 318.15 K, but only the solubility at 2 slope $R(\Delta \log x_1/\Delta \log T)$ was given. The by the compiler from the slope in the	surements were made between 288.15 and 98.15 was given in the paper. The he smoothed data below were calculated form:
$\log x_1 = \log(11.15 \times 10^{-1})$	⁻³) + (-3.30/R) log(T/298.15)
with $R = 1.9872$ cal K^{-1} mol ⁻¹ .	
Smoothed Data: T/K M	101 Fraction
	$\frac{x_1 \times 10^{\circ}}{1}$
288.15 293.15 298.15 303.15 308.15 313.15 318.15	11.81 11.47 11.15 10.85 10.55 10.28 10.01
The Bunsen and Ostwald Coefficients we	ere calculated by the compiler.
AUXILIARY	INFORMATION
METHOD /APPARATUS/PROCEDURE:	SOURCE AND PURITY OF MATERIALS:
Solvent is degassed by freezing and pumping, then boiling under reduced pressure. The Dymond and Hildebrand (1) apparatus, with all glass pumping system, is used to spray slugs of de- gassed solvent into the krypton. Amount of gas dissolved is calculated from the initial and final gas pressure.	 Krypton. No source. Manu- facturer's research grade, dried over CaCl₂ before use. Perfluorotributylamine. Minnesota Mining & Mfg. Co. Column distilled, used portion with b.p. = 447.85 - 448.64K, & single peak GC.
	ESTIMATED ERROR: $\delta \text{ N /cal } \text{K}^{-1} \text{ mol}^{-1} = 0.1$ $\delta \text{X}_{1}/\text{X}_{1} = 0.002$
	REFERENCES: 1. Dymond, J.; Hildebrand, J.H. <u>Ind. Eng. Chem. Fundam</u> . 1967, <u>6</u> , 130.

COMPONENTS:		ORIGINAL MEASUREMENTS:	
1. Krypton; Kr; 7439-90-9		Notz, K. J.; Meservey, A. B.	
⁸⁵ Kr; 13983-27-2			
2. Carbon Dioxide; CO ₂ ; 124-38-9		ORNL-5121, June 1976 <u>Chem. Abstr</u> . 1977, 86, 61170c, 79549t	
VARIABLES:		DEEDADED DV.	
T/K: 223.15 - 301 15		TREFARED DI	
-,		H. L. Clever	
EXPERIMENTAL VALUES:			
T/K N	101 Fraction	Bunsen	Ostwald Coofficient
	$x_1 \times 10^3$	a	L
223.15	5.72	3.370	2.75
233.15	5.48	3.126	2.67
243.15	5.26	2.894	2.57
263.15	5.38	2.701	2.60
273.15	5.61	2.655	2.66
283.15	6.00	2.642	2.74
293.15	6.51	2.564	2.75
301.15	8.46	2.808	3.10
The mole fraction solubility at a krypton partial pressure of 101.325 kPa (1 atm) was calculated by the compiler. A smoothed data fit with thermodynamic values for the transfer of one mole of krypton from the gas at 101.325 kPa to the hypothetical unit mole frac- tion krypton liquid is on the next page. The mole fraction solubility value at 301.15 K was not included in the smoothed data fit. Another report (1) on this system gives values lower by a factor of 2. The results are thought to be in error because of a systematic sampling error.			
AUXILIARY INFORMATION			
METHOD:		SOURCE AND DUDT	TY OF MATERIALS.
Tracer technique. Coll counter with equilibrated samples. Krypton gas was 85 krypton and 95 per cent	imated gas-liquid 5 per cent stable Kr	1. Krypton. Labs. U Krypton-	Cryogenic Rare Gas ltra high purity grade. 85. Isotopes Div., ORNL.
The total pressure of the the equilibrium pressure o CO ₂ + the Kr pressure.	f liquid	2. Carbon d Inc. Re	ioxide. Matheson Co., search grade.
		ESTIMATED ERROR:	
ALTAKATUS/FROCEDURE:		$\delta L/L =$ less at	0.006 at 220 K, higher temperatures.
		<pre>L. Laser, M Beanjean Proc. 13 1974. CONF-740</pre>	.; Barnert-Wiemer, H.; , H.; Merz, E.; Vygen, H. th AEC Air Cleaning Conf., 807, <u>1</u> , 246-262.

COMPONENTS:	Nota K I Magaziou A P			
1. Krypton; Kr; /439-90-9	NOTZ, K.J.; Meservey, A. B.			
⁸⁵ Kr; 13983-27-2				
2 Carbon Diovide: $CO \cdot 124-38-9$	ORNL-5121 June 1976			
2. Carbon Bioxide, co_2 , $124-30-3$	Chem. Abstr. 1977. 86. 61170c.79548t.			
VARIABLES:	PREPARED BY:			
T/K: 223.15 - 301.15	A.L. Cramer H.L. Clever			
EXPERIMENTAL VALUES:				
Smoothed Data: ln X ₁ = 41.5327 - 65.4529/(T/100) - 67.2463 ln (T/100)				
$+ 16.4072 (\pi/100)$				
-2				
Std. error about regression line 5.429 x 10^{-3} .				
T/K Mol Fraction $AG^{O}/kJmol^{-1}$ AH^{O}	$/k \text{Jmol}^{-1} \text{AS}^{0} / \text{JK}^{-1} \text{mol}^{-1} \text{ACp}^{0} / \text{JK}^{-1} \text{mol}^{-1}$			
223.15 5.73 9.578	-2.416 -53.75 49.71			
	-1.782 -50.98 77.00			
253.15 5.26 11.04	+0.302 -42.43 131.6			
263.15 5.36 11.44	1.755 -36.81 158.8			
273.15 5.60 11.78	3.480 -30.38 186.1			
283.15 6.60 12.24	5.478 -23.20 213.4 7.748 -15.32 240.7			
298.15 6.99 12.30	8.986 -11.13 254.3			
The mol fraction solubility at 301.15	K was not used in the smoothed			
data fit.				
AUXILIARY INFORMATION				
METHOD:	SOURCE AND PURITY OF MATERIALS:			
See preceeding page.	See preceeding page.			
For Forestand Pager	the fractional function			
	ECTIVATED EDDOD.			
APPARATUS/PROCEDURE:	LOIIMAILU ERKUR:			
	See preceeding page.			
	REFERENCES:			
	See preceeding page			
	pee brececatud bade.			